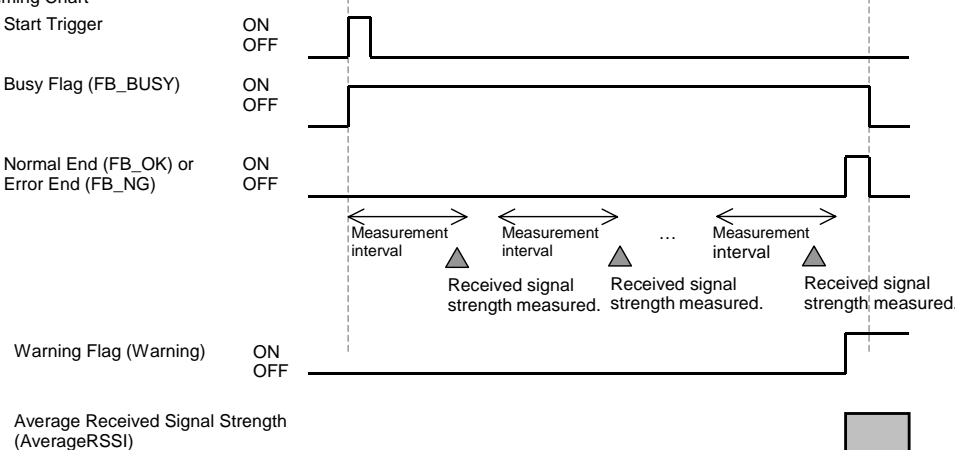


WT3x 204	Read Average Receiving Signal Strength: _WT3x204_ReadAverageRSSI
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Basic function	Measures the received signal strength over a specific interval to read the average signal strength.				
Symbol		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-right: 1px solid black; padding: 5px;"> _WT3x204_ReadAverageRSSI (BOOL) EN (INT) UnitSelect (INT) PortNo (INT) WTM_UnitNo (INT) WTS_NodeNo (INT) RSSI (INT) AverageNum (UINT) IntervalTime </td> <td style="width: 50%; padding: 5px;"> (BOOL) ENO (BOOL) FB_BUSY (BOOL) FB_OK (BOOL) FB_NG (BOOL) Warning (INT) AverageRSSI </td> </tr> </table>	_WT3x204_ReadAverageRSSI (BOOL) EN (INT) UnitSelect (INT) PortNo (INT) WTM_UnitNo (INT) WTS_NodeNo (INT) RSSI (INT) AverageNum (UINT) IntervalTime	(BOOL) ENO (BOOL) FB_BUSY (BOOL) FB_OK (BOOL) FB_NG (BOOL) Warning (INT) AverageRSSI	Busy Flag Normal end Error end Warning Flag Average of RSSI
_WT3x204_ReadAverageRSSI (BOOL) EN (INT) UnitSelect (INT) PortNo (INT) WTM_UnitNo (INT) WTS_NodeNo (INT) RSSI (INT) AverageNum (UINT) IntervalTime	(BOOL) ENO (BOOL) FB_BUSY (BOOL) FB_OK (BOOL) FB_NG (BOOL) Warning (INT) AverageRSSI				
File name	Lib\FBL\omronlib\WirelessTerminal\WT30_WT3x204_ReadAverageRSSI10.cxf				
Applicable models	Master	WT30-M01-FLK			
	Slave	WT30-SID16/SMD16/SMD16-1			
	CPU Unit	CS1*-CPU**H Unit version 3.0 or higher CJ1*-CPU**H Unit version 3.0 or higher CJ1M-CPU** Unit version 3.0 or higher CP1H CP1L (except 10 points CPU)			
	Serial Communications Units/Boards	CS1W-SCU21-V1, CJ1W-SCU21-V1, CJ1W-SCU41-V1 Unit Version 1.2 or higher CS1W-SCB21-V1 and CS1W-SCB41-V1 Unit Version 1.2 or higher			
	CX-Programmer	Version 5.0 or higher			
Conditions for usage	WT30 FA Wireless SS Terminal <ul style="list-style-type: none"> • This function block can be used only in RUN mode. This function block cannot be used in TEST or SET mode. Communications Settings The communications settings of the serial port must be the same as those of the WT30 FA Wireless SS Terminal. <ul style="list-style-type: none"> • The communications settings of the specified serial port can be set to the default WT30 settings using the Set Communications Port (_WT3x600_SetComm) function block, and the other WT30 settings using the Set Serial Gateway Mode (_SCx604_SetPortGATEWAY) function block. • Use Serial Communications Unit (SCU) or Serial Communications Board (SCB) unit version 1.2 or later. CPU Unit Settings PLC Setup: Shared Settings for Communications Instructions in FBs <ul style="list-style-type: none"> • Communications Instruction Response Timeout Time (default: 2 s) • Number of Retries (default: 3) Shared Resources <ul style="list-style-type: none"> • Communications ports (internal logical ports) 				
Function description	When the Start Trigger turns ON, the received signal strengths of the slaves connected to the specified master are read at a specific interval (e.g., the wireless cycle time) and the average value for up to 10 measurements is checked against a reference level. If the reference level is not met, Warning Flag will turn ON. If the processing time required for the FB is longer than the specified Measurement interval, measurements will be performed for the processing time.				

