SOFTWARE QUALITY RESEARCH LABORATORY, UNIVERSITY OF TENNESSEE

# Application of Hybrid Sequence-Based Specification to a Data Acquisition Processor

## Technical Report

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# Application of Hybrid Sequence-Based Specification to a Data Acquisition Processor

## Introduction

Reference [1] presents Hybrid Sequence-Based Specification (HSBS) as a rigorous specification method for embedded systems. This report describes application of the method to a data acquisition processor (DAP) that is part of a larger distributed system. The target DAP closely approximates that used in the Weigh-in-Motion (WIM) system described in [2].

## System Description

As shown in Figure 1, a complete WIM system consists of a Controller/Readout device, a Host Computer, and a set of data acquisition processors. The Controller/Readout device is typically a hand-held computer that provides the user interface for high level control and data display for the WIM system. The Host Computer coordinates operation of the DAPs and aggregates data for transmission to the user.

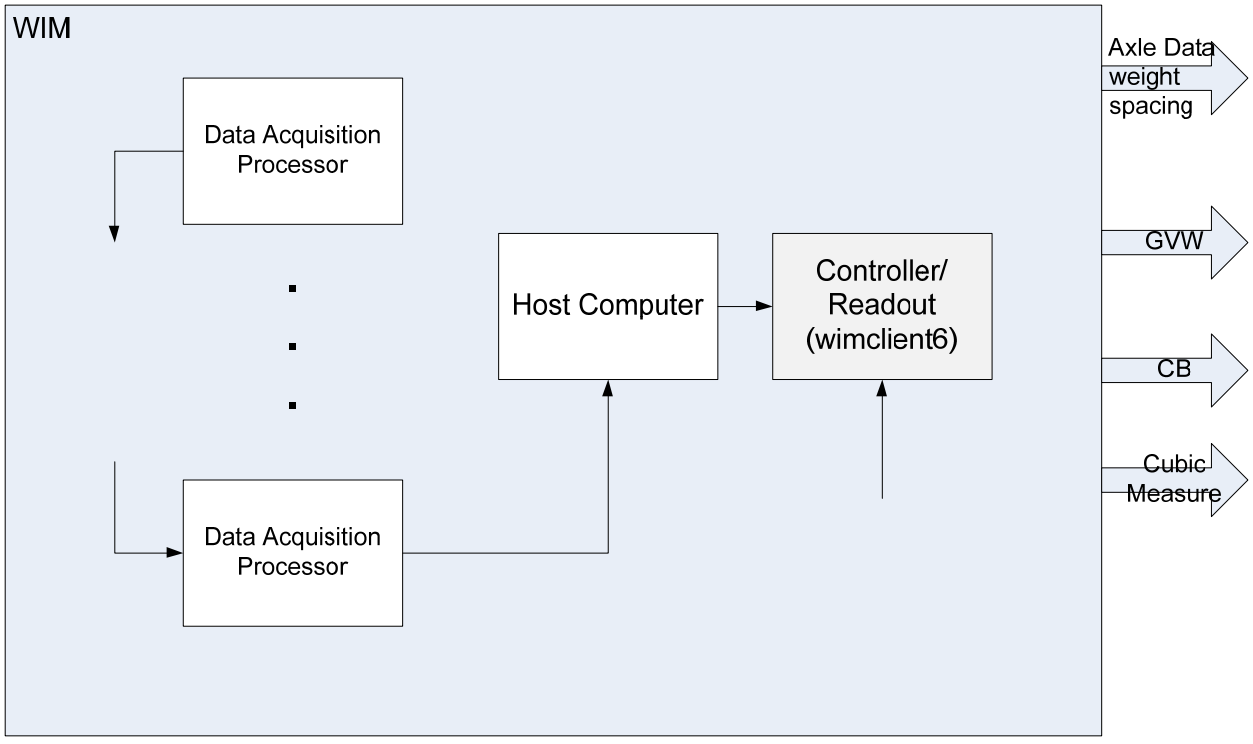


Figure 1: WIM System Diagram

Each DAP acquires and processes data from an individual load cell. The load cell senses the instantaneous weight borne by a wheel rolling over a pad in contact with the load cell. As indicated in Figure 2, a DAP performs real time monitoring of the analog weight signal and communicates asynchronously with the Host Computer. This combination of functions makes the DAP an excellent subject for (1) demonstrating application of and (2) evolving engineering practices for HSBS.

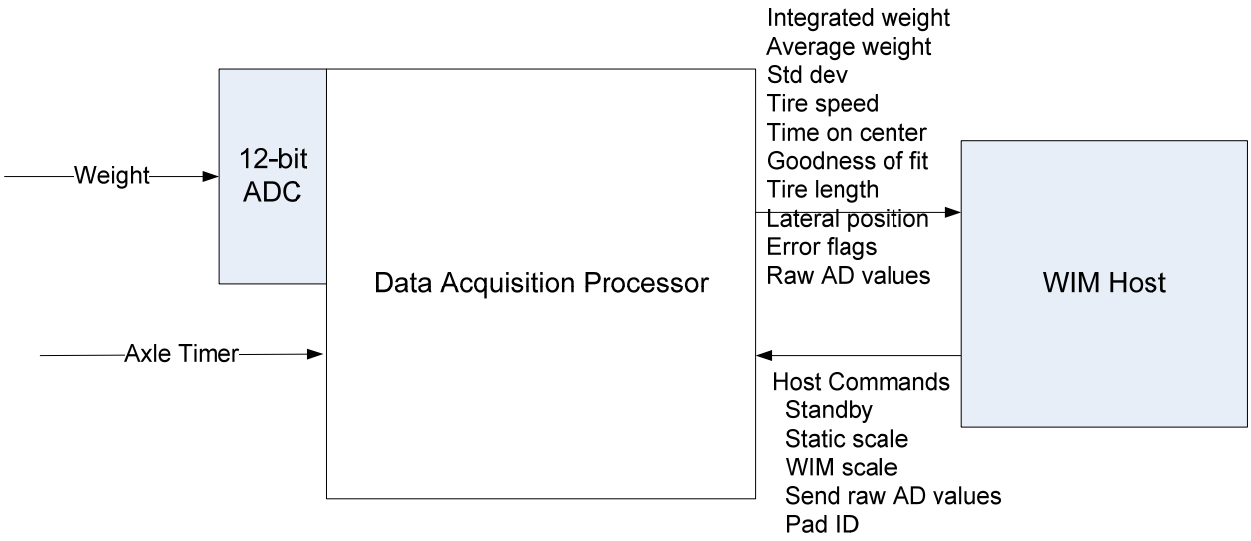


**Figure 2: Data Acquisition Processor (DAP) Data Flow**

## HSBS Overview

As described in [1], the HSBS method consists of the following tasks:

1. Declaration of discrete events and continuous signals
2. Initialization
3. Hybrid sequence enumeration
    a. Extension
    b. Trajectory definition
    c. Output definition
    d. Refinement
    e. Reduction
4. Hybrid automaton generation

Declaration of discrete events and continuous signals involves defining the following sets:

*U* = Continuous input signals
*I* = Discrete input events + *null*
*X* = Autonomous (internally generated) continuous state variables
*H* = Discrete autonomous (internal) events
*Y* = Continuous output signals
*O* = Discrete responses

The signals and state variables, *U*, *X*, and *Y*, are continuous in the time domain. The signals in *U* are uncontrollable by the specified system and are defined in terms of their respective sources and physically possible domains. Signals in *X* and *Y* are to be computed and/or generated by the specified system. Each signal in *X* and *Y* is defined functionally over a set of disjoint codomains. Within each codomain, signals in *Y* are defined by equations of the form, $y(t) = e$ or $\dot{y}(t) = e$. These two forms can also be used to define signals in *X* along with equations of the form, $x(t) = f\big(u(t)\big)$, where u(t) is any subset of the signals in U. Signals in *X*, defined by the latter form, are referred to as "surrogate signals" for the associated input signals.

In the initialization step, the initial definitions for each of the signals in X and Y are specified along with initial conditions for any of the signals specified by differential equations.

The hybrid sequence enumeration can be outlined as follows:

1. Beginning with the empty sequence, extend the current sequence by appending each stimulus in *I*.
2. Attempt to define the trajectories for all *X* and *Y* signals over their respective full codomains.
    a. If the trajectories are fully defined, extend the current sequence with an *action* composed of the current stimulus and a predicate describing the codomains of all *X* and *Y* signals.
    b. If the trajectories cannot be fully defined, refine the *X* and *Y* codomains by successive partitioning until trajectories can be defined for all signals in each of the resulting partitions of the continuous state space. Then extend the current sequence with actions composed of the current stimulus and the characteristic predicate for each of the continuous state space partitions produced by the refinement process.
3. For each of the newly extended sequences in 2,
    a. If the action sequence is impossible (based on the specified environment), mark the sequence as *illegal* and skip the remainder of this step.
    b. For any *X* and *Y* signal trajectories defined by differential equations, specify initial conditions associated with the current action.
    c. Specifiy any of the events in *H* and *O* to be activated as a result of the current action.
    d. Determine whether the current sequence is equivalent to any previous sequence. If so, record the equivalent sequence.

