

### OCTOBER, 2018, 1SFC132050D0201

# **Ethernet Communication setup PLC with PSTX**

### Hardware:

- ABB PSTX soft start
- Eds file used: AB\_EIPT\_1\_PSTX\_1\_1.eds
- Anybus 1 port Ethernet module V2.1
- ABB ACS 880 VFD
- RSLogix 5k V

### Sections:

- How to setup Ethernet/IP configuration using a generic Ethernet module
- How to Configure communications utilizing the AB\_EIPT\_1\_PSTX\_1\_1.eds file
- PLC sample tag database
- PSTX parameter list

This describes how to configure an Anybus Ethernet/IP adapter module with a Rockwell PLC using RSLogix 5000 to communicate to ABB PSTX Softstart. Below you can find an overview of the system described in this document.





# Install the Anybus module in the PSTX softstarter:



### Ethernet/IP configuration using a generic Ethernet module

To configure the PLC and the Ethernet/IP network the tool RSLogix 5000 is used. First the PLC needs to be configured and secondly the Ethernet/IP network. Start the RSLogix 5000 program and follow the steps below.

PLC configuration

1. Either create a new project or use an existing. To create a new configuration, open the file menu and select new. In the appearing dialogue select the desired type of PLC, in this case the type 1756-L55 is used. Also enter a name for the controller and select chassis type, slot number and project path. To accept the settings, press OK.

New Controller		
Vendor:	Allen-Bradley	
<u>Т</u> уре:	1756-L55 ControlLogix5555 Controller	ОК
Re <u>∨</u> ision:	13 💌	Cancel
	Redundancy Enabled	Help
Na <u>m</u> e:	CLOGIX5000	
Descri <u>p</u> tion:		
	~	
<u>C</u> hassis Type:	1756-A10 10-Slot ControlLogix Chassis	
Sl <u>o</u> t.	0 • Safety Partner Slot: <none></none>	
Cr <u>e</u> ate In:	C:\Program Files\Rockwell Software\RSLogix5000\Projects	<u>B</u> rowse



2. Then add the Ethernet I/O module. Right click on the I/O configuration directory in the navigation list to the left as seen below.



3. Click on new module and select the desired Ethernet module, in this case the Ethernet Bridge. This module is the scanner module in the PLC.

Select Module T	elect Module Type				
Type: 1756-EN	NET/B				
Туре	Description				
1756-DNB	1756 DeviceNet Scanner	^			
1756-ENBT/A	1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media				
1756-ENET/A	1756 Ethernet Communication Interface				
1756-ENET/B	1756 Ethernet Bridge				
1756-EWEB/A	1756 10/100 Mbps Ethernet Bridge w/Enhanced Web Services				
1756-HSC	1756 High Speed Counter				
1756-HYD02	2 Axis Hydraulic Servo				
1756-IA16	16 Point 79V-132V AC Input				
1756-IA16I	16 Point 79V-132V AC Isolated Input				
1756-IA8D	8 Point 79V-132V AC Diagnostic Input				
1756-IB16	16 Point 10V-31.2V DC Input				
1756-IB16D	16 Point 10V-30V DC Diagnostic Input				
1756-IB16I	16 Point 10V-30V DC Isolated Input, Sink/Source	-			
1756-IB16ISOE	16 Channel Isolated 24V Input Sequence of Events	~			
Show					
Vendor: All	▼				
🔽 Analog	▼         Digital         ▼         Communication         ▼         Motion         ▼         Controller         Clear All				
	OK Cancel Help				



4. Then enter the desired settings and press finish. IP address for the test 192.168.0.100

module Prop	ernes - Locali (1756-ENET76 2.1)	$\sim$
Type: Vendor: Parent:	1756-ENET/B 1756 Ethernet Communication Interface Allen-Bradley Local	
Na <u>m</u> e:	Ethernet_Bridge	
— Descri <u>p</u> tion:		
Sl <u>o</u> t: <u>R</u> evision:	1     •       2     1     •       Electronic Keying:     Compatible Module	
	Cancel < Back Next > Finish >> Help	]

