

ABB MEASUREMENT & ANALYTICS | INSTRUCTION | IN/ANAINST/052-EN REV. A

AWT210 communications module

Software update procedure



Measurement made easy

AWT210 communications module

Introduction

This publication details the procedure for upgrading the module software revision in the AWT210 communications modules. The procedure must be carried out by a trained technician.

The contents of the upgrade is shown below:

Description	Part number
Module programming jig	3KXA872210L0123

For more information

Further information is available from: <u>www.abb.com/measurement</u> or by scanning these codes:

of by scalling these code



Sales

Service

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1 Health and safety

Document symbols

Symbols that appear in this document are explained below:

A DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Note

Upgrades should be carried out by authorized and trained service personnel only.

Safety precautions

Be sure to read, understand and follow the instructions contained within this manual before and during use of the equipment. Failure to do so could result in bodily harm or damage to the equipment.

2 Installing the software

Please use the following link to download and install the Flash development tool kit 4.09 software:

http://www.renesas.com/us/en/software-tool/ flashdevelopment-toolkit-programming-gui.

Note. You will be required to register with Renesas in order to download this software.

3 Downloading the module software

The communications module software files can be downloaded using the following links. Ensure to select the correct file for the communications module you wish to upgrade:

HART®:

https://search.abb.com/library/Download.aspx?DocumentID= SW%2FAWT210%2FHART&LanguageCode=en& DocumentPartId=&Action=Launch.

PROFIBUS®:

https://search.abb.com/library/Download.aspx?DocumentID= SW%2FAWT210%2FPROFIBUS&Language Code=en&DocumentPartId=&Action=Launch.

Fieldbus®:

https://search.abb.com/library/Download.aspx?DocumentID= SW%2FAWT210%2FFIELDBUS&Language Code=en&DocumentPartId=&Action=Launch.

4 Upgrade procedure

4

- 1 Remove module from AWT assembly or packaging.
- 2 Open the module programmer box lid by placing a flat bladed screwdriver in the hole and opening the catch. Refer to Figure 1.



Upgrading the HART module software

1 Plug USB cable into PC and open the flash development toolkit 4.09 Basic program.

Options	
- Freedow - Contraction - Cont	
BASIC FILE PROGRAMMING	Exit
1	
Device : R5F3650T_2Line Port : E8a: (Disconnected)	
1	
┌ File Selection	
Download File	
✓ User / Data Area C:\Users\gbnitur\Desktop\AW/T210_F2_01_01_08.	mot 🕨
User Boot Area	
Program Flash	Disconnect
Flash Development Toolkit and flash programming compo	onents
are provided without support	
OS: Windows 10 (Windows 8) [Non-Admin]	
FCF Settings Applied: R5F3650T_2Line, (C:\Program Fil	es (x86)\Renesas\

- Figure 1 Opening the module programmer box
- 3 Place the module you wish to program as shown. Refer to Figure 2 (A).
- 4 Push the module locking mechanism down and turn it clockwise to lock the module in place. Refer to Figure 2(B).



Figure 2 Figure 2 Programming the module

2 Select options and 'New settings'.



3 Choose the device 'R5F363AM_2Line' and press Next.

	Kernei			
he FLASH Deve	elopment Toolkit supports a i	number of Renesas FLASH	devices.	
elect the device	you wish to use with this pr	oject from the list below.		
lter: R5F363/	AM_2			Other
Туре	Full Name	Kernel Version	Info	
M16C	R5F363AM_2Line	1_2_00		
Generic BOOT [Device Generic BOOT De	vice N/A		
<				
٢				

4 Select the communications port as 'E8a'.

Communications Port		×
	Use this page to select your desired communications port/interface. All settings may be changed after the project is created.	
	Select port:	
2 1	Select an Interface type to connect to the target device with. Normally this will be "Direct Connection" or simply left blank.	
	Select Interface: Direct Connection	
14 13	Set Reset pin as low when disconnecting	
1		
	< Back Next > Cance	8

