Real Time Clock(RTCSet) Example
Model: 3G3MX2

QUICK START GUIDE
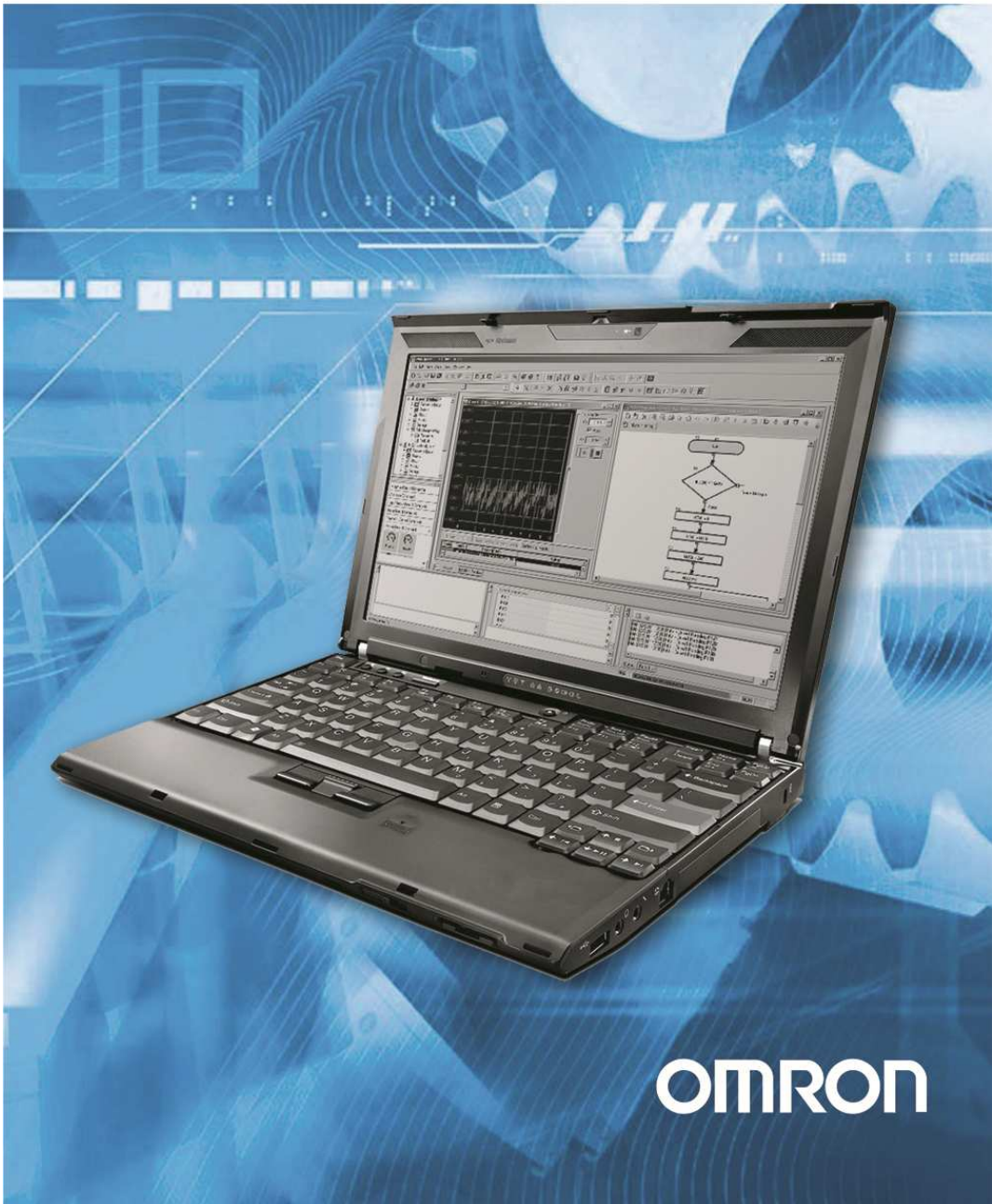
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MX2 – Real Time Clock (RTCSet)

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1. Introduction

This example shows how to manage the Real Time Clock (RTCSet) instruction. It stores the Year, Month, Month's day, Week's day, Hour and Minute in different variables with decimal format. Besides, this program incorporate a Main task with simple Subroutines that runs the motor depending the Week's day and the hour you set.

Note:This example is implemented with CX-Drive version 2.31.002. The CX-Drive file attached could not be open with a lower CX-Drive version.