5. Next, we will configure the Ethernet/IP network and add the PSTX Anybus-S Slave module to the configuration in the PLC. Begin with setting the program in "Offline" mode then right click on the Ethernet/IP bridge in the I/O configuration, and select "New Module"





6. Now a dialogue window will appear. In this dialogue window, select "Generic Ethernet module" and press OK.

Select Module Type		x
Туре:	Major Revision:	
ETHERNET-MODULE	1	
Туре	Description	]
1734-AENT/A	1734 Ethernet Adapter, Twisted-Pair Media	
1756-ENBT/A	1756 10/100 Mbps Ethernet Bridge, Twisted-Pair Media	
1756-ENET/A	1756 Ethernet Communication Interface	
1756-ENET/B	1756 Ethernet Bridge	
1788-ENBT/A	1788 10/100 Mbps Ethernet Bridge, Twisted-Pair Media	
1794-AENT/A	1794 10/100 Mbps Ethernet Adapter, Twisted-Pair Media	
ETHERNET-MODULE	Generic Ethernet Module	
Show		
Vendor: All	💌 🔽 Other 🔽 Specialty I/O 🛛 Select All	
🔽 Analog 🔽 Digita	al 🔽 Communication 🔽 Motion 🔽 Controller 📃 Clear All	
	OK Cancel Help	

7. In the next dialogue window, RSLogix 5000 will ask for information regarding the communication to the PSTX "Anybus-S Slave module". First enter a name for the PSTX. In the example below, we call it "ABB\_PSTX". This name will create a tag in RSLogix 5000, which can be used to access the memory location in the PLCs memory where the data for the PSTX will be stored. A description can also be added, but that is optional. Next you will select the "Comm Format", which tells RSLogix5000 the format of the data. In our example, we have selected Data-SINT, which will represent the data in the PSTX Softstart as a field of 8-bit values. I/O data is accessed in input instance 100 and output instance 150, so these values have to be entered as the instance values for input and output.

The Anybus-S Slave module does not have a configuration assembly instance by default, but RSLogix5000 requires a value for this anyway. An instance value of 0 is not a valid instance number, but any non-zero value will work, here we have selected the value 1. The data size of the configuration instance has to be set to 0, otherwise the configuration instance will be accessed, and the connection will be refused. As a final step we enter the IP address that we have configured for the module, here 192.168.0.4 and select ok.

Module Pro     General Con	perties Report: Local (ETHERNET-N	MODULE 1.1)			×
Type: Vendor: Parent:	ETHERNET-MODULE Generic Ethe Allen-Bradley Local	met Module			
Name:	ABB_PSTX	Connection Par	ameters Assembly Instance:	Size:	
Description.	*	Input:	100	24	(8-bit)
		Output:	150	10	(8-bit)
Comm Format	:Data - SINT -	Configuration:	1	0	(8-bit)
IP Address	ess: 192 . 168 . 0 . 4	Status Input:			
⊚ Host Na	me:	Status Output			
status: Running	ок	Cancel	Apply		Help



8. In this dialogue we will enter a value for the time between each scan of the module. In this example, we have set the interval to 50 ms to reduce the network load. Make sure that "Inhibit Module" isn't checked. After this, press finish.

Module Properties - EtherNet_Bridge (ETHERNET-MODULE 1.1)	×
Requested Packet Interval (RPI): 50.0 📻 ms (1.0 - 3200.0 ms)	
Major Fault On Controller If Connection Fails While in Run Mode	
Module Fault	
Cancel < Back Next > Finish >> Help	_

9. Now the PSTX has been added to the I/O configuration in RSLogix 5000. The main screen will look as follows.





# Downloading the configuration to the PLC

10. First select the communication path. This can be done by opening the Communications menu and selecting the Who Active command. Select the desired communication path as seen below