5 Ensure recommended speed is the highest and press Next.

Workspace 48 DA FF 58	number of different ways. All the options on this page may be changed after the Project has been created.
Workspace 'Industrial Cr	Select Connection:
B OC EC-HELT Device Lange	BOOT Mode C USER Program Mode
0 00 00 00 Target files 00 0	🗖 Kemel already runnin
0 80 60 F9 913 1-SD motor / A 72 E8 81 113 8Keyboardim 1 52 8A 33-4(S) 6Commis.motor E 84 14-8 (Motor Commis.motor	In BOOT Program mode the device erases its FLASH prior to connection. The Toolkit downloads programming kernels to the device as required.
Device Image F 6 80 C Target files B 2 1A 2C S Drive, mot	The Recommended Speed setting is based on the current dev and clock. The user may also input their own, if this is supporte by the kernel (and the interface board).
6 F0 58 FD S SD Algorithmens E SD 9A DE AS C5 64 85 97	Recommended Speeds: 750000 ✓ Use Default
8 4F EF 84 B0 83 6F 88 1E 1	C User Specified:

6 Ensure programming options are as shown:

World's to be de be to se a	What level of device protection would you like?
7 2A 9A 2T CA AD 5D AP DD 5	Automatic O Interactive O None
	When programming the device, any blocks found to have been written previously will automatically be erased.
0 00 00 00 00 00 00 00 00 00 00 00 00 0	What level of messaging would you like?
Motor Control	C Standard C Advanced
F E6 BC OF Target Files B B 92 1A 2C OF CONVERSE B 27 91 08 ST Data MOL	The Toolkit will display verbose messages whenever it is communicating with the Target device. This mode is useful for Interface hardware development, and Kemel development.
6 F0 58 FD 57 DAIgoratory	Would you like to perform readback verification after programming
8 47 EF 84 B0 83 6F 00 IE 8	Readback Verification
	C Yes C No

7 Press Finish.

6

... Upgrading the HART module software

8 Select the software revision you wish to use:

	BASIC FILE PROU	GRAMMING		Exit
evice : R5F3650T_2L	ine Port :	E8a: (Disconnect	ed)	
Tile Selection				
Ownload File				
🔽 User / Data Area 🔟	D6 HART Comms Mo	odule Firmware\AWT2	10_H2_01_01_06.r	not 🕨
🗖 User Boot Area 🗌				
	Program	m Flash	D	isconnect
lash Development To	oolkit and flag	sh programming	components	
e provided without	support			
re provided without 5: Windows 10 (Wind	iows 8) [Non-Ad	dmin]		
re provided without 5: Windows 10 (Wind CF Settings Applied DT API initialised	dows 8) [Non-Ad 1: R5F363AM_2L: : version 4, 0	dmin] ine, (C:\Progra 9, 02, 000	m Files (x86)	\Renesas\

9 Press program flash and select 3.3V power supply, press OK.



10 Press OK.

Select USB Device	×
1 USB device located	OK
E8a: 015079398	Cancel

11 The software will update:

DT Simple Interface (Unsupported Freeware Version)	
Options	
BASIC FILE PROGRAMMING	Exit
Device : R5F3650T_2Line Port : E8a: (0IS079398)	
File Selection	
🕫 Download File	
Viser / Data Area C:\Users\gbnitur\Desktop\AWT210_F2_01_01_08.mot	•
🗖 User Boot Area	•
Cancel	Disconnect
14%	
Erased block EB1 (0x000E0000 - 0x000EFFF) Erasing 'EB0' Erased block EB0 (0x000F0000 - 0x000FFFF) Erase complete Processing file :"C:\Users\gbnitur\Desktop\AWT210_F2_01_0 [User Flash 2] - No Data Loaded [Data Flash] - No Data Loaded Operation on User Flash 1 Writing image to device [0x00040000 - 0x000401FF] Writing image to device [0x00040300 - 0x000E58FF])1_08.mot"
<	>

12 Select the communications port as 'E8a'.

В	ASIC FILE PRU	JGHAMMING			EXI	
Device : R5F3650T_2Line	Port :	E8a: (019	6079	398)		
Block Locking					>	
On Disconnect						
Lock Bit State	State	At Disconnect		What should F	DT do with the	
E- R5F3650T_2Line			^	block locking	settings now?	
🗄 📺 User Flash 1						
[]] EB11	Unloc	ked				
🗂 EB10	Unloc	ked		C Set Locks/Unlocks		
🗂 EB9	Unloc	ked				
- 🗂 EB8	Unloc	ked		C Lucks/	Iser I o Set	
- 🗂 EB7	Unloc	ked		2001011	211100100	
🗂 EB6	Unloc	ked	-	O Not	ning	
🗂 EB5	Unloc	ked				
[]] EB4	Unloc	ked		_		
() EB3	Unloc	ked		Enable E	diting	
🙄 EB2	Unloc	ked				
J 2 200 ED1	0.0.0		*			
			Γ	ОК	Cancel	
UXUUU4U3UU - UXUUUE36		iaru : oxoo	L			
$0 \times 0.00 \text{FFF} = 0 \times 0.00 \text{FFF}$	FF Lei	arth : 0x00	000	100		

