

Programmable Controller

**MELSEC iQ-R**  
series

MELSEC iQ-R Temperature Control Module  
Function Block Reference

---



# CONTENTS

---

<b>CHAPTER 1</b>	<b>FUNCTION BLOCK (FB) LIST</b>	<b>2</b>
<hr/>		
<b>CHAPTER 2</b>	<b>TEMPERATURE CONTROL MODULE FB</b>	<b>4</b>
2.1	M+R60TC(BW)_StartPeakCurrentSuppressionBetweenModule.....	4
2.2	M+R60TC(BW)_StartSimultaneousTemperatureRiseBetweenModule.....	9
2.3	M+R60TC(BW)_OperateError.....	14
<hr/>		
	<b>INSTRUCTION INDEX</b>	<b>16</b>
<hr/>		
	REVISIONS.....	20

# 1 FUNCTION BLOCK (FB) LIST

This chapter lists the FBs for the MELSEC iQ-R series temperature control module.

## Temperature control module FBs

### ■R60TCTRT2TT2, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4-TS

Name*1	Description
M+R60TC_StartPeakCurrentSuppressionBetweenModule	Simultaneously turns ON/OFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module peak current suppression function.
M+R60TC_StartSimultaneousTemperatureRiseBetweenModule	Simultaneously turns ON/OFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module simultaneous temperature rise function.
M+R60TC_OperateError	Monitors and resets error codes.

\*1 Note that this reference does not describe the FB version information which is displayed such as "\_00A" at the end of FB name.

### ■R60TCTRT2TT2BW, R60TCRT4BW

Name*1	Description
M+R60TCBW_StartPeakCurrentSuppressionBetweenModule	Simultaneously turns ON/OFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module peak current suppression function.
M+R60TCBW_StartSimultaneousTemperatureRiseBetweenModule	Simultaneously turns ON/OFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module simultaneous temperature rise function.
M+R60TCBW_OperateError	Monitors and resets error codes.

\*1 Note that this reference does not describe the FB version information which is displayed such as "\_00A" at the end of FB name.



# 2 TEMPERATURE CONTROL MODULE FB

## 2.1 M+R60TC(BW)\_StartPeakCurrentSuppressionBetweenModule

### Name

■R60TCTRT2TT2, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4-TS

M+R60TC\_StartPeakCurrentSuppressionBetweenModule

■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW\_StartPeakCurrentSuppressionBetweenModule

### Overview

Item	Description
Functional overview	Simultaneously turns ON/IFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module peak current suppression function.
Symbol	

### Labels

#### ■Input labels

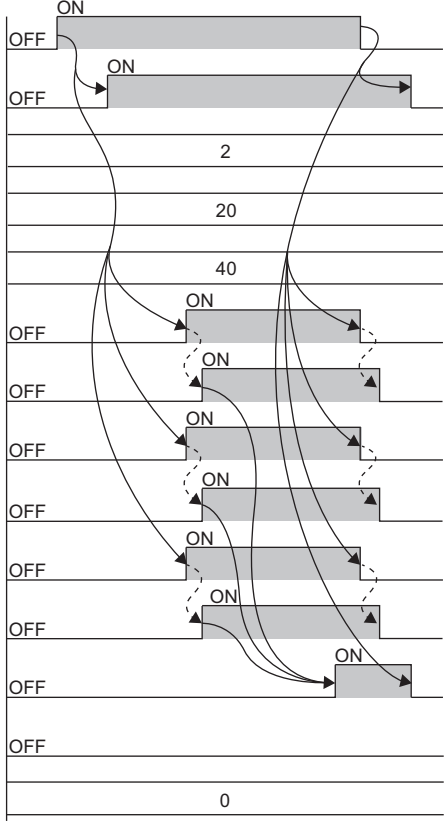
No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	ON or OFF	ON: The FB is activated. OFF: The FB is not activated.
(2)	i_stModule	Module label	Structure	The scope differs depending on the module label.	Specify the module label of the temperature control module. The module label of the temperature control module, where "Peak current suppression function master/slave selection between multiple module" is set to Master (1), must be specified.