11. Select "Go Online" from the "Communications" menu.

🎇 RSLogix 5000 - CLOGIX5000	0 [1756-L55]*	
File Edit View Search Logic	Communications Tools	Window Help
	Who Active           Select Recent Path	
Offline     Image: Constraint of the second se	<u>So Online</u> Upload Download Program Mode	Image:
Controller CLOGIX5000 Controller Tags Controller Fault Handler Controller Fault Handler Form Tasks GMainTask GMainTask GMainTask GMainProgram Cunscheduled Programs	Run Mode Test Mode Lock Controller Clear Eaults Gg To Faults	
Motion Groups     Motion Groups     Motion Groups     Motion Groups     Motion Groups     Motion Groups     Module-Defined     Module-Defined	t_Bridge hybus	



12. A new window appears, select "Download".

nected To G	io Online				
File	. 1	Redundancy	Nonvola	atile Memory	
Options	General	Date/Time	Major Faults	Minor Faults	
Condition: The open project has offline changes that aren't in the controller					
Connected Controller: Controller Name: CLOGIX5000 Controller Type: 1756-L55/A 1756-M13/A ControlLogix5555 Controller Comm Path: AB_ETH-1\10.10.14.80\Backplane\0					
Security:  Offline Project: Controller Name: CLOGIX5000 Controller Type: 1756-L55 ControlLogix5555 Controller File:and Settings\Administrator\My Documents\CLOGIX5000.ACD Security:  None>					
[	Upload	Download Selec	t File Cance	l Help	

13. A new window will pop-up with the question if you actually want to download the configuration, select "Download". The configuration will now be downloaded to the PLC.

Download		×
£	Download to Name: Type: Path: Security:	the controller: CLOGIX5000 1756-L55/A 1756-M13/A ControlLogix5555 Controller AB_ETH-1\10.10.14.80\Backplane\0 <none></none>
	Downloa	ad Cancel Help

14. After you go online with the PLC you will be able to view the data to and from the ABB PSTX soft start in the tag database. In this example we created a UDT "From\_PSTX" and "To\_PSTX"

File Edit View Search Logic Communication	ns Tools Window Help							
📋 🗃 📕 🎒 🐰 🖻 💼 🗠 🖓 CfgDnetAdd	DatalOType 🚽 📣 🐴 🙀 🛅 📝 💇 🔍 🤄	⊇, Select langua	ge	- 🥺				
Offline     I     I     RUN       No Forces     I     OK       III     Energy Storage     I       IVO     III     IIII       IVO     IIII       IVO     IIII       IIII     IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII								
Controller Organizer - 4 ×	Scope: @ABB_PSTX - Show: All Tags				• Y.	Enter Name Filter		
Controller ABB_PS1X	Name == △	Value +	Force Mask 🔶	Style	Data Type	Description	Constant	^
Controller Fault Handler	+ From_PSTX	{}	{}		PSTX_Data_From	Data from the PS		
Power-Up Handler	E-PSTX_1:I	{}	{}		_03B6:1SFC132005C0201_986			
E Tasks	-PSTX_1:I.ConnectionFaulted	0		Decimal	BOOL			
🖶 🚑 MainTask	PSTX_1:I.Data	{}	{}	Decimal	SINT[24]			
🔓 🥞 MainProgram	E PSTX_1:0	{}	{}		_03B6:1SFC132005C0201_138			
🖉 Program Tags	PSTX_1:0.Data	{}	{}	Decimal	SINT[10]			
- 🚺 MainRoutine	+ To_PSTX	{}	{}		PSTX_Data_To	Data from the alle		
= PSTX Data								



# Configuring communications utilizing the AB\_EIPT\_1\_PSTX\_1\_1.eds file

 After you register the EDS file in RSLINX right click on the Ethernet/IP bridge in the I/O configuration, and select "New Module" browse the modules or use the filters to find the PSTX catalog # 1SFC132005C0201 PSTX

PST	X	Clear	Filters		H <u>i</u> de Filters <b>☆</b>
V V V V	Module Type Category Filters CIP Motion Safety Drive Device Communication Communications Adapter Controller 111	•	Image: Constraint of the second se	Module Type Vende ley ab Safety) prporation Hauser III	or Filters
Cat	alog Number Description 1SFC132005 PSTX	A A A A A A A A A A A A A A A A A A A	/endor ABB (Jokab Saf	Category Generic Device(	

2. Now a dialogue window will appear. In this dialogue window we will assign a name for the PSTX soft start. In the example below, we call it "PSTX\_1". This name will create a tag in RSLogix 5000, which can be used to access the memory location in the PLCs memory where the data for the PSTX will be stored. A description can also be added, but that is optional.