13 Press OK, The module has now been upgraded.

Upgrading the Fieldbus module software

1 Plug USB cable into PC and open the flash development toolkit 4.09 Basic

DT Simple	Interface (Unsuppo	rted Freeware Versic	n)	
	BA	SIC FILE PROGRAM	ling	Exit
Device :	R5F3650T_2Line	Port : E8	a: (Disconnected)	_
File Selec	ction			
	nload File			
🔽 User	r / Data Area C:\User:	s\gbnitur\Desktop\AW	/T210_F2_01_01_08.m	ot 🕨
🗖 Use	er Boot Area			►
		Program Flash		Disconnect
Flash De are prov OS: Wine FCF Set	evelopment Toolk vided without su dows 10 (Windows tings Applied: R	it and flash pr pport 8) [Non-Admin] 5F3650T_2Line,	ogramming compon (C:\Program File	ents s (x86)\Renesas
<				3

2 Select options and 'New settings'.



8

... Upgrading the Fieldbus module software

3 Choose the device R5F3650T_2 Line.

	you wish to use with this project	t from the list below.		
ilter: R5F3650	T]	[Other
Туре	Full Name	Kernel Version	Info	
M16C	R5F3650T 7Line	1 1 00		
M16C	R5F3650T_2Line	1 1 00		

4 Select the communications port as 'E8a'.

Communications Port		×
	Use this page to select your desired communications port/interface. All settings may be changed after the project is created.	
	Select port:	
2 1 1 1	Select an Interface type to connect to the target device with. Normally this will be "Direct Connection" or simply left blank.	
	Select Interface: Direct Connection	
14 13.	Set Reset pin as low when disconnecting	
 		_
	< Back Next > Cance	ł

5 Untick Use Default and select speed 250000 settings and press Next.



6 Ensure programming options are as shown:

	Miller I level of device enderties would very the 2
WALLU 40 03 00 90 07 39 7	what level of device protection would you like?
7 28 98 21 08 40 50 19 37	Protection
Workspace to a	S Automatic S Interactive S None
7 E E Display 70 00 BA 1 6 0¢ EC F Device Inager	When programming the device, any blocks found to have been written previously will automatically be erased.
0 00 00 00 00 00 00 00 00 00 00 00 00 0	What level of messaging would you like?
Comms.mot Motor Control Comms.mot Device Image	C Standard C Advanced
F E6 80 0 Jarget files 70 3 82 4 0 Jarget files 70 8 92 1A 20 9 Drive Moto 8 27 91 08 1 Statemet A	The Toolkit will display verbose messages whenever it is communicating with the Target device. This mode is useful for Interface hardware development, and Kernel development.
6 F0 58 FD 57 DAIgonthiller E 5D 9A DE A9 C5 64 85 97	Would you like to perform readback verification after programming?
8 4F EF 84 B0 83 6F 85 1E 1	Readback Verification
	C Yes No
1	
	< Back Finish Cancel

7 Press Finish.

8 Select the software revision you wish to use:

			1
E	ASIC FILE PROGRAMMING	Exit	
ice : R5F363AM_2Line	Port : E8a: (Disconnected	0	
Selection			
Download File			
User / Data Area 01_01_	08 FF Comms Module Firmware\AWT211	0_F2_01_01_08.mot	Browse
User Boot Area			AWT210_F2_01_01_08.mot
	Program Flash	Disconnect]
sh Development Tool	kit and flash programming co	omponents	-
provided without s	upport		
Windows 10 (Window	s 8) [Non-Admin]	Files (noch) Democra	
API initialised: v	ersion 4, 09, 02, 000	riles (X06)\Renesas\	
	R5F363AM_2Line, (C:\Program	Files (x86)\Renesas\	4
Windows 10 (Window Settings Applied: API initialised: v	s 8) [Non-Admin] R5F3650T_2Line, (C:\Program ersion 4, 09, 02, 000 R5F363AM_2Line, (C:\Program	Files (x86)\Rene Files (x86)\Rene	sas\
Settings Applied:			