#### ■Output labels

No.	Variable name	Name	Data type	Default value	Description
(3)	o_bENO	Execution status	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
(4)	o_bOK	Normal completion	Bit	OFF	The ON state indicates that the inter-module peak current suppression function has been activated.
(5)	o_bErr	Error completion	Bit	OFF	The ON state indicates that an error has occurred in the FB.
(6)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

## FB details

Item	Description
Available devices	Target modules R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4BW, R60TCRT4-TS
	CPU modules MELSEC iQ-R series CPU modules
	Engineering tool GX Works3
Language	Ladder diagram
Number of basic steps	1534 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.
Processing	<ul style="list-style-type: none"> <li>'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module peak current suppression function are turned ON simultaneously by turning ON i_bEN (Execution command). 'Setting/operation mode command' (Yn1), which are turned ON with this FB, are turned OFF by turning OFF i_bEN (Execution command).</li> <li>If "Peak current suppression function master/slave selection between multiple module" of the specified temperature control module is set to Slave (0), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 8 Error code)</li> <li>If any slave modules where the inter-module peak current suppression function is enabled do not exist, o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 8 Error code)</li> <li>If "Control mode selection" of the specified temperature control module is set to other than Standard Control (0), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 8 Error code)</li> <li>If "Peak current suppression control group setting" of the specified temperature control module and the slave modules are set to Not Divided (0) in all channels, o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 8 Error code)</li> <li>If "Peak current suppression function enable/disable between multiple module" in the specified temperature control module is set to Disable (0), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 8 Error code)</li> </ul>
FB compilation method	Macro type
FB operation	Pulsed execution type (multiple scan execution type)

Item	Description
Timing chart of I/O signals	<p>■ When the operation is completed successfully</p> <ul style="list-style-type: none"> <li>• The number of master modules: 1, Master module start I/O number: 0H</li> <li>• The number of slave modules: 2, Slave module start I/O number: 20H, 40H</li> </ul> <p>i_bEN</p> <p>o_bENO</p> <p>Number of slave modules with inter-module peak current suppression function enabled</p> <p>Start I/O [0] of slave module with inter-module peak current suppression function enabled</p> <p>Start I/O [1] of slave module with inter-module peak current suppression function enabled</p> <p>'Setting/operation mode command' (Y1)</p> <p>'Setting/operation mode status' (X1)</p> <p>'Setting/operation mode command' (Y21)</p> <p>'Setting/operation mode status' (X21)</p> <p>'Setting/operation mode command' (Y41)</p> <p>'Setting/operation mode status' (X41)</p> <p>o_bOK</p> <p>o_bErr</p> <p>o_uErrId</p>  <p>-----▶ Executed by the temperature control module.  ————▶ Executed by the FB.</p>



Item	Description
Timing chart of I/O signals	<p> <span style="color: #000080;">■</span> When the operation is completed with an error                     </p> <ul style="list-style-type: none"> <li>The number of master modules: 1, Master module start I/O number: 0H</li> <li>The number of slave modules: 2, Slave module start I/O number: 20H, 40H</li> </ul>
Restrictions and precautions	<ul style="list-style-type: none"> <li>This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>Refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application) at the occurrence of an error of the temperature control module during execution of this FB. Check the error description and take the action, and then execute the FB again.</li> <li>If "PID continuation Flag" is set to Continue (1), 'Setting/operation mode command' (Xn1) does not turn OFF.</li> <li>This FB cannot be used in an interrupt program.</li> <li>Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned OFF and the normal operation cannot be acquired. Always use this FB in programs that can turn OFF i_bEN (Execution command).</li> <li>This FB uses Index register Z9. When using an interrupt program, do not use this index register in the interrupt program.</li> <li>This FB turns ON and off 'Setting/operation mode command' (Yn1). Thus, do not turn ON and OFF 'Setting/operation mode command' (Yn1) by other means while this FB is being executed.</li> <li>When this FB is used in two or more places, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time.</li> <li>This FB requires the configuration of the ladder for every input label.</li> <li>When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error.</li> <li>To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application).</li> </ul>