4. Repeat steps 1 through 3 for any sequences that are neither illegal nor equivalent to a previous sequence.
5. Continue the process in steps 1 through 4 until all sequences of a particular length are either illegal or equivalent to a previous sequence.

Once the hybrid enumeration is complete, the hybrid automaton can be generated via the following procedure:

1. Specify system modes associated with each sequence that was neither illegal nor equivalent to a previous sequence.
2. From the enumeration, record the following for each mode:
    a. The codomain and trajectory definition for each *X* and *Y* signal.
    b. Initial conditions of X and Y signals that are defined by differential equations.
    c. The set of actions (stimulus-predicate pairs) that extend the associated sequence in the enumeration.
    d. For each action,
        i. *H* and O events initiated.
        ii. The system mode following the action.

Since all the information needed is available from the enumeration, the hybrid automaton can be produced automatically.

## WIM DAP Requirements

Table 1 lists the WIM DAP functional requirements. Requirements 1 – 16 were the initial requirements based on [2] and correspondence with the WIM developers. Requirements 17D – 32D are *derived* requirements. That is, they are clarifications or additions to the initial requirements that were necessary to resolve questions that arose during the enumeration.

**Table 1: WIM DAP Requirements**

| Tag | Requirement |
|---|---|
| 1 | The Weight signal is sampled at 1000 samples/second. |
| 2 | The axle timer is restarted upon command from the host |
| 3 | If the axle timer reaches $t_{la}$ seconds, the most recent axle is assumed to be the last one and the timer is disabled and set to 0. |
| 4 | ADC failure is detected as one or more of the following:<br>• Standard deviation of a measurement = 0<br>• ADC output = 0<br>• ADC output = 4095 |
| 5 | ADC input is ignored if measured weight < 300 lbs |
| 6 | The DAP operates in 3 usage modes:<br>• Standby<br>• WIM scale<br>• Static scale |
| 7 | In Standby mode, the system is passive (all sensor input ignored) |

| Tag | Requirement |
|---|---|
| 8 | In WIM scale mode, the DAP initially waits to detect the first axle. |
| 9 | DAP and host time is resynchronized periodically (typically every 5 seconds) by a command from the host. |
| 10 | In Static scale mode, the DAP sends weight information periodically. |
| 11 | Integrated weight is a convolution integral between the tire pressure profile and the pad sensitivity profile. The pad sensitivity profile is a constant by design. So resultant weight is: Speed * Summation of all weight points while tire is in contact with the pad / length of pad (calibration constant). |
| 12 | For dynamic weight measurement, a threshold (~300 lbs) is used. For integrated weight the summation is a post trigger of this value. It goes far enough back in time to insure accumulations before tire touches pad and can include slight negative values as tire contacts edge of pad. For Average Weight, the summation is based on tire position in direction of travel: typ +/- 5” from center of pad. |
| 13 | For static weight measurement, a continuous stream of actual weight is transmitted to the Host. |
| 14 | Goodness of fit is computed as the average RMS of the difference between the actual fit and the data. |
| 15 | Length of Tire is computed as the contact distance between the leading and trailing edge of the tire. It is not used directly but reported to the Host. (It is for future use to determine low tire pressures and perhaps type of vehicle. It should be noted that almost all tire footprints are quite circular in nature.) |
| 16 | Lateral Tire Position is computed as the distance from the pad center to the tire center as calculated by the moment of the tire on the pad. |
| 17D | On startup, the DAP is in Standby mode with input weight set to 0 and the axle timer disabled. |
| 18D | ADC range is set as -0.5 to 4.5v, corresponding to -1500 to 13500 lbs. |
| 19D | When Send AD command is received , the DAP sends a stream of raw ADC values to the host. |
| 20D | Prior to the first restart the axle timer is disabled and set to 0. |
| 21D | If ADC failure is detected in Static Scale mode or WIM Scale mode, the BadAveWt message is sent. |
| 22D | When Send Pad ID command is received, the DAP transmits its ID to the host. |
| 23D | Axle timer restart is ignored for all modes except WIM scale mode. |
| 24D | In Standby mode, the weight history buffer is cleared. |
| 25D | If ADC failure is detected immediately upon switching to Static Scale mode or WIM Scale mode, the BadAveWt message is sent. |
| 26D | If the axle timer reaches $t_{la}$ seconds while no calculation is pending, the DAP mode is set to Standby; and AxleTimeOut is reported to the host. If the axle timer reaches $t_{la}$ seconds while a calculation is pending, the axle timer is disabled; and the DAP continues data acquisition until the current axle is processed. The next axle detected is then assumed to be a new vehicle. |
| 27D | Redundant mode change commands are ignored. |
| 28D | If the measured weight is above the threshold (~300 lbs.) and the DAP is not already in WIM scale mode when the WIM Scale Mode command is received, send a BadTooFast error and revert to static scale mode. |
| 29D | When weight goes below 300 lbs. after an axle has been detected, additional samples are acquired prior to performing the weight calculations until (a) P (> 0) seconds have elapsed according to a Post Trigger Timer or (b) the weight goes back above 300 lbs. In case (b), the Post Trigger Timer is disabled. |

| Tag | Requirement |
|---|---|
| 30D | If a mode change transition is caused while waiting for completion of the axle waveform (as described in 29D), perform the weight calculations before switching to the requested mode. |
| 31D | If the an ADC error is detected when an Axle Timer Reset command is received, while the axle timer is active, or while waiting for weight computation to complete after axle timer timeout (see 26D), the DAP reverts to Standby mode. |
| 32D | Timer reset and timer timeout cannot occur simultaneously for either the Last Axle Timer or the Post Trigger Timer. |

The following are some of the more significant requirements issues identified and resolved in the course of the enumeration:

- Handling of the Last Axle Timer (LAT) reset command when it is received while an axle is currently detected – resolved by requirement 26D.
- Axle detected while LAT is still counting – resolved by requirement 26D.
- Command to enter WIM scale mode received while weight > 300 – resolved by requirement 28D.
- Need for post-trigger to match pre-trigger – specified by requirement 29D.
- New axle detected before post-trigger expires – specified by requirement 29D.
- Mode change received while weight > 300 or before post-trigger expires – resolved by requirements 29D and 30D.
- LAT reset while it is counting – LAT count extended.
- Simultaneous timer reset and timeout – Declared illegal by requirement 32D.

Most of the requirements in Table 1` can be readily understood as straightforward stimulus/condition/response rules. However the combined implications of requirements 3, 11, 12, 23D, 25D, 26D, 28D, 29D, and 30D are best understood via a discussion of Figure 3.