9 Press program flash and select 3.3V power supply, press OK.

Power supply from E8/E8a/E1	OK
© 3.3V C 5.0V	Cancel
- Information on the user-power supply	
□ 1.8 V	
Be sure to select this check box if user power supply at 1.8 V is to be	

10 Press OK.



11 The software will update:

FDT Simple Interface (Unsupported Freeware Version)	
Options	
BASIC FILE PROGRAMMING	Exit
Device : R5F3650T_2Line Port : E8a: (0IS079398)	
File Selection	
🕫 Download File	
User / Data Area C:\Users\gbnitur\Desktop\AWT210_F2_01_01_08.mot	•
🗖 User Boot Area	•
Cancel	Disconnect
14%	
Erased block EB1 (0x000E0000 - 0x000EFFFF) Erasing 'EB0' Erased block EB0 (0x000F0000 - 0x000FFFF) Erase complete Processing file:"C:\Users\gbnitur\Desktop\AWT210_F2_01_0 [User Flash 2] - No Data Loaded [Data Flash] - No Data Loaded Operation on User Flash 1 Writing image to device [0x00040000 - 0x000401FF] Writing image to device [0x00040300 - 0x000E58FF]	1_08.mot"
<	>

12 Once finished press disconnect:

Г	BAS		MING		Exit
	0110				
evice :	R5F3650T_2Line	Port :	E8a: (0IS079	(398)	
lock Loc	king				×
On Disc	onnect				
Lock B	it State	State At Disc	connect	What should FD	T do with the
E-01	R5F3650T_2Line		^	block locking se	ttings now?
ė	📺 User Flash 1				
	- []] EB11	Unlocked			
	- 📺 EB10	Unlocked		C Set Locks	/Unlocks
	[]] EB9	Unlocked		o	T 0 1
	[]] EB8	Unlocked		C Query Use	er Lo Set Jocks
	[]] EB7	Unlocked		20010101	100110
	- []] EB6	Unlocked		O Nothin	g
	[]] EB5	Unlocked			
	- []] EB4	Unlocked			
	[]] EB3	Unlocked		🗌 Enable Editi	ng
	[]] EB2	Unlocked			
	2000 ED1	(the test start)	*		
			[OK	Cancel
X00040	SUU - UXUUUESOFF	Lengen	· UXUUUAS		
x000FF	F00 - 0x000FFFFF	Length	: 0x00000	100	
52.25 H	(programmed in 5	5 seconds			
lage wi	itten to device				

13 Press OK, The module has now been upgraded.

Upgrading the PROFIBUS module software

1 Plug USB cable into PC and open the flash development toolkit 4.09 Basic

ptions	(,		
[BASIC FILE P	PROGRAMMING		Exit
Device :	R5F3650	T_2Line Port :	E8a: (Di	sconnected)	
File Selec	tion				
O Down	nload File				
🔽 User	/ Data Area	C:\Users\gbnitur\D	esktop\AWT210)_F2_01_01_08.mot	
🗖 Use	r Boot Area				•
		Pro	ogram Flash		Disconnect
'lash De ire prov	velopmen vided wit	t Toolkit and i hout support	flash progra	mming componer	its
OS: Wind	iows 10 (Windows 8) [Nor	n-Admin]	Durante Files	(
Cr Sett	ings App	11ed: K5F36501_	_2Line, (C:	Frogram files	(X00) \Renesas \

3 Choose the device R5F3650T_2 Line.

ose Device And	l Kernel			
The FLASH Deve Select the device	elopment Toolkit supports a nu you wish to use with this proje	mber of Renesas FLASH ect from the list below.	l devices.	
ilter: R5F3650	T			Other
Туре	Full Name	Kernel Version	Info	
M16C	R5F3650T 7Line	1 1 00		
M16C	R5F3650T_21 ine	1 1 00		
<		_		>

4 Select the communications port as 'E8a'.

Communications Port		×
	Use this page to select your desired communications port/interface. All settings may be changed after the project is created.	
	Select port:	
2 1	Select an Interface type to connect to the target device with. Normally this will be "Direct Connection" or simply left blank.	
	Select Interface: Direct Connection	
14.13.	Set Reset pin as low when disconnecting	
		_
	< Back Next > Cance	el l

2 Select options and 'New settings'.



5 Untick Use Default and select speed 250000 settings and press Next.



6 Ensure programming options are as shown:

Programming Options	×
Workspace Industrial Control Display To 20 Trace field by the trace of	What level of device protection would you like? Protection Automatic Interactive When programming the device, any blocks found to have been written previously will automatically be erased. What level of messaging would you like? Messaging C Standard Advanced The Toolkit will display verbose messages whenever it is communicating with the Target device. This mode is useful for Interface hardware development, and Kemel development. Would you like to perform readback verification after programming? Readback Verification C Yes No
	< Back Finish Cancel

