

Trusted 40 Channel Analogue Input Versatile FTA

Product Overview

The Trusted® 40 Channel Analogue Input Field Termination Assembly (VFTA) T8844 is designed to act as the main interface between a field device generating a 0 mA to 20 mA analogue signal and the Trusted Triple Modular Redundant (TMR) Analogue Input Module T8431.

Features:

- 40 input channels per VFTA.
- Industry standard field device connections (3-wire).
- Standard DIN rail compatibility.
- Simple installation and connection.
- 24 Vdc operation.
- SmartSlot connection for 'one to many' hot replacement of input modules.
- Fused field power supply per channel.
- Designed for use with 'sourcing' field devices, i.e. the input module 'sinks' current.

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PREFACE

In no event will Rockwell Automation be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment. The examples given in this manual are included solely for illustrative purposes. Because of the many variables and requirements related to any particular installation, Rockwell Automation does not assume responsibility or reliability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, with respect to use of information, circuits, equipment, or software described in this manual.

All trademarks are acknowledged.

DISCLAIMER

It is not intended that the information in this publication covers every possible detail about the construction, operation, or maintenance of a control system installation. You should also refer to your own local (or supplied) system safety manual, installation and operator/maintenance manuals.

REVISION AND UPDATING POLICY

This document is based on information available at the time of its publication. The document contents are subject to change from time to time. The latest versions of the manuals are available at the Rockwell Automation Literature Library under "Product Information" information "Critical Process Control & Safety Systems".

TRUSTED RELEASE

This technical manual applies to **Trusted Release: 3.6.1**.

LATEST PRODUCT INFORMATION

For the latest information about this product review the Product Notifications and Technical Notes issued by technical support. Product Notifications and product support are available at the Rockwell Automation Support Centre at <http://rockwellautomation.custhelp.com>

At the Search Knowledgebase tab select the option "By Product" then scroll down and select the Trusted product.

Some of the Answer ID's in the Knowledge Base require a TechConnect Support Contract. For more information about TechConnect Support Contract Access Level and Features please click on the following link:

https://rockwellautomation.custhelp.com/app/answers/detail/a_id/50871

This will get you to the login page where you must enter your login details.

IMPORTANT A login is required to access the link. If you do not have an account then you can create one using the "Sign Up" link at the top right of the web page.

DOCUMENTATION FEEDBACK

Your comments help us to write better user documentation. If you discover an error, or have a suggestion on how to make this publication better, send your comment to our technical support group at <http://rockwellautomation.custhelp.com>

SCOPE

This manual specifies the maintenance requirements and describes the procedures to assist troubleshooting and maintenance of a Trusted system.

WHO SHOULD USE THIS MANUAL

This manual is for plant maintenance personnel who are experienced in the operation and maintenance of electronic equipment and are trained to work with safety systems.

SYMBOLS

In this manual we will use these notices to tell you about safety considerations.



SHOCK HAZARD: Identifies an electrical shock hazard. If a warning label is fitted, it can be on or inside the equipment.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which can cause injury or death, property damage or economic loss.



ATTENTION: Identifies information about practices or circumstances that can cause injury or death.



CAUTION: Identifies information about practices or circumstances that can cause property damage or economic loss.



BURN HAZARD: Identifies where a surface can reach dangerous temperatures. If a warning label is fitted, it can be on or inside the equipment.



This symbol identifies items which must be thought about and put in place when designing and assembling a Trusted controller for use in a Safety Instrumented Function (SIF). It appears extensively in the Trusted Safety Manual.

IMPORTANT

Identifies information that is critical for successful application and understanding of the product.

NOTE

Provides key information about the product or service.

TIP

Tips give helpful information about using or setting up the equipment.

WARNINGS AND CAUTIONS

**WARNING: EXPLOSION RISK**

Do not connect or disconnect equipment while the circuit is live or unless the area is known to be free of ignitable concentrations or equivalent

**AVERTISSEMENT - RISQUE D'EXPLOSION**

Ne pas connecter ou déconnecter l'équipement alors qu'il est sous tension, sauf si l'environnement est exempt de concentrations inflammables ou équivalente

**MAINTENANCE**

Maintenance must be carried out only by qualified personnel. Failure to follow these instructions may result in personal injury.

**CAUTION: RADIO FREQUENCY INTERFERENCE**

Most electronic equipment is influenced by Radio Frequency Interference. Caution should be exercised with regard to the use of portable communications equipment around such equipment. Signs should be posted in the vicinity of the equipment cautioning against the use of portable communications equipment.

**CAUTION:**

The module PCBs contains static sensitive components. Static handling precautions must be observed. DO NOT touch exposed connector pins or attempt to dismantle a module.

ISSUE RECORD

Issue	Date	Comments
4	Sep 05	Format
5	Jun 16	Rebranded and updated to incorporate IEEE standards with correction of typographical errors and also standardise the Relative Humidity Range and Operating Temperature statements in the Specification Section.