2. RtcSet Instruction

2.1. Description

|	
⊙ RtcSet	This instruction sets the 6 bytes data of time to a variable. It means Year, Month, Day, Week's day, hour and minute. RtcSet off instruction updates the 6 bytes data only once time.
⚠ Caution	If the watch LCD operator is not attached, RtcSet instruction sets 000000000000h.

2.2. Instruction Format

RtcSet off <user variable>

The user variable could be any user or internal variable: U(xx) or UL(xx).

· **RtcSet off U(<k>)** :It will set U(<k>) with 2 bytes for year and 2 bytes for month, U(<k+1>) with 2 bytes for week's day (00 for Sunday, 06 for Saturday) and 2 bytes for month's day, and U(<k+2>) with 2 bytes for hour and 2 bytes for minutes.

· **RtcSet off UL(<k>)**: It will set UL(<k>) with 2 bytes for year, 2 bytes for month, 2 bytes for day and 2 bytes for day of week (00 for Sunday, 06 for Saturday), and UL(<k+1>) with 2 bytes for hour, 2 bytes for minutes and 4 bytes of padding (0000).

Example
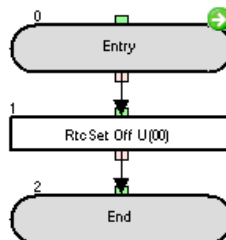
If the RtcSet instruction is executed in our program at 15:34 29/12/2010. The instruction will store these data:

        U(00) = 4114   (decimal format) – U(<k>)
        U(01) = 10499 (decimal format) – U(<k+1>)
        U(02) = 5428   (decimal format) – U(<k+2>)

Taking a look from the U(00) to U(02) data variables is difficult for the user to deduce and manage, for example, the day and hour. Transforming each variable value from decimal to hexadecimal:

        U(00) = 4114 (dec) = 1012 (hex) → 10:Year; 12:Month
        U(01) = 10499(dec) = 2903 (hex) → 29:Month's day; 03: week's day
        U(02) = 5428(dec)   = 1534 (hex) → 15:Hour; 34:Minutes

The format used on this example is **RtcSet off U(<k>).**

3. Drive Programming

3.1 Variables

Variables	Description	Range
UB(0)	It indicates that the Real Time Clock Task for arithmetic operations was finished.(1st cycle).	0 to 1
U(00) to U(02)	Variables where the RtcSet instruction load the data.	0 to 65535
U(03) to U(05)	Variables used for internal arithmetic operations	0 to 65535
U(06) U(07)	The motor will start running from U(06) hour (decimal format) to U(07) hour (decimal format). *	0 to 23
U(08) to U(09)	Free.	0 to 65535
U(10)	Program Number	--
U(11) to U(19)	Free.	0 to 65535
U(20) to U(23)	Variables used for internal arithmetic operations	0 to 65535
U(24) to U(25)	Free.	0 to 65535
U(26)	Month (decimal format)**	1 to 12
U(27)	Year (decimal format)**	00 to 99
U(28)	Week's day (decimal format)**	0 to 6
U(29)	Month's day (decimal format)**	1 to 31
U(30)	Minutes (decimal format)**	0 to 59
U(31)	Hour (decimal format)**	0 to 23

⚠ Caution   * The program does not control if the U(06) and U(07) values are with a correct value (00 hour to 23 hour). U(06) hour value must be lower than U(07) value for motor running control.

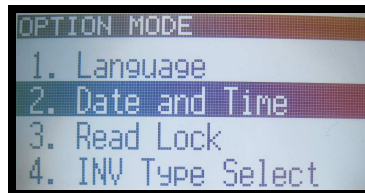⚠ Caution   ** The program does not control if the U(xx) variables has a correct range.

3.2 Monitor

Monitor	Description	Range
d025	It shows the hour.	0 to 23
d026	It shows the minute.	0 to 59
d027	It shows the week's day.	0 to 6

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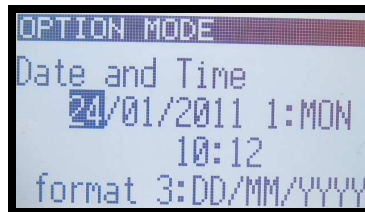
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4. LCD Operator

4.1 Change Date and Time

Press **+** **+** together. The LCD operator display will show:

Select point **2. Date and Time** and press to change the Date and Time. After that, the LCD Operator will show the Date and Time values:

Press for exit from the Date and Time **OPTION MODE**.