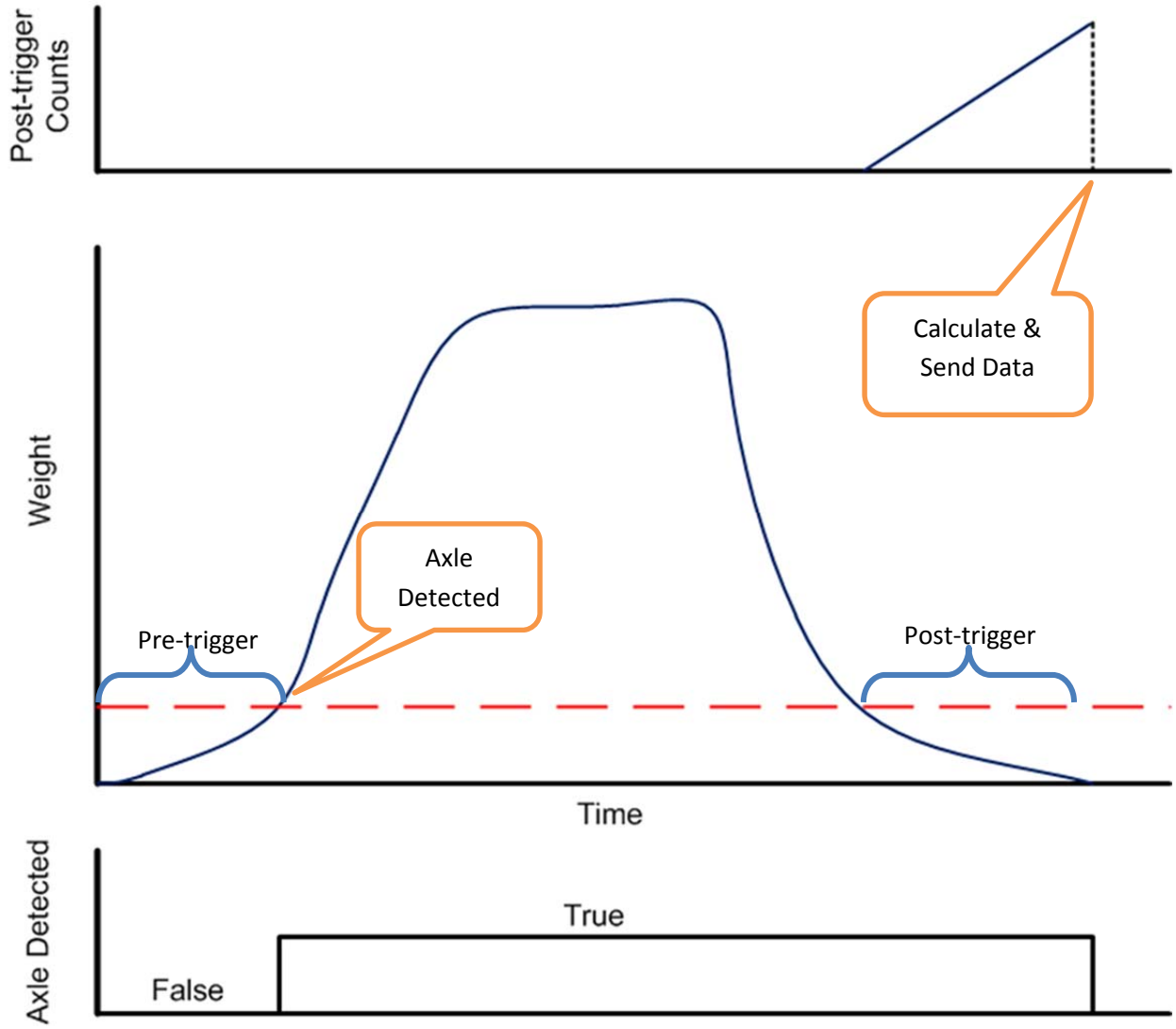


Figure 3: WIM DAP Signal Relationships

The primary function of the WIM DAP is to capture the weight waveform from which it can calculate the weight supported by the wheel rolling over a load cell. To capture the entire waveform, weight measurements are stored in an array sized to ensure collection of a complete waveform at the slowest expected vehicle speed. The presence of a wheel on the load cell is recognized when the weight exceeds a threshold indicated by the dashed line on the weight plot. The data set used in the weight calculation includes several samples prior to the threshold crossing, as indicated by the pre-trigger interval in the figure. The end of the data to be used in the calculation is determined by the weight falling below the detection threshold and timeout of a post-trigger timer.

## Declarations

Tables 2 – 7 are declarations of the signal and event sets defined above.

Table 2: Continuous Input (*U*)

| Name | Variable | Units | Description |
|---|---|---|---|
| raw weight | rw(t) | A/D counts | Weight signal from load cell |

Table 3: Autonomous Signals (*X*)

| Name | Variable | Units | Description |
|---|---|---|---|
| Converted weight | cwt(t) | lbs | Raw weight converted to lbs. |
| Last Axle Timer | lat(t) | sec | Timer to sense last axle |
| Weight history | wh(j) | lbs | Vector of last n values of cwt(t) up to N. wh(j) = cwt(t(i)), j = i mod N |
| Axle detected | ad(t) | {true, false} | Indicator that an axle has been detected by weight signal going from < lbs. to >300 lbs. |
| Post-trigger timer | pt(t) | sec | Timer to declare end of axle after weight signal goes from >300 lbs. to <300 lbs. |

Table 4: Continuous Output (*Y*)

| Name | Variable | Units | Description |
|---|---|---|---|
| Raw A/D | rad(t) | A/D counts | Raw A/D counts |
| Static weight | swt(t) | lbs | Stream of static weight values sent to host |

Table 5: Input Stimuli (*I*)

| Name | Variable | Description |
|---|---|---|
| null | null | Null stimulus |
| Standby | stb | Command to enter standby mode |
| Static Scale | ssc | Command to enter static scale mode |
| WIM Scale | wsc | Command to enter dynamic scale mode |
| Send raw | srw | Command to send raw A/D values |
| Pad ID | pid | Command to send pad ID |
| Last axle timer restart | atr | Restart last axel timer |

Table 6: Internal Events (*H*)

| Name | Variable | Description |
|---|---|---|
| Calc Start | tst | Weight calculation start time |

| | | |
|---|---|---|
| Calc End | tnd | Weight calculation end time |

Table 7: Discrete Responses (*O*)

| Name | Variable | Description |
|---|---|---|
| Integrated axle weight | iaw | Axle weight of a tire determined by a convolution integral of the instant the tire touches the pad until it leaves. |
| Average axle weight | aaw | Axle weight of a tire determined by the average of the weight when the tire is completely on the pad |
| Standard deviation | std | Standard deviation of weight relative to fit |
| Tire speed | tsp | Mean tire speed |
| Time on center | toc | Time when tire is on center of pad |
| Goodness of speed fit | gsf | RMS variation of measured speed to low order polynomial fit |
| Tire footprint length | tfl | Length of tire footprint on pad |
| Bad Avg Weight | baw | A/D input = 0 or 4095 |
| Axle timeout | ato | Axle timer timeout |
| Pad ID Msg | pim | Sending pad ID to host |
| Bad Too Fast | btf | WIM Scale mode entered with weight >= 300. |

## Enumeration

The complete WIM DAP enumeration is included in Appendix A. As described above, the enumeration is a set of mappings that associate action sequences with

- *X-Y* codomains, trajectories, and initial conditions,
- *H-O* discrete events, and
- Equivalent sequences.

The action sequence mappings are presented in a spreadsheet format. Each mapping is recorded in the format shown in Figure 4.

| *s-prefix* | *a* | | | | | | | HO | *event vec* | T | *equiv s-seq* | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *p-prefix* | | cwt(t) | *codomain* | T | cwt(t) | *signal def* | T | cwt(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | lat(t) | *codomain* | T | lat-dot(t) | *signal def* | T | lat(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | wh(j) | *codomain* | T | wh(j) | *signal def* | T | wh(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | ad(t) | *codomain* | T | ad(t) | *signal def* | T | ad(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | pt(t) | *codomain* | T | pt-dot(t) | *signal def* | T | pt(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | rad(t) | *codomain* | T | rad(t) | *signal def* | T | rad(0) | *init cond* | T | *equiv p-seq* | |
| *p-prefix* | | swt(t) | *codomain* | T | swt(t) | *signal def* | T | swt(0) | *init cond* | T | *equiv p-seq* | |

Figure 4: Mapping format used in enumeration

Cells labeled *s-prefix* and *p-prefix* give the action sequence prefix, where *s-prefix* is the sequence of discrete stimuli and *p-prefix* gives the corresponding sequence of codomain predicates for each respective signal. If all the *p-prefix* cells are empty, that implies that all the signals were defined over their full codomains for each action in the sequence.

The cell labeled *a* gives the discrete stimulus component of the current action. The third column lists the continuous signal functions, and the fourth column defines their respective codomains for the current action. Columns 6 and 7 give signal definitions for all the continuous signals within their respective codomains. Note that the "-dot" suffix added to a signal name implies that the signal is defined in terms of its first time derivative. Rows 2 through 8 of columns 9 and 10 give the initial conditions for all continuous signals. Although initial conditions are required only for signals defined by time derivatives, it is conventional to enter f(*last*) or 0 for other signals.

The cell labeled *event vec* gives the vector of discrete events activated. The possible event vector values are defined in Figure 5.The discrete events are the internal events and discrete responses in Tables 6 and 7.

| **Events** | **Event Vector Values** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | init | BadADC | SndPID | CalcStrt | AxTimeOut | BadTooFast | CalcEnd | BadADC_CalcEnd | AxTimeOut_CalcEnd |
| tst | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| tnd | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| iaw | null | null | null | null | null | null | computed | computed | computed |
| aaw | null | null | null | null | null | null | computed | computed | computed |
| std | null | null | null | null | null | null | computed | computed | computed |
| tsp | null | null | null | null | null | null | computed | computed | computed |
| toc | null | null | null | null | null | null | computed | computed | computed |
| gsf | null | null | null | null | null | null | computed | computed | computed |
| tfl | null | null | null | null | null | null | computed | computed | computed |
| baw | null | 1 | null | null | null | null | null | 1 | null |
| ato | null | null | null | null | 1 | null | null | null | 1 |
| pim | null | null | ID | null | null | null | null | null | null |
| btf | null | null | null | null | null | 1 | 0 | 0 | 0 |

**Figure 5: Event Vector Definitions**

Cells labeled *equiv s-seq* and *equiv p-seq* in Figure 4 give the earliest action sequence to which the current sequence (prefix + current action) is equivalent. The *equiv s-seq* cell is the sequence of discrete stimuli, and each *equiv p-seq* is the corresponding sequence of codomain predicates for each respective continuous signal. Note that *canonical sequences* (those not equivalent to a prior sequence) are shown as equivalent to themselves in Appendix A.

