



ET 200M Marshaled Termination Assemblies Remote I/O Modules

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Table 1–1 Marshalled Termination Assembly and Module Cross-Reference

Marshalled Termination Assembly Part Numbers	PCS 7 ET 200M Module		Redundant
	Description	Part Number	
6ES7650-1AA61-2XX0	HART Analog Input 8-Channel	6ES7331-7TF01-0AB0	Yes
6ES7650-1AB61-2XX0	HART Analog Output 8-Channel	6ES7332-8TF01-0AB0	Yes
6ES7650-1BE10-3XX0			

20 8-Channel HART Analog Input MTA

Part No. 6ES7650-1AA61-2XX0

20.1 Description

This section contains installation information and requirements for Siemens Marshalled Termination Assembly (MTA) (6ES7650-1AA61-2XX0), which connects to the Siemens ET 200M 8-Channel HART Analog Input Module (6ES7 331-7TF01-0AB0).

20.2 Features

This MTA has the following features:

- Redundant power connections
- LED indication of redundant power supply condition
- Power monitor plug-in available (optional)
- Dual connectors for redundant I/O Module operation
- Per module power fusing
- Shield connections available for channel cabling
- Ground stud for connecting shield to earth ground
- Power input and field terminations are pluggable for easy maintenance
- Connectivity for HART Handheld Terminal (HHT) per channel
- Capable of mixing 2 and 4 wire transducers on a per channel basis
- The 2 wire transducer power supply is current limited. (No fuse to replace after a short in the field)

20.3 Operation

Power is supplied via a removable power connector marked **L+A**, **MA**, **L+B**, and **MB**. There is circuitry to detect the presence of voltage over 15 VDC and turn on the LED indicator. The LEDs are marked **A POWER** and **B POWER**. There is also a connector for a Power Monitor board used to indicate the presence of both A and B power. See section 16 Power Monitor Board (6ES7650-1BA02-0XX0).

Incoming power from **A** and **B** is diode OR'd to provide the MTA and the module power from either input source. The output from the ORing diode is sent to the I/O modules via the module fuses.

Field Terminals, Channel + (**Ix+**), Channel – (**Ix-**), Sensor power (**PWRx**) and Shield (**SHx**), connect to the field devices. **PWRx** is the +24 VDC power source and is current limited to about 40- 60 mA on a channel-by-channel basis. The field termination connector is removable for ease of wiring maintenance and is retained by friction.

The channel inputs from the MTA connect to the I/O modules inputs via D25 connectors (item 4 in figure 17.1). Redundant operation uses two modules, while non-redundant systems have one module connected to either I/O module connector.

20.4 Installation Requirements

See Section 2 Installation, before performing any installation and observe all warnings.

A common interconnecting cable (6ES7922-3BD01-0AM0 or 6ES7922-3BJ01-0AM0), supporting eight analog input channels, connects the analog input termination assembly to the 8-channel analog input module (6ES7 331-7TF01-0AB0).

Note

To disconnect the interconnecting cable shield from ground at the MTA only, cut and remove the shield disconnect jumpers, **Module 1** and **Module 2**, for the associated cable.

20.5 Maintenance

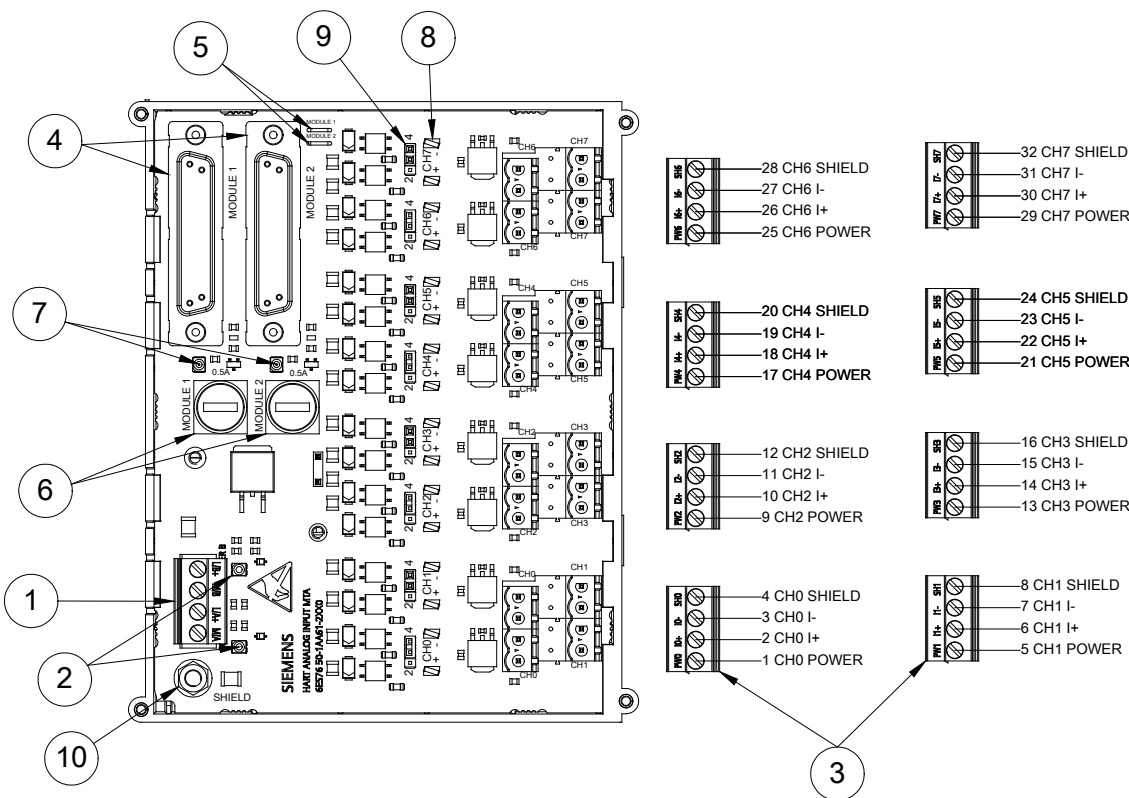
See Section 3 Maintenance, before performing any maintenance and observe all warnings.