## Error code

Error code	Description	Action
200H	"Peak current suppression function master/slave selection between multiple module" of the specified temperature control module is set to other than Master (1).	Review and correct the setting and then execute the FB again.
201H	Any slave modules where the inter-module peak current suppression function is enabled do not exist.	Review and correct the settings of the slave modules and then execute the FB again. Check that the settings of the slave modules are configured as follows. <ul style="list-style-type: none"> <li>• "Control mode selection": Standard Control (0)</li> <li>• "Peak current suppression function enable/disable between multiple module": Valid (1)</li> <li>• "Peak current suppression function master/slave selection between multiple module": Slave (0)</li> </ul>
202H	"Control mode selection" of the specified temperature control module is set to other than Standard Control (0).	Review and correct the settings and then execute the FB again.
203H	"Peak current suppression control group setting" of the specified temperature control module or the slave modules are set to Not Divided (0) in all channels.	Review and correct the settings and then execute the FB again.
204H	"Peak current suppression function enable/disable between multiple module" in the specified temperature control module is set to Disable (0).	Review and correct the settings and then execute the FB again.

# 2.2 M+R60TC(BW)\_StartSimultaneousTemperatureRiseBetweenModule

## Name

■R60TCTRT2TT2, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4-TS

M+R60TC\_StartSimultaneousTemperatureRiseBetweenModule

■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW\_StartSimultaneousTemperatureRiseBetweenModule

## Overview

Item	Description
Functional overview	Simultaneously turns ON/OFF 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module simultaneous temperature rise function.
Symbol	<pre> graph LR     subgraph SymbolBox [M+R60TC_StartSimultaneousTemperatureRiseBetweenModule]         direction TB         i_bEN["(1) B: i_bEN"]         i_stModule["(2) DUT: i_stModule"]     end     o_bENO["(3) o_bENO: B"]     o_bOK["(4) o_bOK: B"]     o_bErr["(5) o_bErr: B"]     o_uErrld["(6) o_uErrld: UW"]     </pre>

## Labels

### Input labels

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	ON or OFF	ON: The FB is activated. OFF: The FB is not activated.
(2)	i_stModule	Module label	Structure	The scope differs depending on the module label.	Specify the module label of the temperature control module. The module label of the temperature control module, where "Peak current suppression function master/slave selection between multiple module" is set to Master (1), must be specified.

### Output labels

No.	Variable name	Name	Data type	Default value	Description
(3)	o_bENO	Execution status	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
(4)	o_bOK	Normal completion	Bit	OFF	The ON state indicates that the inter-module peak current suppression function has been activated.
(5)	o_bErr	Error completion	Bit	OFF	The ON state indicates that an error has occurred in the FB.
(6)	o_uErrld	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

## FB details

Item	Description
Available devices	Target modules R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4BW, R60TCRT4-TS
	CPU modules MELSEC iQ-R series CPU modules
	Engineering tool GX Works3
Language	Ladder diagram
Number of basic steps	1606 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.
Processing	<ul style="list-style-type: none"> <li>• 'Setting/operation mode command' (Yn1) of multiple temperature control modules which use the inter-module simultaneous temperature rise function are turned ON simultaneously by turning ON i_bEN (Execution command). 'Setting/operation mode command' (Yn1), which are turned ON with this FB, are turned OFF by turning OFF i_bEN (Execution command).</li> <li>• If "Simultaneous temperature rise function master/slave selection between multiple module" of the specified temperature control module is set to Slave (0), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 13 Error code)</li> <li>• If any slave modules where the inter-module simultaneous temperature rise function is enabled do not exist, o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 13 Error code)</li> <li>• If "Control mode selection" of the specified temperature control module is set to other than Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 13 Error code)</li> <li>• If "Simultaneous temperature rise group setting" of the specified temperature control module and the slave modules are set to Do not rise temperature simultaneously (0) in all channels, o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (However, when "Control mode selection" is set to Mix Control (Normal Mode) (3) or Mix Control (Expanded mode) (4), the target channels for the check whether "Do not rise temperature simultaneously (0)" is set or not are CH3 and CH4.) (Page 13 Error code)</li> <li>• If "Simultaneous temperature rise function enable/disable between multiple module" in the specified temperature control module is set to Disable (0), o_bErr (Error completion) turns ON and the processing of the FB is interrupted. In addition, the error code is stored in o_uErrId (Error code). For the error code, refer to the list of error codes. (Page 13 Error code)</li> </ul>
FB compilation method	Macro type
FB operation	Pulsed execution type (multiple scan execution type)