File Edit View Second Lonia Communications	
E File Edit View Search Logic Communications	· Tool? Window Helb
📋 🖆 🚽 🎒 👗 🗎 💼 🗠 🖓 cfgDnetAddD	atal0Type 👻 🚑 🏰 🎼 📝 🕂 🔍 🔍 Select language 👻 📎
Rem Run Bun Gele Fun Mode No Forces Controller OK No Edits Controller OK I Controller OK I CONK	ath:     [AB_VBP-1/16"        →       Favorites     ✓       Add-On     ✓       Add-On     ✓       Add-On     ✓
MainProgram Program Tags MainProgram Tags MainRoutine PSTX, Data Unscheduled Programs Ungrouped Axes Add-On Instructions Star Types PSTX, Data_Tom PSTX, Data_Tom PSTX, Data_To PSTX, Data_To PSTX, Data_To PSTX, Data_To PSTX, Data_To PSTX, Data_To PSTX, Data_To PSTX, Data_To	General       Connection       Module Info       Internet Protocol       Port Configuration         Type:       1SFC132005C0201 PSTX         Vendor:       ABB (Jokab Safety)         Parent:       Local         Name:       PSTX_1         Descrigtion:       Image:         Pivate Network:       192.168.1.         Image:       Pivate Network:         192.168.1       Image:
Module Defined     PSTX_1      PSTX_10	Module Definition Revision: 1.1 Bectronic Keying: Compatible Module Connections: Exclusive Owner Change Errors Change Errors
busunpuoli	Going online with controller



3. In this dialogue we will enter a value for the time between each scan of the module. In this example, we have set the interval to 50 MS to reduce the network load. Make sure that "Inhibit Module" isn't checked. After this, press finish.

J Logix Designer - ABB_PSTX [1769-L30ER 21.11]* - [Module Properties: Local (15FC132005C0201 1.1)]							
🗈 Eile Edit View Search Logic Communications Tools Window Help							
🛅 🖻 📕 🎒 👗 🖻 💼 🐖 🖙 cfgDnetAddDa	talOType 👻 🦓 强 🏗 📝 🖭 🔍 🔍 Select language 👻 🦻						
Rem Run D Run Mode No Forces Controller OK No Edits Remay Storage OK VO OK	br:     ▲B_VBP-1116*       H     Hord       H=     Her       +     →       Favorites     ▲Add-On       ▲ Favorites     ▲Add-On       ▲ Favorites     ▲ Add-On						
Controller Organizer - 7 X	General Connection Module Info Internet Protocol Port Configuration						
Program Tags     MainRoutine     PrTX_Data     Unscheduled Programs     Motion Groups	Name Requested Packet Interval Input Type Input Trigger						
Indicuped AxEs     Indicuped AxEs     Indicuped AxEs     Indicutions     Inditent     Indicutions     In	Exclusive Owner     50.0 C 10-3200.0 Unicest     Cyclic         Iphibit Module       Major Fault On Controller If Connection Fails While in Run Mode         Module Fault						
Status Running Module Fault	Going online with controller Complete - 0 error(s), 0 warning(s)						

4. The module information dialog shows the module status and allows you to reset the module. g Logix Designer - ABB\_PSTX [1769-L30ER 21.11]\* - [Module Properties: Local (1SFC132005C0201 1.1)]





5. The internet protocol settings dialog allows you to enter a unique ip address for the ABB PSTX softstarter, subnet mask, gateway, domain name, and host name if used.