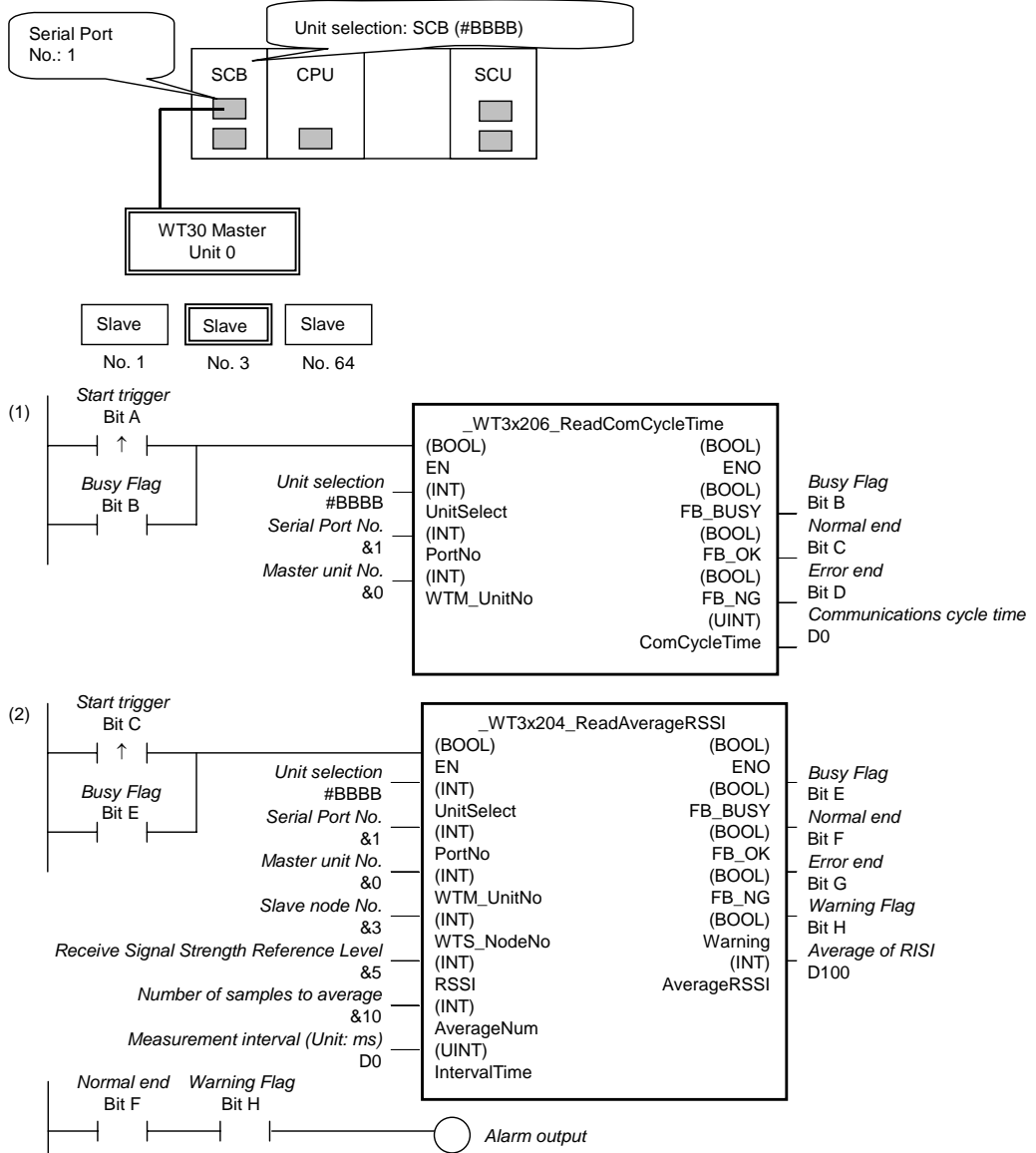
<p>FB precautions</p>	<ul style="list-style-type: none"> The FB is processed over multiple cycles. The FB_BUSY output variable can be used to check whether the FB is being processed. FB_OK or FB_NG will be turned ON for one cycle only after processing is completed. Use these flags to detect the end of FB processing. <ul style="list-style-type: none"> Timing Chart  <p>The timing chart illustrates the sequence of events during the FB processing. It shows five signal lines: Start Trigger, Busy Flag (FB_BUSY), Normal End (FB_OK) or Error End (FB_NG), Warning Flag (Warning), and Average Received Signal Strength (AverageRSSI). The Start Trigger is a single pulse that initiates the process. FB_BUSY then turns ON and remains ON throughout the entire duration of the measurement intervals. The Normal End flag (FB_OK) or Error End flag (FB_NG) is a single pulse that occurs at the very end of the process, after the final measurement interval. The Warning Flag (Warning) is a single pulse that occurs at the end of the process, after the Normal End flag. The Average Received Signal Strength (AverageRSSI) is represented by a shaded box at the bottom right of the chart. The measurement intervals are shown as horizontal arrows pointing to the right, with the label 'Measurement interval' and a triangle pointing to the start of each interval. Below each interval, the text 'Received signal strength measured.' is written. The intervals are separated by an ellipsis '...' indicating multiple cycles.</p>
<p>EN input condition</p>	<p>Connect EN to an OR between an upwardly differentiated condition for the start trigger and the FB_BUSY output from the FB.</p>
<p>Restrictions Input variables</p>	<ul style="list-style-type: none"> Always use an upwardly differentiated condition for EN. If the input variables are out of range, the ENO Flag will turn OFF and the FB will not be processed.
<p>Output variables</p>	<ul style="list-style-type: none"> The Warning Flag and Average Received Signal Strength are set when the Normal End flag turns ON. This FB requires multiple cycles to process. Always connect an OR including the FB_BUSY output variable to the EN input variable to ensure that the FB is processed to completion (see <i>Symbol</i>). Do not turn the FB_BUSY output variable ON or OFF outside the FB.