Item	Description
Timing chart of I/O signals	<p>■ When the operation is completed successfully</p> <ul style="list-style-type: none"> <li>• The number of master modules: 1, Master module start I/O number: 0H</li> <li>• The number of slave modules: 2, Slave module start I/O number: 20H, 40H</li> </ul> <p>The timing chart illustrates the sequence of events for starting simultaneous temperature rise between modules. It shows the following signals and their states over time:</p> <ul style="list-style-type: none"> <li><b>i_bEN</b>: Transitions from OFF to ON.</li> <li><b>o_bENO</b>: Transitions from OFF to ON.</li> <li><b>Slave module counts</b>: 2, 20, and 40.</li> <li><b>'Setting/operation mode command' (Y1)</b>: Transitions from OFF to ON.</li> <li><b>'Setting/operation mode status' (X1)</b>: Transitions from OFF to ON.</li> <li><b>'Setting/operation mode command' (Y21)</b>: Transitions from OFF to ON.</li> <li><b>'Setting/operation mode status' (X21)</b>: Transitions from OFF to ON.</li> <li><b>'Setting/operation mode command' (Y41)</b>: Transitions from OFF to ON.</li> <li><b>'Setting/operation mode status' (X41)</b>: Transitions from OFF to ON.</li> <li><b>o_bOK</b>: Transitions from OFF to ON.</li> <li><b>o_bErr</b>: Remains OFF.</li> <li><b>o_uErrId</b>: Remains 0.</li> </ul> <p>Legend:</p> <ul style="list-style-type: none"> <li>---▶ Executed by the temperature control module.</li> <li>—▶ Executed by the FB.</li> </ul>

Item	Description
Timing chart of I/O signals	<p> <b>■</b>When the operation is completed with an error           </p> <ul style="list-style-type: none"> <li>The number of master modules: 1, Master module start I/O number: 0H</li> <li>The number of slave modules: 2, Slave module start I/O number: 20H, 40H</li> </ul> <p> <i>i_bEN</i>  <i>o_bENO</i>            Number of slave modules with inter-module simultaneous temperature rise function enabled: 0            Start I/O [0] of slave module with inter-module simultaneous temperature rise function enabled: 0            Start I/O [1] of slave module with inter-module simultaneous temperature rise function enabled: 0            'Setting/operation mode command' (Y1)            'Setting/operation mode status' (X1)            'Setting/operation mode command' (Y21)            'Setting/operation mode status' (X21)            'Setting/operation mode command' (Y41)            'Setting/operation mode status' (X41)  <i>o_bOK</i>  <i>o_bErr</i>  <i>o_uErrId</i> (Error code)         </p>
Restrictions and precautions	<ul style="list-style-type: none"> <li>This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>Refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application) at the occurrence of an error of the temperature control module during execution of this FB. Check the error description and take the action, and then execute the FB again.</li> <li>If "PID continuation Flag" is set to Continue (1), 'Setting/operation mode command' (Xn1) does not turn OFF.</li> <li>This FB cannot be used in an interrupt program.</li> <li>Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because <i>i_bEN</i> (Execution command) cannot be turned OFF and the normal operation cannot be acquired. Always use this FB in programs that can turn OFF <i>i_bEN</i> (Execution command).</li> <li>This FB uses Index register Z9. When using an interrupt program, do not use this index register in the interrupt program.</li> <li>This FB turns ON and OFF 'Setting/operation mode command' (Yn1). Thus, do not turn ON and OFF 'Setting/operation mode command' (Yn1) by other means while this FB is being executed.</li> <li>When this FB is used in two or more places, or when other FB that operates the Y signal same as the signal this FB does, create an interlock to prevent the FBs from being activated at the same time.</li> <li>This FB requires the configuration of the ladder for every input label.</li> <li>When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error.</li> <li>To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application).</li> </ul>