6. The port configuration dialog allows you to manage the port speed, duplex and a diagnostic screen.





# Sample tag database:

### UDT\_From\_PSTX

### SINT 0

Auto_Mode_Status BOOL Bit0		BOOL Bit0	Decimal 0 = softstarter control from fieldbus not allowed	Read/Write
Event_status BOOL Bit1		BOOL Bit1	Decimal 0 = No active fault/warning/protection	Read/Write
Ready_to_start BOOL Bit 2		BOOL Bit 2	Decimal 0=a start will probably cause a fault	Read/Write
FBT_Resp_0		BOOL Bit 3	See fieldbus Tasks	Read/Write
FBT_Resp_1		BOOL Bit 4	See fieldbus tasks	Read/Write
FBT_Toggle_Bit		BOOL Bit 5	See fieldbus tasks	Read/Write
PDI_1		BOOL Bit 6	Programmable digital input, Para. 12.12	Read/Write
PDI_2 BOOL Bit 7		BOOL Bit 7	Programmable digital input, Para. 12.13,	Read/Write
SINT 1				
PDI_3		BOOL Bit 0	Programmable digital input, Para. 12.14,	Read/Write
PDI_4		BOOL Bit 1	Programmable digital input, Para. 12.15	Read/Write
PDI_5		BOOL Bit 2	Programmable digital input, Para. 12.16,	Read/Write
PDI_6		BOOL Bit 3	Programmable digital input, Para. 12.17	Read/Write
PDI_7		BOOL Bit 4	Programmable digital input, Para. 12.18	Read/Write
PDI_8		BOOL Bit 5	Programmable digital input, Para. 12.19	Read/Write
PDI_9		BOOL Bit 6	Programmable digital input, Para. 12.20	Read/Write
PDI_10		BOOL Bit 7	Programmable digital input, Para. 12.21	Read/Write
SINT 2&3	FBT_Ret	turn_ValueINT	Decimal See fieldbus tasks	Read/Write
SINT 4&5	PAI_1	INT	Programmable analog input, Para 12.22	Read/Write
SINT 6&7	PAI_2	INT	Programmable analog input, Para 12.23	Read/Write
SINT 8&9	PAI_3	INT	Programmable analog input, Para 12.24	Read/Write
SINT 10&11	PAI_4	INT	Programmable analog input, Para 12.25	Read/Write
SINT 12&13	PAI_5	INT	Programmable analog input, Para 12.26,	Read/Write
SINT 14&15	PAI_6	INT	Programmable analog input, Para 12.27	Read/Write
SINT 16&17	PAI_7	INT	Programmable analog input, Para 12.28	Read/Write
SINT 18&19	PAI_8	INT	Programmable analog input, Para 12.29	Read/Write
SINT 20&21	PAI_9	INT	Programmable analog input, Para 12.30	Read/Write
SINT 22&23	PAI_10	INT	Programmable analog input, Para 12.31	Read/Write