Application example

A WT30 FA Wireless SS Terminal is connected to serial port 1 on a Serial Communications Board (SCB). The following is performed with bit A turns ON.

(1) The wireless cycle time of master 0 is output to D0.

(2) The average received signal strength of slave 3 for 10 wireless cycle times is output to D100.



Variable Tables**Input Variables**

Name	Variable name	Data type	Default	Range	Description
EN	EN	BOOL			ON: FB started OFF: FB not started.
Unit selection	UnitSelect	INT	&0	At right.	Specify the Unit and the serial port. Only serial port 2 of CP1H/CP1L M-type CPU unit is possible to use this FB. <ul style="list-style-type: none"> ■ Connected to CPU Unit <ul style="list-style-type: none"> Unit selection #FFFF Serial port No. Not accessed. (CP1H/CP1L-M: Serial Port2 CP1L-L14/20: Serial Port1) ■ Connected to Serial Communication Board(SCB) <ul style="list-style-type: none"> Unit selection #BBBB Serial port No. &1: Serial Port 1 &2: Serial Port 2 ■ Connected to Serial Communication Unit(SCU) <ul style="list-style-type: none"> Unit selection SCU Unit No. (&0 to &15) Serial port No. &1: Serial Port 1 &2: Serial Port 2
Serial Port No.	PortNo	INT	&1	&1 to &2	
Master unit No.	WTM_UnitNo	INT	&0	&0 to &99	Specify the unit number of the master.
Slave node No.	WTS_NodeNo	INT	&1	&1 to &64	Specify slave node to measure the average received signal strength.
Receive Signal Strength Reference Level	RSSI	INT	&5	&0 to &9	Specify the received signal strength reference level. &5 is recommended.
Number of samples to average	AverageNum	INT	&1	&0 to &10	Specify the number of samples to average. Maximum: 10 samples
Measurement interval (Unit: ms)	IntervalTime	UINT	&0	&0 to &65535	Specify the measurement interval (unit: ms). The measurement interval is specified in milliseconds, but the value will be truncated to increments of 10 ms in the FB. If the processing time required for the FB is longer than the specified interval, measurements will be performed for the processing time.

Output Variables

Name	Variable name	Data type	Range	Description
ENO (May be omitted.)	ENO	BOOL		ON: FB processed normally. OFF: FB not processed or ended in an error.
Busy Flag	FB_BUSY	BOOL		Automatically turns OFF when processing is completed.
Normal end	FB_OK	BOOL		Turns ON for one cycle when processing ends normally.
Error end	FB_NG	BOOL		Turns ON for one cycle when processing ends in an error.
Warning Flag	Warning	BOOL		ON: Reference level not met. OFF: Reference level met.
Average of RSSI	AverageRSSI	INT	&0 to &9	Outputs the average received signal strength.

Internal Variables

Internal variables are not output from the FB.

If the NG Flag from the FB turns ON, the following internal variables can be monitored to obtain information on the error.

Name	Variable name	Data type	Range	Description
FINS error code	FINS_ErrorCode	WORD		The FINS error code is output. A code of #0000 is output for a normal end. Refer to the <i>Related Manuals</i> for details on the error codes.
CompoWay/F error code	CompowayF_Error Code	WORD		Outputs the CompoWay/F error code. A code of #0000 is output for a normal end. See below for details on errors.

CompoWay/F Error Codes

Code	Contents	Meaning
#0000	Normal end	
#2203	Operation error	<ul style="list-style-type: none"> The operating mode is incorrect (execution is not possible in the current mode). An error occurred in EEPROM.

Version History

Version	Date	Contents
1.00	2004.12.	Original production

Note

This manual is a reference that explains the function block functions.

It does not explain the operational limitations of Units, components, or combinations of Units and components. Always read and understand the Operation Manuals for the system's Units and other components before using them.