Under normal operation, the **A/B Power LEDs** and **Module 1/2 Fuse LEDs** are green. If all are off, check the power supply to MTA. If **Module 1/2 Fuse LED** is off, check the module fuse and replace if necessary.

20.6 8-Channel HART Analog Input Marshalled Termination Assembly

The figure below shows the basic parts of the 8-Channel HART Analog Input MTA.

Figure 20–1 8-Channel HART Analog Input Marshalled Termination Assembly (6ES7650-1AA61-2XX0)



Key to numbered items in Figure 20–1	
Item	Description
1	Input power connections
2	Input Power Indicators
3	Field Connections
4	I/O Module Connections
5	Shield disconnect jumpers
6	Module power fuses
7	Module power indication
8	HART Handheld connectivity
9	Input Mode Jumper (2 or 4 wire transducers)
10	Shield Ground Stud for connecting to earth ground

20.7 Technical Specifications

Technical Specifications for 8-Channel HART Analog Input MTA (6ES7650-1AA61-2XX0)	
Dimensions - See Section 1, Figure 1.3, Short Version	
Mounting	
DIN Rail	35mm (deep or shallow; with panel mounted DIN rail only deep)
Power Input	
Voltage Input for Single or Redundant Feed	21.6 to 28.8 VDC
Current Consumption (nominal ratings; all inputs 2-wire transducers at 20mA, redundant modules)	0.29 A maximum
Power Dissipation (typical)	1 W
Terminal Block Wire Sizes	
Wire Size – US	24 – 14 AWG
Wire Size – Metric	0,205 – 2,08 mm sq.
Electrical Isolation	
Between the channels and shield	Yes
Between the channels	No
Between the channels and load voltage L+	For 2-wire transducer: No 4-wire transducer: Yes
Between the shield and load voltage L+	Yes
Permissible potential difference	
Between the channels and shield (U_{ISO})	75 VDC 60 VAC
Between the channels and load voltage L+	For 4-wire transducer: 75 VDC 60 VAC
Between the channels	Permissible common-mode voltage with a 4-wire transducer: 60 VAC
Between the shield and load voltage L+	75 VDC 60 VAC
Insulation tested	
Channels to shield and load voltage L+	With 500 VDC, MTA jumper must be in 4 wire position
Shield to load voltage L+	With 500 VDC
Between the channels	No
Fuse Ratings / Current Limiting	
Module	0.5 A (Bussmann P/N: GMA-0.5A) (Siemens Spare P/N: A5E01568885)
Channel (2 wire transducer connection)	short circuit current about 40 - 60 mA
Characteristic Data of Transducer Supply	
Output voltage for transducer and field wiring at 22 mA (125 Ω sense resistor on modules already taken into account)	≥ 15 V (at $U_n = 24$ V)

Technical Specifications for 8-Channel HART Analog Input MTA (6ES7650-1AA61-2XX0)	
Indicators	
Input Power	Green LED on when input power available, red LED on if power supply is reversed
Module Fuse OK	Green LED on when module power available
Field Terminals	
Wire Size – US	24 – 14 AWG
Wire Size – Metric	0,205 – 2,08 mm sq.
Environmental	
Ambient Temperature	-25C to +60C
Humidity	5% to 95% Non-condensing
Approvals	
MTA Agency Approvals	See Preface section, Approvals Table (in User's Manual)

Note

Fuses are available as spare parts from Siemens.

Fuse information can be found at:

<http://www.bussmann.com>

20.8 Changes to Module Specifications

Changes to 8-Channel HART Analog Input Module (6ES7 322-7TF01-0AB0) Specifications when used with 8-Channel HART Analog Input MTA (6ES7 650-1AA61-2XX0)	
Redundant Mode	When using the MTA, the I/O module must be used in the redundant mode. For more information see Section 2.4 <i>Connecting sensors/actuators in redundant mode</i> in the HART analog modules manual, 08/2007, A5E00434623-03.
± 20 mA input range	The ± 20 mA input range can not be used.
Combining 2 wire and 4 wire transducers on one module.	Any combination of 2 wire and 4 wire transducers is possible. The module inputs must be configured as 4 wire transducers regardless of transducer type.

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