## Error code

Error code	Description	Action
205H	"Simultaneous temperature rise function master/slave selection between multiple module" of the specified temperature control module is set to other than Master (1).	Review and correct the setting and then execute the FB again.
206H	Any slave modules where the inter-module simultaneous temperature rise function is enabled do not exist.	Review and correct the settings of the slave modules and then execute the FB again. Check that the settings of the slave modules are configured as follows. <ul style="list-style-type: none"> <li>• "Control mode selection": Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4)</li> <li>• "Simultaneous temperature rise function enable/disable between multiple module": Valid (1)</li> <li>• "Simultaneous temperature rise function master/slave selection between multiple module": Slave (0)</li> </ul>
207H	"Control mode selection" of the specified temperature control module is set to other than Standard Control (0), Mix Control (Normal Mode) (3), or Mix Control (Expanded Mode) (4).	Review and correct the setting and then execute the FB again.
208H	"Simultaneous temperature rise group setting" of the specified temperature control module or the slave modules are set to Do not rise temperature simultaneously (0) in all channels. (However, when "Control mode selection" is set to Mix Control (Normal Mode) (3) or Mix Control (Expanded mode) (4), the target channels for the check whether "Do not rise temperature simultaneously (0)" is set or not are CH3 and CH4.)	Review and correct the setting and then execute the FB again.
209H	"Simultaneous temperature rise function enable/disable between multiple module" in the specified temperature control module is set to Disable (0).	Review and correct the setting and then execute the FB again.

## 2.3 M+R60TC(BW)\_OperateError

### Name

#### ■R60TCTRT2TT2, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4-TS

M+R60TC\_OperateError

#### ■R60TCTRT2TT2BW, R60TCRT4BW

M+R60TCBW\_OperateError

### Overview

Item	Description																												
Functional overview	Monitors and resets error codes.																												
Symbol	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">M+R60TC_OperateError</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; vertical-align: top;">(1) —</td> <td style="width: 40%;">B: i_bEN</td> <td style="width: 40%; text-align: right;">o_bENO: B</td> <td style="width: 10%; text-align: right;">(4)</td> </tr> <tr> <td style="vertical-align: top;">(2) —</td> <td>DUT: i_stModule</td> <td style="text-align: right;">o_bOK: B</td> <td style="text-align: right;">(5)</td> </tr> <tr> <td style="vertical-align: top;">(3) —</td> <td>B: i_bErrReset</td> <td style="text-align: right;">o_bModuleErr: B</td> <td style="text-align: right;">(6)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uModuleErrId: UW</td> <td style="text-align: right;">(7)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uModuleErrAddr: UW</td> <td style="text-align: right;">(8)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_bErr: B</td> <td style="text-align: right;">(9)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">o_uErrId: UW</td> <td style="text-align: right;">(10)</td> </tr> </table> </div>	(1) —	B: i_bEN	o_bENO: B	(4)	(2) —	DUT: i_stModule	o_bOK: B	(5)	(3) —	B: i_bErrReset	o_bModuleErr: B	(6)			o_uModuleErrId: UW	(7)			o_uModuleErrAddr: UW	(8)			o_bErr: B	(9)			o_uErrId: UW	(10)
(1) —	B: i_bEN	o_bENO: B	(4)																										
(2) —	DUT: i_stModule	o_bOK: B	(5)																										
(3) —	B: i_bErrReset	o_bModuleErr: B	(6)																										
		o_uModuleErrId: UW	(7)																										
		o_uModuleErrAddr: UW	(8)																										
		o_bErr: B	(9)																										
		o_uErrId: UW	(10)																										

### Labels

#### ■Input labels

No.	Variable name	Name	Data type	Scope	Description
(1)	i_bEN	Execution command	Bit	ON or OFF	ON: The FB is activated. OFF: The FB is not activated.
(2)	i_stModule	Module label	Structure	The scope differs depending on the module label.	Specify the module label of the temperature control module.
(3)	i_bErrReset	Error reset command	Bit	ON or OFF	ON: Errors are reset. OFF: Errors are not reset.