7 Press Finish.

8 Select the software revision you wish to use:

	BASIC	FILE PROGRAMMING	Exit
Device : R5	F3650T_2Line	Port : E8a: (Disconnecte	d)
File Selection-			
Download F	ïle		
🔽 User / Data	Area 1_01_06 PA	Comms Module Firmware\AWT21	0_P2_01_01_06.mot
🗖 User Boot	Area		•
		Program Flash	Disconnect
lash Develo	pment Toolkit	and flash programming o	omponents
lash Develo re provided	pment Toolkit without suppo	and flash programming c ort	omponents
Plash Develo The provided S: Windows CF Settings TDT API init CF Settings	pment Toolkit without suppo 10 (Windows 8) Applied: R5F: anlied: R5F:	and flash programming c ort) [Non-Admin] 363AM_2Line, (C:\Program 363OT_2Line, (C:Program 363OT_2Line, (C:Program	omponents Files (x86)\Renesa Files (x86)\Renesa

9 Press program flash and select 3.3V power supply, press OK.

Power supply from E8/E8a/E1	OK
© 3.3V C 5.0V	Cancel
Information on the user-power supply	
Be sure to select this check box if user power supply at 1.8 V is to be	

... Upgrading the PROFIBUS module software

10 Press OK.



${\bf 11} \ {\rm The \ software \ will \ update:}$

DT Simple Interface (Unsupported Freeware Version) Options	
BASIC FILE PROGRAMMING	Exit
Device : R5F3650T_2Line Port : E8a: (0IS079398)	
File Selection	
🕫 Download File	
User / Data Area C:\Users\gbnitur\Desktop\AWT210_F2_01_01_08.mot	►
🗖 User Boot Area	•
Cancel	Disconnect
14%	
Erased block EB1 (0x000E0000 - 0x000EFFFF) Erasing 'EB0' Erased block EB0 (0x000F0000 - 0x000FFFFF) Erase complete Processing file :"C:\Users\gbnitur\Desktop\AWT210_F2_01_01 [User Flash 2] - No Data Loaded [Data Flash] - No Data Loaded Operation on User Flash 1 Writing image to device [0x00040000 - 0x000401FF] Writing image to device [0x00040300 - 0x000E58FF]	_08.mot"
<	>

12 Once finished press disconnect:

evice : R5F3650T_2Line	Port :	E8a: (0IS079	(398)		
ock Locking					
On Disconnect					
Lock Bit State	State /	State At Disconnect		What should FDT do with the	
🖃 🥅 R5F3650T_2Line		^	block locking se	ettings now?	
🖨 🥅 User Flash 1					
- 🗂 EB11	Unlock	ed			
🗂 EB10	Unlock	ed	C Set Locks/Unlocks		
🗂 EB9	Unlock	ed	Ouenulle	or To Col	
[]] EB8	Unlock	ed	C Locks/U	nlocks	
🗂 EB7	Unlock	ed			
🗂 EB6	Unlock	ed	O Nothi	ng	
[]] EB5	Unlock	ed			
🗂 EB4	Unlock	ed			
[]] EB3	Unlock	ed	Enable Edi	ting	
[]] EB2	Unlock	ed 🗸			
E 200 ED4	that a st	- a 👘			
		[OK	Cancel	
X00040300 - 0X000E30	rr ben	gen : Oxooox5	1000		
x000FFF00 - 0x000FFF	FF Len	gth : 0x00000	100		

5 Resetting the unit

On first power up after upgrade please reset the unit to default settings by following the below steps:

1 Set the factory reset switch to the 'ON' position. Refer to Figure 3.



Figure 3 Resetting the unit

- **2** Power up unit.
- **3** Once unit has powered up move the factory reset switch back to the 'OFF' position.

Acknowledgments

- Renesas is a trademark of Renesas Electronics Ltd
- HART is a registered trademark of the FieldComm Group
- PROFIBUS is a registered trademark of PROFIBUS
- Nutzerorganisation, e.V
- Fieldbus is a registered trademark of FieldComm Group

Notes



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For your local ABB contact, visit: **www.abb.com/contacts**

For more product information, visit: www.abb.com/measurement

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