Cells labeled with *T* contain tags from Table 1 to indicate requirements traces. Each trace applies to the data in the cell to its immediate left.

The mappings in Appendix A are color-coded as follows to help readers follow the process:

Green - Canonical sequences

Yellow - Sequences equivalent to prior sequences

Blue - Invariant sequences, where the *null* discrete stimulus causes no output or state change

White - Working areas for intermediate refinement steps

Red - Illegal sequences

A graphical overview of the enumeration is shown in Appendix B. In the graph, each mapping is represented by a node colored to match the corresponding mapping in Appendix A, except that codomain refinement steps are represented by black nodes. Sequence extensions are represented by dashed lines lableled with the discrete stimulus. Results of codomain refinement steps are indicated by solid lines labeled with the applicable predicate.

## Enumeration Hybrid Automaton

Once the enumeration is complete, it can be systematically transformed to an Enumeration Hybrid Automaton (EHA) to provide a specification suitable for implementation. Figure 6 shows a single action sequence mapping from the enumeration, annotated to show the information extracted to create the EHA.

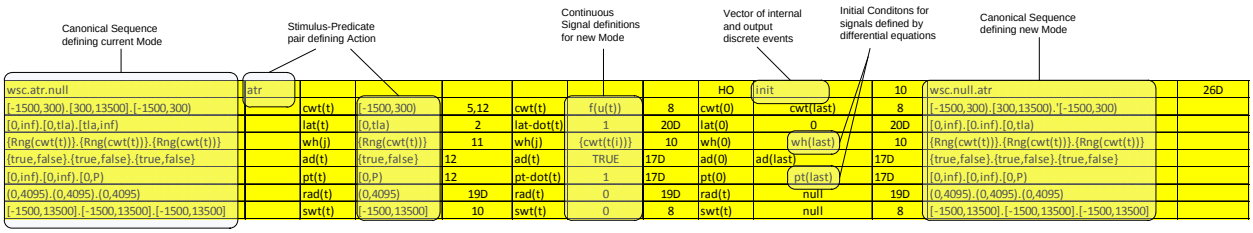


**Figure 6: Information extracted from enumeration to generate EHA.**

The transformation is a restructuring of the the information contained in the enumeration via the following procedure:

For each canonical sequence, assign a mode identifier and do the following:

1. Record the signal definitions for internal and output continuous signals.
2. Record the initial conditions for signals defined by differential equations in time.
3. For each action (stimulus-predicate pair) enumerated for the mode,
    a) Record internal and output discrete events generated;
    b) Record resulting mode.

Table 8 shows the modes discovered in the WIM DAP enumeration, and Table 9 shows the response (discrete events generated) and destination mode for all actions in the enumeration.

**Table 8: WIM Modes from Enumeration**

| Tag | cwt(t) | lat-dot(t) | wh(j) | ad(t) | pt-dot(t) | rad(t) | swt(t) | lat(0) | pt(0) | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.0.0 | 0 | 0 | {0, …} | FALSE | 0 | 0 | 0 | 0 | 0 | Not active or Standby |
| 1.3.1 | f(u(t)) | 0 | {cwt(t(i))} | FALSE | 0 | 0 | cwt(t) | 0 | 0 | Static Scale Mode |
| 1.3.2 | 0 | 0 | {cwt(t(i))} | FALSE | 0 | 0 | 0 | 0 | 0 | Bad ADC in Static Scale Model |
| 1.4.1 | f(u(t)) | 0 | {cwt(t(i))} | FALSE | 0 | 0 | 0 | 0 | 0 | WIM Scale Mode, No Calc Pending |
| 1.4.2 | 0 | 0 | {cwt(t(i))} | FALSE | 0 | 0 | 0 | 0 | 0 | Bad ADC in WIM Scale Mode |
| 1.5.0 | f(u(t)) | 0 | {cwt(t(i))} | FALSE | 0 | u(t) | 0 | 0 | 0 | Send Raw Mode |
| 2.1.2 | f(u(t)) | 0 | {cwt(t(i))} | TRUE | 0 | 0 | 0 | 0 | 0 | Precalc Acqusition |
| 2.7.1 | f(u(t)) | 1 | {cwt(t(i))} | TRUE | 0 | 0 | 0 | lat(last) | 0 | Precalc Acqusition w/ LAT Counting |
| 2.7.2 | f(u(t)) | 1 | {cwt(t(i))} | FALSE | 0 | 0 | 0 | lat(last) | 0 | LAT Counting w/ No Calc Pending |
| 3.1.1 | f(u(t)) | 0 | {cwt(t(i))} | TRUE | 1 | 0 | 0 | 0 | pt(last) | In Post-Trigger |
| 3.1.2 | f(u(t)) | 0 | {cwt(t(i))} | TRUE | 0 | 0 | 0 | 0 | 0 | Precalc Acquisition w/ LAT Timed Out |
| 3.1.3 | f(u(t)) | 0 | {cwt(t(i))} | TRUE | 1 | 0 | 0 | 0 | pt(last) | In Post-Trigger w/ LAT Timed Out |
| 3.7.1 | f(u(t)) | 1 | {cwt(t(i))} | TRUE | 1 | 0 | 0 | lat(last) | pt(last) | In Post-Trigger w/ LAT Counting |

**Table 9: EHA Responses and Mode Transitions**

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| 0.0.0 | null | | init | 0.0.0 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | BadTooFast | 1.3.1 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 0.0.0 |
| | atr | | init | 0.0.0 |
| 1.3.1 | null | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | stb | | init | 0.0.0 |
| | ssc | | init | 1.3.1 |
| | wsc | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | BadTooFast | 1.3.1 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 1.3.1 |
| | atr | | init | 1.3.1 |
| 1.3.2 | null | rad(t) ∈ {0, 4095} | init | 1.3.2 |
| | | rad(t) = (0,4095) | init | 1.3.1 |
| | stb | | init | 0.0.0 |
| | ssc | | init | 1.3.2 |
| | wsc | rad(t) ∈ {0, 4095} | init | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | Init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | BadTooFast | 1.3.1 |

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 1.3.2 |
| | atr | | init | 1.3.2 |
| 1.4.1 | null | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | CalcStart | 2.1.2 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 1.4.1 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 1.4.1 |
| | atr | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) ∧ lat(t) = (tla, inf) | | illegal |
| | | rad(t) = (0,4095) ∧ lat(t)= [0, tla) ∧ cwt(t) = [300,13500] | CalcStart | 2.7.1 |
| | | rad(t) = (0,4095) ∧ lat(t)= [0, tla) ∧ cwt(t) = [-1500,300) | init | 2.7.2 |
| 1.4.2 | null | rad(t) ∈ {0, 4095} | init | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | BadTooFast | 1.3.1 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 1.4.2 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 1.4.2 |
| | atr | rad(t) ∈ {0, 4095} | init | 0.0.0 |
| | | rad(t) = (0,4095) ∧ lat(t) = [tla, inf) | | illegal |
| | | rad(t) = (0,4095) ∧ lat(t)= [0, tla) ∧ cwt(t) = [300,13500] | BadToofast | 1.3.1 |
| | | rad(t) = (0,4095) ∧ lat(t)= [0, tla) ∧ cwt(t) = [-1500,300) | init | 2.7.2 |
| 1.5.0 | null | | init | 1.5.0 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [-1500,300) | init | 1.4.1 |
| | | rad(t) = (0,4095) ∧ cwt(t) = [300,13500] | BadTooFast | 1.3.1 |

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 1.5.0 |
| | atr | | init | 1.5.0 |
| 2.1.2 | null | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] | init | 2.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.1.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | | illegal |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 2.1.2 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 2.1.2 |
| | atr | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = [tla, inf) | | illegal |
| | | rad(t) = (0,4095) Λ lat(t) = [0, tla) Λ cwt(t) = [300,13500] | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ lat(t) = [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t) = [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 2.7.2 |
| 2.7.1 | null | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [0, tla) | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [tla, inf] | AxTimeOut | 3.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) Λ pt(t) = [P, inf] | | illegal |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] Λ pt(t) = [P, inf] | | illegal |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] Λ pt(t) = [0, P) | AxTimeOut | 3.1.3 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 2.7.1 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 2.7.1 |