### UDT To\_PSTX

#### SINT 0

511110						
Start	BOOL Bit0	Decimal	Commer	nce start when signal is set	Read/W	rite
Stop	BOOL Bit1	Decimal	Commer	nce a stop when signal is negated	Read/W	rite
Fault_Reset	BOOL Bit2	Decimal	Reset sig	nal for possible events	Read/W	rite
Auto_Mode	BOOL Bit3	Decimal	This mus	st be set for controlling the motor	Read/W	rite
Slow_Speed_REV	BOOL Bit4	Decimal	Perform	slow speed reverse when the signa	al is set	Read/Write
Slow_Speed_FWD	BOOL Bit5	Decimal	Perform	slow speed forward when the signa	al is set	Read/Write
Spare	BOOL Bit6	Decimal			Read/W	rite
Start_1	BOOL Bit7	Decimal	Start 1 if	sequence start	Read/W	rite
SINT 1						
Start_2	BOOL Bit0	Decimal	Start 2 if	sequence start	Read/W	rite
Start_3	BOOL Bit1	Decimal	Start 3 if	sequence start	Read/W	rite
Motor_Heating	BOOL Bit2	Decimal	Perform	motor heating when signal is set	Read/W	rite
Stand_Still_Brake	BOOL Bit3	Decimal	Perform	stand still brake when signal is set	Read/W	rite
Start_Reverse	BOOL Bit4	Decimal	Commer	nce a reverse start when signal is se	etRead/W	/rite
Spare_1	BOOL Bit5	Decimal			Read/W	rite
Emergency_Mode	BOOL Bit6	Decimal	Set to 1	to enable emergency mode	Read/W	rite
FBT_Toggle_Bit	BOOL Bit7	Decimal	See field	bus tasks	Read/W	rite
SINT 2						
User_Defined_Trip	o BOOL Bit0	Decimal	Set to 1	to trigger user defined protection	Read/W	rite
Remote	BOOL Bit1	Decimal	Switch to	o remote control when signal is set	(edge tri	ggered) Read/Write
Spare_2	BOOL Bit2	Decimal		Read/Write		
Spare_3	BOOL Bit3	Decimal		Read/Write		
Spare_4	BOOL Bit4	Decimal		Read/Write		
Spare_5	BOOL Bit5	Decimal		Read/Write		
Spare_6	BOOL Bit6	Decimal		Read/Write		
Spare_7	BOOL Bit7	Decimal		Read/Write		
SINT 3						
Spare_8	BOOL Bit0	Decimal		Read/Write		
Spare_9	BOOL Bit1	Decimal		Read/Write		
Spare_10	BOOL Bit2	Decimal		Read/Write		
Spare_11	BOOL Bit3	Decimal		Read/Write		
Spare_12	BOOL Bit4	Decimal		Read/Write		
Spare_13	BOOL Bit5	Decimal		Read/Write		
Spare_14	BOOL Bit6	Decimal		Read/Write		
Spare_15	BOOL Bit7	Decimal		Read/Write		
SINT 4&5	-BT_Control_Wo	rd	INT	Decimal See fieldbus tasks	Read/W	rite
SINT 6&7	BT_Argument_2	<u>)</u>	INT	Decimal See fieldbus tasks	Read/W	rite
SINT 8&9	BT_Argument_3	3	INT	Decimal See fieldbus tasks	Read/W	rite



# ABB PSTX soft-starter parameter settings:

#### **Fieldbus control**

If you use the softstarter with Fieldbus communication, set the Fieldbus interface to ON before it can take action.

#### **Fieldbus address**

If you use the softstarter with Fieldbus communication, set a Fieldbus address for the softstarter. Select a suitable and unoccupied number as the address.

**CAUTION** The motor can start unexpectedly if there is a start signal present during 1 of the actions below.



Changing from 1 type of control to another (Fieldbus control / hardwire control).

Remember that when Fieldbus auto disable is active, this change can occur automatically.

Re-programming of the programmable inputs.

Reset all Settings (sets programmable input to Enable).

#### Fieldbus Inputs/Outputs

Functions set in the softstarter as Fieldbus digital inputs (DI) are in fact the digital inputs to the PLC i.e. the data flow from the softstarter through the network to the PLC.

Fieldbus digital outputs (DO) are not configurable. The output (DO) gives a description of data flow from the network to the softstarter i.e. appears as an input, from the softstarter point of view.