#### ■Output labels

No.	Variable name	Name	Data type	Default value	Description
(4)	o_bENO	Execution status	Bit	OFF	ON: The execution command is ON. OFF: The execution command is OFF.
(5)	o_bOK	Normal completion	Bit	OFF	The ON state indicates that resetting the errors has been completed.
(6)	o_bModuleErr	Module error detection	Bit	OFF	The ON state indicates that an error has occurred.
(7)	o_uModuleErrId	Module error code	Word [unsigned]	0	The error code of the error that has occurred in the temperature control module is stored.
(8)	o_uModuleErrAddr	Error address	Word [unsigned]	0	The address where an error has occurred is output.
(9)	o_bErr	Error completion	Bit	OFF	Always OFF
(10)	o_uErrId	Error code	Word [unsigned]	0	Always 0



## FB details

Item	Description
Available devices	Target modules R60TCTRT2TT2, R60TCTRT2TT2BW, R60TCTRT2TT2-TS, R60TCRT4, R60TCRT4BW, R60TCRT4-TS
	CPU modules MELSEC iQ-R series CPU modules
	Engineering tool GX Works3
Language	Ladder diagram
Number of basic steps	152 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the options setting of GX Works3. For the options setting of GX Works3, refer to the GX Works3 Operating Manual.
Processing	<ul style="list-style-type: none"> <li>By turning ON i_bEN (Execution command), errors are monitored.</li> <li>When a module error has occurred, o_uModuleErr (Module error detection) is turned ON and description of the error is stored in o_uModuleErrId (Module error code) and o_uModuleErrAddr (Error address).</li> <li>After i_bEN (Execution command) is turned ON, the generated error is reset by turning ON i_bErrReset (Error reset command).</li> </ul>
FB compilation method	Macro type
FB operation	Arbitrary execution type
Timing chart of I/O signals	<p>■ When the operation is completed successfully</p> <p>Legend:          ----▶ Executed by the temperature control module.          —▶ Executed by the FB.</p>
Restrictions and precautions	<ul style="list-style-type: none"> <li>This FB does not include the error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>This FB cannot be used in an interrupt program.</li> <li>Do not use this FB in programs that are executed only once, such as a subroutine program or FOR-NEXT loop, because i_bEN (Execution command) cannot be turned OFF and the normal operation cannot be acquired. Always use this FB in programs that can turn OFF i_bEN (Execution command).</li> <li>This FB requires the configuration of the ladder for every input label.</li> <li>When this FB is used in two or more places, a duplicated coil warning may occur during compile operation due to the Y signal being operated by the module label. However, this is not a problem and the FB will operate without an error.</li> <li>To operate the temperature control module, the setting must be configured according to each connected device and system. Set up the module parameters of GX Works3 according to the application. For the setting method of the module parameter, refer to the MELSEC iQ-R Temperature Control Module User's Manual (Application).</li> </ul>

## Error code

Error code	Description	Action
None	None	None

# INSTRUCTION INDEX

---

## M

---

M+R60TCBW_OperateError .....	14
M+R60TCBW_StartPeakCurrentSuppression BetweenModule .....	4
M+R60TCBW_StartSimultaneousTemperatureRise BetweenModule .....	9
M+R60TC_OperateError .....	14
M+R60TC_StartPeakCurrentSuppression BetweenModule .....	4
M+R60TC_StartSimultaneousTemperatureRise BetweenModule .....	9

# MEMO

---

# MEMO

---

# MEMO

---

# REVISIONS

---

\*The manual number is given on the bottom left of the back cover.

Revision date	*Manual number	Description
July 2015	BCN-P5999-0565-A	First edition
April 2016	BCN-P5999-0565-B	■ Added or modified part Chapter 2
March 2017	BCN-P5999-0565-C	■ Added or modified part Chapter 2
April 2021	BCN-P5999-0565-D	■ Added or modified part Section 2.1, 2.2

Japanese manual number: BCN-P5999-0516-D

---

This manual confers no industrial property rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

---

©2015 MITSUBISHI ELECTRIC CORPORATION



BCN-P5999-0565-D(2104)

## **mitsubishi electric corporation**

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN

When exported from Japan, this manual does not require application to the  
Ministry of Economy, Trade and Industry for service transaction permission.

Specifications subject to change without notice.