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| | atr | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = (tla, inf) | | illegal |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [300,13500] | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ lat(t) = [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t) = [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | | illegal |
| 2.7.2 | null | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [0, tla) | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [tla, inf] | AxTimeOut | 3.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) | init | 2.7.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] | AxTimeOut | 0.0.0 |
| | stb | | init | 0.0.0 |
| | ssc | rad(t) = (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 2.7.2 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 2.7.2 |
| | atr | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [0, tla) | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [tla, inf] | | illegal |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) | init | 2.7.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] | | illegal |
| 3.1.1 | null | rad(t) = {0, 4095} | BadADC_CalcEnd | 1.4.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] | CalcEnd | 2.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.1.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 1.4.1 |
| | stb | | CalcEnd | 0.0.0 |
| | ssc | rad(t) = (0,4095) | CalcEnd | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 1.3.2 |
| | wsc | | init | 3.1.1 |
| | srw | | CalcEnd | 1.5.0 |

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| | pid | | SndPID | 3.1.1 |
| | atr | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = (tla, inf] | | illegal |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [300,13500] | CalcEnd | 2.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 2.7.2 |
| 3.7.1 | null | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 0.0.0 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [0, tla) | CalcEnd | 2.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] Λ lat(t) = [tla, inf] | AxTimeOut_CalcEnd | 3.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [0, tla) Λ pt(t) = [P, inf] | CalcEnd | 2.7.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] Λ pt(t) = [0, P) | AxTimeOut | 3.1.3 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ lat(t) = [tla, inf] Λ pt(t) = [P, inf] | AxTimeOut_CalcEnd | 0.0.0 |
| | stb | | CalcEnd | 0.0.0 |
| | ssc | rad(t) = (0,4095) | CalcEnd | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 1.3.2 |
| | wsc | | init | 3.7.1 |
| | srw | | CalcEnd | 1.5.0 |
| | pid | | SndPID | 3.7.1 |
| | atr | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = (tla, inf] | | illegal |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [300,13500] | CalcEnd | 3.1.2 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 2.7.2 |
| 3.1.2 | null | rad(t) ∈ {0, 4095} | BadADC | 1.4.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] | init | 3.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.1.3 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | | illegal |
| | stb | | init | 0.0.0 |

| Mode | Stimulus | Predicate | HO Vectors (see Figure 5) | New Mode |
|---|---|---|---|---|
| | ssc | rad(t) ∈ (0,4095) | init | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC | 1.3.2 |
| | wsc | | init | 3.1.2 |
| | srw | | init | 1.5.0 |
| | pid | | SndPID | 3.1.2 |
| | atr | rad(t) ∈ {0, 4095} | BadADC | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = [tla, inf] | | illegal |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [300,13500] | init | 2.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | | illegal |
| 3.1.3 | null | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 0.0.0 |
| | | rad(t) = (0,4095) Λ cwt(t) = [300,13500] | CalcEnd | 2.1.2 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.1.3 |
| | | rad(t) = (0,4095) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 1.4.1 |
| | stb | | CalcEnd | 0.0.0 |
| | ssc | rad(t) = (0,4095) | CalcEnd | 1.3.1 |
| | | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 1.3.2 |
| | wsc | | init | 3.1.3 |
| | srw | | CalcEnd | 1.5.0 |
| | pid | | SndPID | 3.1.3 |
| | atr | rad(t) ∈ {0, 4095} | BadADC_CalcEnd | 0.0.0 |
| | | rad(t) = (0,4095) Λ lat(t) = (tla, inf] | | illegal |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [300,13500] | CalcEnd | 2.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [0, P) | init | 3.7.1 |
| | | rad(t) = (0,4095) Λ lat(t)= [0, tla) Λ cwt(t) = [-1500,300) Λ pt(t) = [P, inf) | CalcEnd | 2.7.2 |

# Conclusion

This report describes application of Hybrid Sequence-Based Specification (HSBS) to software design for the data acquisition processor (DAP) component of a Weigh-in-Motion system. The report provides a practical example of the HSBS method defined in [1]. The method consists of four fundamental steps:

1. Parameter Declaration
2. Initialization

3. Hybrid Sequence Enumeration
4. Enumeration Hybrid Automaton Generation

Each of these steps is demonstrated as a combination of familiar engineering analysis activities and/or rote procedures. In the course of applying HSBS, ambiguities and omissions in the original requirements are identified and resolved. The result is a systematic approach for producing a complete, consistent, and traceably correct system specification that explicitly captures continuous time varying behavior, as well as discrete event handling.

## Future Work

As stated above and in [1], the EHA constitutes a complete and consistent specification for implementation of the WIM DAP. While the specification is applicable to a variety of programming environments, there is particular interest in environments or frameworks that are sufficiently well defined to allow automated implementation of a mathematically rigorous specification. Two such programming frameworks are MatLab™ Simulink™ and StateFlow™. The next step in this project will be to demonstrate automatic implementation of the EHA in Simulink™ and StateFlow™.

## References


1. J. Carter, *Sequence-Based Specification of Embedded Systems*, Ph.D. Dissertation, The University of Tennessee, December 2009.
2. *Weigh-in-Motion, Cube Management, and Marking User Manual*, Oak Ridge National Laboratory, Version 0.8.2, May 4, 2006.

# Appendix A

*WIM DAP Hybrid Sequence Enumeration*

| Prefix Sequence | Stimulus | Characteristic Predicates | | | Trajectory Definition | | | Condition Vector | | | Equivalent Sequence | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I | Var | Codomain | Reqs | ctory Defir | Exp | Reqs | Var | Exp | Reqs | Sequence | Reqs | |
| lambda | | | | | | | | HO | init | method | lambda | method | Initialization |
| | | cwt(t) | = 0 | 17D | cwt(t) | = 0 | 17D | cwt(0) | = 0 | 17D | | | **0** |
| | | lat(t) | = 0 | 17D | lat-dot(t) | = 0 | 17D | lat(0) | = 0 | 17D | | | |
| | | wh(t) | empty | 17D | wh(t) | {0, ...} | 17D | wh(0) | empty | 17D | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | =0 | 12 | pt-dot(t) | =0 | 17D | pt(0) | =0 | 17D | | | |
| | | rad(t) | = 0 | 17D | rad(t) | = 0 | 17D | rad(t) | null | 17D | | | |
| | | swt(t) | = 0 | 17D | swt(t) | = 0 | 17D | swt(t) | null | 17D | | | |
| **Begin length 1** | | | | | | | | | | | | | |
| lambda | null | | | | | | | HO | init | method | lambda | method | Invariant |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 17D | cwt(0) | 0 | 17D | | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 17D | lat(0) | = 0 | 17D | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 17D | wh(0) | {0, ...} | 17D | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 17D | rad(t) | null | 17D | | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 17D | swt(t) | null | 17D | | | |
| lambda | stb | | | | | | | HO | init | 7 | lambda | 7, 17D | Equivalent to lambda DAP initializes in standby mode. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | | |
| lambda | ssc | | | | | | | HO | init | 10 | ssc | 10 | Static scale mode. Raw A/D codomain must be partitioned to account for A/D failure. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | | | |
| lambda | ssc | | | | | | | HO | init | 10 | ssc | 10 | Normal static scale mode. |
| | | cwt(t) | [-1500,**13500]** | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,**13500]** | | **CS: 1.3.1** |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | (0,4095) | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |
| lambda | ssc | | | | | | | HO | BadADC | 4 | ssc | 10,4 | Static scale mode with A/D failure. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | CS: **1.3.2** |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | {0, 4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | | |
| lambda | wsc | | | | | | | HO | init | 10 | wsc | 8 | Enter WIM scale mode. Converted weight signal codomain must be partitioned to allow recognition of wheel on sensor and A/D failure. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | wsc | | | | | | | HO | BadADC | 10 | wsc | 8 | WIM scale mode with A/D failure. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | CS: **1.4.2** |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | {0, 4095} | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | {0, 4095} | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | wsc | | | | | | | HO | init | 10 | wsc | 8 | WIM scale mode without A/D failure. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | (0, 4095) | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | (0, 4095) | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | wsc | | | | | | | HO | BadTooFast | 28D | ssc | 28D | Entered WIM Scale mode with Weight ≥ 300 |
| | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | swt(last) | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | wsc | | | | | | | HO | init | 10 | wsc | 8 | Normal WIM scale mode. Weight < 300. |
| | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | **CS: 1.4.1** |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | srw | | | | | | | HO | init | 10 | srw | 19D | Sending raw data. Ignore ADC failures. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | **CS: 1.5.0** |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | pid | | | | | | | HO | SndPID | 22D | lambda | 22D | Command to send Pad ID. |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | | |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| lambda | atr | | | | | | | HO | init | 7 | lambda | 23D | Command to start axel timer. Ignored if not |
| | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | | in WIM scale mode. |
| | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | 0 | 7 | | | |
| | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | | |
| | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | | |
| | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | | |

