

CM1 Firmware Update History

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RT3.14

RT3.14.06

Release date: 31 Mar 2023

Bug fixes

1. RT3D-99 - Ux=0 intermittently not changing to Ux=8 at end of move. This bug was introduced in RT3.14.04. The in-position status Ux=8 was not set at the end of a move. The message Ux=0 was displayed though the motor was within the in-position tolerance (K55).

RT3.14.05

Release date: 01 Feb 2023

Bug fixes

1. RT3D-98. Removed latent debug code that could affect serial communication. The messages "_SBM0", "_SBM1" and "_SBM2" where debug messages that were transmitted on a bank execution.

RT3.14.04

Release date: 25 Nov 2022

Improvements

1. RT3D-73 - V="INxR" and V="INxF". CML variables for input edge detection. A logic or program bank can now use a variable set to detect a rising or falling edge on an input. When the variable is read it returns the number of edges since the last read. The variable is available in all CM1-C and CM1-T
Variable can be set to the following. E.g. V1="IN1R" for INPUT1 rising edge.
 - IN1R IN1 rising edge
 - IN1F IN1 falling edge
 - IN2R IN2 rising edge
 - IN2F IN2 falling edge
 - IN3R IN3 rising edge
 - IN3F IN3 falling edge
 - IN4R IN4 rising edge
 - IN4F IN4 falling edge
2. RT3D-86 - V="IN". CML variable which returns the combined value of all 4 digital inputs. Read as an integer value in logic and program banks. This is useful when inputs are used as a binary combination to perform multiple functions. Input calculation is as follows:
 - "IN" = $(8 \times \text{IN4}) + (4 \times \text{IN3}) + (2 \times \text{IN2}) + (\text{IN1})$
The INMK variable is used to mask the inputs and execute the calculation with or without certain inputs
The INML variable is available on CM1-C and CM1-T motors.
3. RT3D-92 - V="INMK". CML variable used in conjunction with V="IN". This variable masks inputs to be used or not used in the calculation. The variable is set as a digital value but uses the relative bits as a mask. I.e. bit0 = IN1 mask, bit1 = IN2 mask, bit2 = IN3 mask, bit3 = IN4 mask. By default on power up the INMK=15 so all inputs are active in the V="IN" calculation. "INMK" is available on CM1-C and CM1-T motors.
V="INMK" examples
 - INMK = 12 IN4 and IN3 only (bit3=IN4=1, bit2=IN3=1, bit1=IN2=0, bit0=IN1=0 0b1100 = 0xC = 12₁₀)
 - INMK = 3 IN2 and IN1 only (bit3=IN4=0, bit2=IN3=0, bit1=IN2=1, bit0=IN1=1 0b0011 = 0x3 = 3₁₀)
 - INMK = 11 IN4, IN2 and IN1 only (bit3=IN4=1, bit2=IN3=0, bit1=IN2=1, bit0=IN1=1 0b1011 = 0xB = 11₁₀)

Bug Fixes

1. RT3D-72 - V="AO2" not initialised correctly on power up. "AO2" is now initialised correctly and the analog output can be set in a logic or program bank. The analog output is only available on CM1-C motors.
2. RT3D-82 - Motor still moves when S=0 on an absolute position move. When S=0 was set during an absolute move the motor would continue to move very slowly. This was due to legacy code that did not allow a value of S=0 during an absolute position move. A value of S=0 is now accepted during an absolute position move which halts the motor. As the motor is not in-position it will return a status of Ux=0 indicating the move is still "running" though there is no physical movement. A stop command is required to put the motor into a complete stopped state (Ux=8).
3. RT3D-93 - Home routine won't execute if started directly after an error. Prior to RT3.14.04 a small dummy move was required if an error occurred during a home routine. A home routine can now be executed directly after an error or loss of drive power.

RT3.14.03

Release date: 17 Sept 2022

Improvements

1. RT3D-81 - New CML command to switch off automatic saving of K and H parameters. This is useful in an application where K and/or H parameters are changed during runtime. Repeated changing of parameters will damage the EEPROM. The following commands are now available to be sent over the communication port. There is no ability to call the commands from a logic or program bank
 - _SKH=0 switches off save
 - _SKH=1 switches on save (default on power up)
 - _SKH will query and return the current value

Bug fixes

1. RT3D-77 - Quadrature output would stream quadrature output pulses if K34 (digital output option) or K24 (quadrature resolution) changed during runtime. This typically had no affect as the parameters are not changed during runtime. Applications where the parameters are changed during runtime will no longer see a stream of pulse/position when no movement is occurring.

RT3.14.02

Release date: 23 Aug 2022

Bug fixes:

1. RT3D-75 - IN1 and IN4 on CM1-T/E not functioning. Did not affect CM1-C

RT3.14.01

Release date: 26 Apr 2021

Improvements

1. Improved startup timing between hardware revision E and revision C when mixed on a daisy-chain network

Compatibility updates

1. Addition inputs used with the CM1-T inverted

Bug fixes

1. UART0 (primary communication port) would stop communicating in specific circumstances. The issue was seen to occur on a small number of daisy-chained motors that included a power-up delay.
2. Merge motion function could hang the motor if the motor is disabled milliseconds prior to executing a merge.

RT3.14.00

Release date: 26 Jan 2021

Improvements

1. High speed communication implemented for use with the CM1-T ethernet module
2. Additional modes of operation introduced for more direct control of the motor
 - a. Profile mode - change target position, speed and acceleration while in motion.
 - b. Torque mode - run a in a torque only mode

RT3.13

RT3.13.12

Release date: 24 Mar 2021

Improvements

1. Improved startup timing between hardware revision E and revision C when mixed on a daisy-chain network

Bug fixes

1. UART0 (primary communication port) would stop communicating in specific circumstances. The issue was seen to occur on a small number of daisy-chained motors that included a power-up delay.

RT3.13.10

Release date: 15 Oct 2020

Bug fixes

1. The line feed option (K70=1) was inserting an additional line feed in daisy-chain motors.
2. The Ux=256 pushmode timeout error was not sent on the serial port in a bank.

RT3.13.09

Release date:06 May 2020

This is the initial backwards compatible release for RT3 on the CM1 hardware revision E. Please see the attached engineering change notice for information on the change [ECN RT3D-23.pdf](#)