Fieldbus communication has these parameters:				
Parameter	Description	Setting range	Default value	Values as tested
12.01 Com3 function	Sets the function of the Com3 port.	None, Test, Modbus RTU slave,Extension IO	Test	None
12.02 FB interface connector	Sets the Fieldbus interface selection.	FbPlug, Modbus RTU, Anybus, None	None	Anybus
12.03 Fieldbus control	Enables control from fieldbus	Off, On	Off	On
12.04 Fieldbus address	Sets the Bus address	0 65535	0	
12.05 Fieldbus ip address	Fieldbus IP: Sets the IPaddress.	0.0.0.0 255.255.255.255	0.0.0.0	192.168.0. 4
12.06 Fieldbus ip gateway	Fieldbus IP: Sets the default gateway.	0.0.0.0 255.255.255.255	0.0.0.0	
12.07 Fieldbus ip netmask	Fieldbus IP: Sets the netmask.	0.0.0.0 255.255.255.255	255.255.255.0	
12.08 Fieldbus ip dhcp client	Fieldbus IP: Enables dhcp.	Off, On	Off	
12.09 FB baud rate*	Sets the baud rate of internal modbus-RTU interface,Anybus DeviceNet and Anybus modbus- RTU	1200, 2400, 4800, 9600, 19200,38400, 57600, 76800, 115200,125000, 250000,500000, Auto	* There are restrictions on which baud rates you can use for different protocols. See separate Table below.	19200
12.10 FB parity	Sets parity for Anybus modbus- RTU.	No parity, Odd parity, Even parity	Even parity	
12.11 FB stop bits	Select stop bits for Anybus modbus-RTU.	1 Stop bit, 2 Stop bits	1 Stop bit	
12.12 Fieldbus DI 1	Sets the DI 1 programmable digital input signal.	Emergency mode feedback,	Line	
12.13 Fieldbus DI 2	Sets the DI 2 programmable digital input signal.	status, Fault reset	Phase sequence	
12.14 Fieldbus DI 3	Sets the DI 3 programmable digital input signal.	feedback, Line.	Event group 0 status	
12.15 Fieldbus DI 4	Sets the DI 4 programmable digital input signal.	Motor heating feedback,	Event group 1 status	
12.16 Fieldbus DI 5	Sets the DI 5 programmable digital input signal.	None, Phase sequence, Run reverse status,	Start feedback	
12.17 Fieldbus DI 6	Sets the DI 6 programmable digital input signal.	Run status, Sequence 1 3 Run	Stop feedback	
12.18 Fieldbus DI 7	Sets the DI 7 programmable digital input signal.	status, Sequence 1 3 TOR	Eventgroup 2 status	
12.19 Fieldbus DI 8	Sets the DI 8 programmable digital input signal.	status, Slow speed rev feedback,	Eventgroup 3 status	
12.20 Fieldbus DI 9	Sets the DI 9 programmable digital input signal.	Slow speed forw feedback,	Eventgroup 4 status	



12.21 Fieldbus DI 10	Sets the DI 10 programmable digital input signal.	Stand-still brake feedback, Start 1 3 feedback, Start feedback, Start reverse feedback, Stop feedback, TOR status, User-specified feedback	Eventgroup 5 status
12.22 Fieldbus Al 1	Sets the AI 1 programmable analog input signal.	Phase L1, L2, L3 current,	Phase L1 current
12.23 Fieldbus Al 2	Sets the AI 2 programmable analog input signal.	(resettable), Active power,	Phase L2 current
12.24 Fieldbus Al 3	Sets the AI 3 programmable analog input signal.	Active power (HP), Apparent power, EOL time to cool,	Phase L3 current
12.25 Fieldbus Al 4	Sets the AI 4 programmable analog input signal.	EOL time to trip, Mains voltage,	Max phase current
12.26 Fieldbus Al 5	Sets the AI 5 programmable analog input signal.	Motor voltage, Mains frequency,	Mains frequency
12.27 Fieldbus Al 6	Sets the AI 6 programmable analog input signal.	Motor connection Max phase current, Motor current,	Motor voltage
12.28 Fieldbus Al 7	Sets the AI 7 programmable analog input signal.	Motor current percent,	Motor temperature percent
12.29 Fieldbus Al 8	Sets the AI 8 programmable analog input signal.	(resettable), Motor temperature,	Number of starts (resettable)
12.30 Fieldbus Al 9	Sets the AI 9 programmable analog input signal.	Motor temperature percent, None,	Motor run time (resettable)
12.31 Fieldbus Al 10	Sets the Al 10 programmable analog input signal.	Number of starts (resettable), Phase sequence, PT100 temperature, PTC resistance, Reactive energy (resettable), Reactive power, Thyristor run time (resettable), Remaining time to start, Thyristor temperature, Thyristor temperature percent, Top event code	Top event code