**Begin Length 2**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | init | 10 | | | Extending 1.3.1 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | | | Null extension to normal static scale mode. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | init | 10 | ssc | 10 | For good ADC, null extension to normal |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | static scale mode is invariant. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | BadADC | 4 | ssc | 10,4 | Equivalent to 1.3.2 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | Null extension to normal static scale mode |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | with bad ADC. |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | stb | | | | | | | HO | init | 7 | lambda | 7, 17D, 24D | Command to go to standby mode. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | | Equivalent to lambda. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7, 24D | wh(0) | {0, ...} | 7, 24D | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | ssc | | | | | | | HO | init | 10 | ssc | 10, 27D | Receive static scale mode command while in |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | static scale mode. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | | | WIM scale command received. Calculated |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight signal codomain needs to be |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | partitioned as above. |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | BadADC | 10 | wsc | 8 | Equivalent to 1.4.2 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | WIM scale mode with A/D failure. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | {0, 4095} | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | wsc | 8 | WIM scale mode without A/D failure. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | (0, 4095) | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | (0, 4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | BadTooFast | 28D | ssc | 28D | Entered WIM Scale mode with Weight ≥ 300 |
| [-1500,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | wsc | 8 | Normal WIM scale mode. Weight < 300. |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | Equivalent to 1.4.1 |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | srw | | | | | | | HO | init | 10 | srw | 19D | Go to Send Raw mode. Equivalent to above |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | with same predicate. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | pid | | | | | | | HO | SndPID | 10 | ssc | 22D | Send pad ID. Equivalent to above with same |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | predicate. |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | atr | | | | | | | HO | init | 10 | ssc | 23D | Restart axle timer. Ignored as above. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | Init | 4 | ssc | 10,4 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | [0, 4095] | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | Init | 4 | ssc | 10,4 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0, 4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | null | | | | | | | HO | Init | 4 | ssc | 10 | Equivalent to 1.3.1 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | {0, 4095) | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 21D | swt(t) | null | 21D | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | | |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | wsc | 8 | WIM scale mode with A/D failure. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | {0, 4095} | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | wsc | 8 | WIM scale mode without A/D failure. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | (0, 4095) | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | (0, 4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | BadTooFast | 28D | ssc | 28D | Entered WIM Scale mode with Weight ≥ 300 |
| [-1500,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | wsc | | | | | | | HO | init | 10 | wsc | 8 | Normal WIM scale mode. Weight < 300. |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | srw | | | | | | | HO | Init | 10 | srw | 21D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0,4095} | 21D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | |
| [-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | pid | | | | | | | HO | SndPID | 22D | ssc | 22D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0, 4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | atr | | | | | | | HO | init | 7 | ssc | 23D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0, 4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | | | Extend 1.4.1 |
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | BadADC | 10 | wsc | 8 | ADC Failure |
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | | | Good ADC |
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | wsc | 12 | Good ADC & Weight < 300 & ad = false |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | CalcStart | 10 | wsc.null | 12 | Good ADC & weight >= 300 & ad = true |
| [-1500,300) | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | | **CS: 2.1.2** |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | stb | | | | | | | HO | init | 7 | lambda | 7, 17D |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | init | 10 | | |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | init | 10 | ssc | 10 |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,**13500]** | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | init | 10 | ssc | 10 |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | 0 | 10 | cwt(0) | 0 | 10 | [-1500,**13500]** | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0,4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | wsc | | | | | | | HO | init | 10 | wsc | 27D |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | srw | | | | | | | HO | init | 10 | srw | 19D |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | pid | | | | | | | HO | SndPID | 22D | wsc | 8 |
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| wsc | atr | | | | | | | HO | init | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| wsc | atr | | | | | | | HO | BadADC | 4 | lambda | 4, 8, 21D | Bad ADC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Revert to Standby |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | init | 10 | | | Timer resets and begins count regardless of its current value. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | init | 10 | Illegal | 26D | Illegal codomain for lat(t) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 2 | lat(0) | 0 | 2 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | init | 10 | | | Timer resets and begins count regardless of its current value. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | lat(last) | 2 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | CalcStrt | 10 | wsc.atr | 2,3 | Timer resets and begins count simultaneous with transition above 300 lbs. **CS: 2.7.1** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | lat(last) | 2 | [0,inf).[0,tla) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| wsc | atr | | | | | | | HO | init | 10 | wsc.atr | 2, 3 | ad(t) = false (pre-CalcStart) & lat(t) counting **CS: 2.7.2** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | lat(last) | 2 | [0,inf).[0,tla) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | | |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

Extend 1.4.2

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | wsc | method |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 21D | cwt(0) | 0 | 21D | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0,4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | | |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

Good ADC

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | init | 10 | wsc | 12 |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true, false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

Good ADC & Weight < 300

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | null | | | | | | | HO | BadTooFast | 10 | ssc | 10, 28D |
| [-1500,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {false,true} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

equivalent to **1.3.1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | stb | | | | | | | HO | init | 7 | lambda | 7, 17D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | init | 10 | | |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | init | 10 | ssc | 10 |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,**13500]** | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | ssc | | | | | | | HO | BadADC | 10, 25D | ssc | 10 |
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,**13500]** | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0,4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | wsc | | | | | | | HO | init | 10 | wsc | 27D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | srw | | | | | | | HO | init | 10 | srw | 19D |
| [-1500,13500] | | cwt(t) | [-15000,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | pid | | | | | | | HO | SndPID | 22D | wsc | 22D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| {0, 4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | atr | | | | | | | HO | init | 10 | | |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0,4095} | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc | atr | | | | | | | HO | init | 4 | lambda | 31D | Bad ADC still |
| [-1500,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | 0 | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| {0,4095} | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | init | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0,4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| wsc | atr | | | | | | | HO | init | 10 | Illegal | 3 | LAT timeout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| {0,4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc | atr | | | | | | | HO | init | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | ad(last) | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| {0,4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| wsc | atr | | | | | | | HO | BadTooFast | 10 | ssc | 10, 28D | Equivalent to 1.3.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500) | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0,4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| wsc | atr | | | | | | | HO | init | 10 | wsc.atr | 2, 3 | Equivalent to 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | |
| [0,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 2 | lat(0) | 0 | 2 | [0,inf).[0,tla) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| {0,4095} | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| srw | null | | | | | | | HO | init | 10 | srw | 19D | Sending raw data |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | extends 1.5.0 |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| 0 | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

| srw | stb | | | | | | | HO | init | 7 | lambda | 7, 17D | Go to standby mode |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 7 | cwt(0) | 0 | 7 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 7 | lat(0) | = 0 | 7 | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 7 | wh(0) | {0, ...} | 7 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 7 | rad(t) | null | 7 | | | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 7 | swt(t) | null | 7 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | ssc | | | | | | | HO | init | 10 | | | Go to Static Scale Mode |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| 0 | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | ssc | | | | | | | HO | init | 10 | ssc | 10 | Equivalent to 1.3.1 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | (0, 4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 7 | swt(t) | swt(last) | 7 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ssc | ssc | | | | | | | HO | BadADC | 4 | ssc | 10,4 | Equivalent to 1.3.2 |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 10 | cwt(0) | cwt(last) | 10 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| {0, 4095} | | rad(t) | {0, 4095} | 4 | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 21D | swt(t) | null | 21D | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | wsc | | | | | | | HO | init | 10 | | | Go to WIM Scale Mode |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| 0 | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | wsc | | | | | | | HO | BadADC | 10 | wsc | 8 | Enter WIM scale mode with A/D failure. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| [0,4095] | | rad(t) | {0, 4095} | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | {0, 4095} | | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | wsc | | | | | | | HO | init | 10 | wsc | 8 | WIM scale mode without A/D failure. |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| [0,4095] | | rad(t) | (0, 4095) | 21D | rad(t) | 0 | 21D | rad(t) | null | 19D | (0, 4095) | | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | wsc | | | | | | | HO | BadTooFast | 28D | ssc | 28D | Entered WIM Scale mode with Weight ≥ 300; issue BadToofast and revert to static scale |
| [-1500,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| [0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | wsc | | | | | | | HO | init | 10 | wsc | 8 | Normal WIM scale mode. Weight < 300. |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| [0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | srw | | | | | | | HO | init | 10 | srw | 19D | Redundant mode change command |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| 0 | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | pid | | | | | | | HO | SndPID | 10 | srw | 22D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| srw | atr | | | | | | | HO | init | 10 | srw | 23D |
| [-1500,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | |
| [0,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| [0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | |
| 0 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | |

**Begin length 3**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | Bad ADC | 10 | wsc | 8 | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | Bad ADC; equivalent to 1.4.2 |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | [0, 4095} | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | wsc.null | 12 | Extending 2.1.2 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500) | | cwt(t) | [300,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | | Good ADC & weight >= 300 |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC & weight < 300 & ad(t) = true |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | wsc.null.null | 12, 29D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).[-1500,300] | | Good ADC & weight < 300 & ad(t) = true & |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0.inf) | | pt(t) = [0,P) |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | **CS: 3.1.1** |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | p(0) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | null | | | | | | | HO | init | 10 | illegal | 29D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC & weight < 300 & ad(t) = true & |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | pt(P,inf) |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Cannot go directly from timer off to >= P |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | (P,inf) | 12 | | | | | | | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | stb | | | | | | | HO | init | 10 | lambda | 7, 17D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | ssc | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | ssc | | | | | | | HO | init | 10 | ssc | 10, 30D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.3.1 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | ssc | | | | | | | HO | BadADC | 10 | ssc | 10,4, 30D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | Bad ADC |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | Equivalent to 1.3.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | wsc | | | | | | | HO | init | 10 | wsc.null | 27D | Redundant mode command |
| [-1500,300).[300,13500) | | cwt(t) | [300,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf) | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | srw | | | | | | | HO | init | 10 | srw | 19D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | Equivalent to 1.5.0 |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | null | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | pid | | | | | | | HO | SndPID | 10 | wsc.null | 22D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | BadADC | 10 | lambda | 31D | Extending 2.1.2; Bad ADC |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | illegal | 3, 26D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | Axle timer timeout and reset cannot be |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | simultaneous |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | weight ≥ 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | wsc.atr | 2,3,28D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | weight ≥ 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Axle Timer counting |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | Equivalent to 2.7.1 |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | | | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300] | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Axle trigger counting |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | Post trigger counting |
| [0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(0) | 17D | [0,inf).[0,inf).[0,P) | | CS: 3.7.1 |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2, 3 | Extending 2.1.2 |
| [-1500,300).[300,13500) | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Good ADC |
| [0,inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Axle timer counting |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false}.{true,false} | | Post trigger timed out |
| [0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | Equivalent to 2.7.2 |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | BadADC | 10 | lambda | 31D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight >= 300 |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | wsc.atr | 3 | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | weight >= 300 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | Axle timer still active |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | wsc.atr.null | 26D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | weight >= 300 |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | Axle timer timed out |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | **CS: 3.1.2** |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0.inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post-trigger reset & counting |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | Equivalent to 3.7.1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | illegal | 29D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Post trigger cannot immediately timeout |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | Axle timer timed out |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | wsc.atr.null | 26D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300] | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | Axle timer timed out |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger starts |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | **CS: 3.1.3** |
| [0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | illegal | 29D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | Axle timer timed out |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Post trigger cannot immediately timeout |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | stb | | | | | | | HO | init | 10 | lambda | 17D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | ssc | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | ssc | | | | | | | HO | BadADC | 10 | ssc | 10,4 | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | Equivalent to 1.3.2 |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | ssc | | | | | | | HO | init | 10 | ssc | 10 | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | Equivalent to 1.3.1 |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | swt(last) | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | wsc | | | | | | | HO | init | 10 | wsc.atr | 27D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | srw | | | | | | | HO | init | 10 | srw | 19D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | pid | | | | | | | HO | SndPID | 10 | wsc.atr | 22D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | BadADC | 10 | lambda | 31D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | illegal | 2 | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | wsc.atr | 2,3 | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Equivalent to 2.7.1 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | illegal | 29D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extend 2.7.1 |
| [-1500,300).[300,13500] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300] | | Equivalent to 3.7.1 |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | null | | | | | | | HO | init | 10 | | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| wsc.atr | null | | | | | | | HO | BadADC | 10 | lambda | 31D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC; go to Standby |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | null | | | | | | | HO | init | 10 | wsc.atr | 2,3,28D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Axle timer still counting |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.1 |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | wsc.atr.null | 26D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Axle timer timed out |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | Equivalent to 3.1.2 |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf] | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| wsc.atr | null | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | null | | | | | | | HO | init | 10 | wsc.atr | 2 | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Axle timer still counting |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | Equivalent to 2.7.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| wsc.atr | null | | | | | | | HO | AxTimeOut | 10 | lambda | 3, 26D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Axle timer timeout |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | Go to Standby |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | stb | | | | | | | HO | init | 10 | lambda | 7,17D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | ssc | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.atr | ssc | | | | | | | HO | init | 10 | ssc | 10 | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | swt(last) | 8 | [-1500,13500] | | |

| wsc.atr | ssc | | | | | | | HO | BadADC | 10 | ssc | 10,4 | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| wsc.atr | wsc | | | | | | | HO | init | 10 | wsc.atr | 27D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| wsc.atr | srw | | | | | | | HO | init | 10 | srw | 19D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 18D | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | Equivalent to 1.5.0 |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | 0 | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

| wsc.atr | pid | | | | | | | HO | SndPID | 10 | wsc.atr | 22D | Extend 2.7.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | BadADC | 10 | lambda | 31D | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | wsc.atr | 2 | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Axle timer reset |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.2 |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | illegal | 2,3 | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Axle timer cannot timeout immediately |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr | atr | | | | | | | HO | init | 10 | | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | Good ADC |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.atr | atr | | | | | | | HO | init | 10 | wsc.atr | 2,3 | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Axle timer reset simultaneous with |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | transition above 300 lbs. |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | Equivalent to 2.7.1 |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.atr | atr | | | | | | | HO | init | 10 | illegal | 2,3 | Extend 2.7.2 |
| [-1500,300).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Axle timer cannot timeout simultaneously |
| {true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | with reset |
| [0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095) | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| Begin Length 4 | | | | | | | | | | | | | |
| wsc.null.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.null | null | | | | | | | HO | BadADC_CalcEnd | 10 | wsc | 8 | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,300) | | Bad ADC |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.4.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.null.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.null | null | | | | | | | HO | CalcEnd | 10 | wsc.null | 29D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | | Good ADC |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 2.1.2 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.null.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | weight < 300 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | null | | | | | | | HO | init | 10 | wsc.null.null | 29D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).[-1500,300 | | Good ADC |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0.inf) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger still counting |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | null | | | | | | | HO | CalcEnd | 10 | wsc | 8 | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | Good ADC |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | Post trigger timeout |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | Equivalent to 1.4.1 |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | stb | | | | | | | HO | CalcEnd | 10 | lambda | 30D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {0, ...} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | ssc | | | | | | | HO | CalcEnd | 10 | | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | ssc | | | | | | | HO | BadADC_CalcEnd | 10 | ssc | 10,4, 30D | Equivalent to 1.3.2 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | ssc | | | | | | | HO | CalcEnd | 10 | ssc | 10, 30D | Equivalent to 1.3.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | cwt(last) | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | wsc | | | | | | | HO | init | 10 | wsc.null.null | 27D | Equivalent to 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).[-1500,300 | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0.inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | srw | | | | | | | HO | CalcEnd | 10 | srw | 19D | Equivalent to 1.5.0 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | pid | | | | | | | HO | SndPID | 10 | wsc.null.null | 22D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).[-1500,300 | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0.inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | Axle Timer reset received |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | BadADC_CalcEnd | 10 | lambda | 30D, 31D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | illegal | 2,3 | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Immediate timeout is not possible |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2,3,29D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Axle timer reset received with weight >= 300 |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | Equivalent to 2.7.1 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300] | | Axle timer reset received with weight < 300 |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | Post trigger timer still counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 3.7.1 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.null | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2, 3 | Extending 3.1.1 |
| [-1500,300).[300,13500).[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Axle timer reset received with weight < 300 |
| [0,inf).[0.inf).[0.inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | Post trigger timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 2.7.2 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | BadADC_CalcEnd | 10 | lambda | 30D, 31D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300] | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | CalcEnd | 10 | | | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight >= 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2,3 | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | weight >= 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | Axle timer still counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 2.7.1 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | AxTimeOut_CalcEnd | 10 | wsc.atr.null | 26D | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | weight >= 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | Axle timer timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 3.1.2 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf] | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | init | 10 | | | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | init | 10 | | | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | Axle timer still counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0.inf).[0,tla) | | Axle timer still counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger still counting |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500] | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | null | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2, 3 | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla) | | Axle timer still counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger timeout |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.2 |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | null | | | | | | | HO | AxTimeOut | 10 | | | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | | | Axle timer timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | null | | | | | | | HO | AxTimeOut | 10 | wsc.atr.null | 26D | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300 | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | Axle timer timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger still counting |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | Equivalent to 3.1.3 |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | null | | | | | | | HO | AxTimeOut_CalcEnd | 10 | lambda | 3,26D | Extending 3.7.1; Good ADC |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | cwt(last) | 8 | | | weight < 300 |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | Axle timer timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | Post trigger timeout |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | stb | | | | | | | HO | CalcEnd | 10 | lambda | 30D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | ssc | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | ssc | | | | | | | HO | BadADC_CalcEnd | 10 | ssc | 10,4, 30D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | Bad ADC |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.3.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.null.atr | ssc | | | | | | | HO | CalcEnd | 10 | ssc | 10, 30D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | Good ADC |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.3.1 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | cwt(last) | 8 | [-1500,13500] | | |

| wsc.null.atr | wsc | | | | | | | HO | init | 10 | wsc.null.atr | 27D | Equivalent to 3.7.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0.inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| wsc.null.atr | srw | | | | | | | HO | CalcEnd | 10 | srw | 19D, 30D | Equivalent to 1.5.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

| wsc.null.atr | pid | | | | | | | HO | SndPID | 10 | wsc.null.atr | 22D | Extending 3.7.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0.inf).[0,tla) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

| wsc.null.atr | atr | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.null.atr | atr | | | | | | | HO | BadADC_CalcEnd | 10 | lambda | 30D, 31D | Extending 3.7.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.null.atr | atr | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| wsc.null.atr | atr | | | | | | | HO | init | 10 | illegal | 2,3 | Extending 3.7.1; immediate axle timer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | timeout cannot happen |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | atr | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Axle timer still counting |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr.null | 26D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | Axle timer still counting |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 3.1.2 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | atr | | | | | | | HO | init | 10 | | | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Axle timer still counting |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | Axle timer still counting |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger still counting |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.null.atr | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2, 3 | Extending 3.7.1 |
| [-1500,300).[300,13500).'[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Axle timer still counting |
| [0,inf).[0.inf).[0,tla) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Post trigger timeout |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.2 |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | BadADC | 10 | wsc | 8 | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | Bad ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.4.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.2 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | wsc.atr.null | 26D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Invariant |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | wsc.atr.null | 26D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | post-trigger counting |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | Equivalent to 3.1.3 |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | illegal | 29D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | post-trigger cannot timeout immediately |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | stb | | | | | | | HO | Init | 10 | lambda | 7, 17D, 24D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | ssc | | | | | | | HO | init | 10 | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | ssc | | | | | | | HO | BadADC | 10 | ssc | 10,4 | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | {0, 4095} | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | ssc | | | | | | | HO | init | 10 | ssc | 10 | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | swt(last) | 8 | [-1500,13500] | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | wsc | | | | | | | HO | init | 10 | wsc.atr.null | 27D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla).[tla,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf] | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | srw | | | | | | | HO | init | 10 | srw | 19D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | pid | | | | | | | HO | SndPID | 10 | wsc.atr.null | 22D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[300,13500 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | lat(last) | 20D | [0,inf).[0,tla).[tla,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,inf] | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | BadADC | 10 | lambda | 31D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | FALSE | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | {0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | illegal | 3 | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | wsc.atr | 2,3 | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | weight >= 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.1 |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | weight < 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | illegal | 29D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | weight < 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | Post trigger cannot immediately timeout |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 3.1.2 |
| [-1500,300).[300,13500].[300,13500 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | weight < 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | Post trigger counting |
| [0,inf).[0,inf).[0,inf) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf).[0,P) | | Equivalent to 3.7.1 |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | BadADC_CalcEnd | 10 | lambda | 26D, 31D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | Bad ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | CalcEnd | 10 | wsc.null | 12 | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500) | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,inf) | | weight >= 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | Equivalent to 2.1.2 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | init | 10 | wsc.atr.null | 26D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | Invariant |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | null | | | | | | | HO | CalcEnd | 10 | wsc | 8 | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300) | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | weight < 300 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | Equivalent to 1.4.1 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | stb | | | | | | | HO | CalcEnd | 10 | lambda | 30D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | ssc | | | | | | | HO | init | 10 | | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | ssc | | | | | | | HO | BadADC_CalcEnd | 10 | ssc | 10,4, 30D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | [-1500,13500] | | Bad ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.3.2 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0, 4095} | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | ssc | | | | | | | HO | CalcEnd | 10 | ssc | 10, 30D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,**13500]** | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | Equivalent to 1.3.1 |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | cwt(t) | 8 | swt(t) | cwt(last) | 8 | [-1500,13500] | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | wsc | | | | | | | HO | init | 10 | wsc.atr.null | 26D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | srw | | | | | | | HO | CalcEnd | 10 | srw | 19D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,13500] | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | TRUE | 17D | {true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | [0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | u(t) | 19D | rad(t) | rad(last) | 19D | [0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | 0 | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | pid | | | | | | | HO | SndPID | 10 | wsc.atr.null | 22D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500].[-1500,300 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla).[tla,inf) | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | TRUE | 17D | {true,false}.{true,false}.{true,false} | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | | |
| | | | | | | | | | | | | | |
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (0,4095).(0,4095).(0,4095] | | rad(t) | [0,4095] | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | BadADC_CalcEnd | 10 | lambda | 31D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | 0 | 8 | cwt(0) | 0 | 8 | | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 0 | 20D | lat(0) | 0 | 20D | | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | 0 | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095} | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | illegal | 2,3 | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [tla,inf) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | | Axle timer cannot immediately timeout |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2,3 | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [300,13500] | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500] | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | weight >= 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Equivalent to 2.7.1 |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf) | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | | |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | | |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | | |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | | |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,inf) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | | |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | init | 10 | wsc.null.atr | 26D | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300 | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[300,13500).'[-1500,300 | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0.inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | weight >= 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | TRUE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false}.{true,false} | | Post trigger still counting |
| [0,inf).[0,inf).[0,P) | | pt(t) | [0,P) | 12 | pt-dot(t) | 1 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf).[0,P) | | Equivalent to 3.7.1 |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095).(0,4095] | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500].[-1500,13500 | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| wsc.atr.null | atr | | | | | | | HO | CalcEnd | 10 | wsc.atr | 2, 3 | Extending 3.1.3 |
| [-1500,300).[300,13500].[-1500,300] | | cwt(t) | [-1500,300) | 5,12 | cwt(t) | f(u(t)) | 8 | cwt(0) | cwt(last) | 8 | [-1500,300).[-1500,300] | | Good ADC |
| [0,inf).[0,tla).[tla,inf) | | lat(t) | [0,tla) | 2 | lat-dot(t) | 1 | 20D | lat(0) | 0 | 20D | [0,inf).[0,tla) | | Axle timer counting |
| {Rng(cwt(t))}.{Rng(cwt(t))}.{Rng(cwt(t))} | | wh(j) | {Rng(cwt(t))} | 11 | wh(j) | {cwt(t(i))} | 10 | wh(0) | wh(last) | 10 | {Rng(cwt(t))}.{Rng(cwt(t))} | | weight >= 300 |
| {true,false}.{true,false}.{true,false} | | ad(t) | {true,false} | 12 | ad(t) | FALSE | 17D | ad(0) | ad(last) | 17D | {true,false}.{true,false} | | Post trigger timed out |
| [0,inf).[0,inf).[0,P) | | pt(t) | [P,inf) | 12 | pt-dot(t) | 0 | 17D | pt(0) | pt(last) | 17D | [0,inf).[0,inf) | | Equivalent to 2.7.2 |
| (0,4095).(0,4095).(0,4095] | | rad(t) | (0,4095) | 19D | rad(t) | 0 | 19D | rad(t) | null | 19D | (0,4095).(0,4095) | | |
| [-1500,13500].[-1500,13500].[-1500,13500 | | swt(t) | [-1500,13500] | 10 | swt(t) | 0 | 8 | swt(t) | null | 8 | [-1500,13500].[-1500,13500 | | |

# Appendix B

*Graphical View of WIM DAP Hybrid Sequence Enumeration*