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1. Description

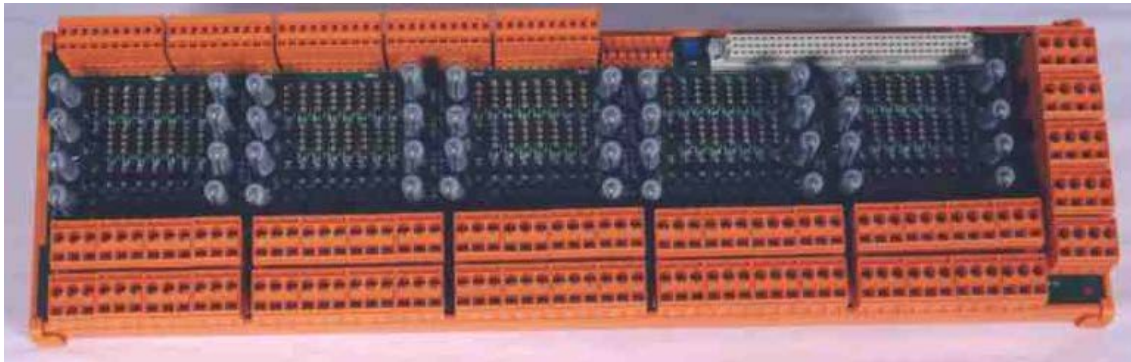


Figure 1 T8844 Layout

The Trusted 40 Channel Analogue Input Versatile FTA T8844 provides termination for a maximum of 40 input channels from various types of field devices which generate an analogue signal in the range of 0 mA to 20 mA. The 40 channels are arranged in five power groups each comprising eight identical channels. Figure 2 below shows the configuration of a single channel within a group.

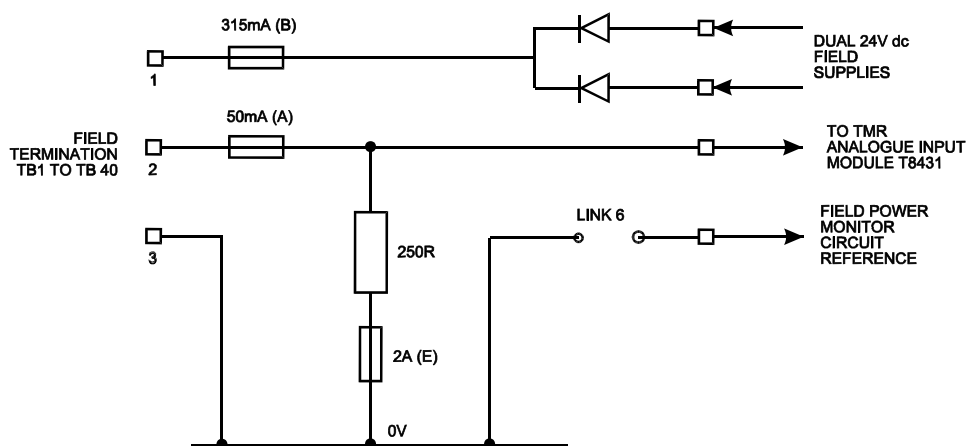


Figure 2 Single Channel Schematic

Each power group is supplied from dual 24 Vdc feed which are 'commoned' via diodes on the VFTA. The supply is then fed to each channel within the group

The supply voltage to the field is fed via the 315 mA fuse. The incoming signal (0 mA to 20 mA) from the field device is fed through the 50 mA fuse which effectively limits the input signal. The voltage developed across the 250 Ω resistor (high precision 0.1 %) is used by the input module to detect the field device status.

The cable linking the 40 channels on the input module to the VFTA is terminated at five 10-way connectors (TBG1 to TBG5). SmartSlot signals from the module are connected to a single 7-way connector (TBGSS). The dual 24 Vdc power supplies are connected to the VFTA

via five 4-way connectors (TBFP1 to TBFP5). Forty 3-way connectors are used for the field loops (TB1 to TB40).

2. Installation

Trusted 40 Channel Analogue Input Versatile FTA T8844 is designed to be mounted on either of the TS32 or TS35 DIN rails in the horizontal or vertical positions as required.

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3. Associated Cable Selection

Refer to the product descriptions detailed below:

PD-TC000	Trusted Power Cables
PD-TC200	Trusted I/O Companion Slot Cables
PD-TC500	Trusted I/O SmartSlot Cables

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4. Assembly Pinout Connections

4.1. TBFP1 to TBFP5 Connections

The pin connections of TBFP1 to TBFP5 are identical and are detailed below:

Pin	Service
1	24 V-1
2	0 V
3	0 V
4	24 V-2

Table 1 TBFP1 to TBFP5 Connections

4.2. TBG1 Connections

Pin	Service
1	0 V
2	Channel 1
3	Channel 2
4	Channel 3
5	Channel 4
6	Channel 5
7	Channel 6
8	Channel 7
9	Channel 8
10	Not used

Table 2 TBG1 Connections

4.3. TBG2 Connections

Pin	Service
1	0 V
2	Channel 9
3	Channel 10
4	Channel 11
5	Channel 12
6	Channel 13
7	Channel 14
8	Channel 15
9	Channel 16
10	Not used

Table 3 TBG2 Connections

4.4. TBG3 Connections

Pin	Service
1	0 V
2	Channel 17
3	Channel 18
4	Channel 19
5	Channel 20
6	Channel 21
7	Channel 22

8	Channel 23
9	Channel 24
10	Not used

Table 4 TBG3 Connections

4.5. TBG4 Connections

Pin	Service
1	0 V
2	Channel 25
3	Channel 26
4	Channel 27
5	Channel 28
6	Channel 29
7	Channel 30
8	Channel 31
9	Channel 32
10	Not used

Table 5 TBG4 Connections

4.6. TBG5 Connections

Pin	Service
1	0 V
2	Channel 33
3	Channel 34
4	Channel 35
5	Channel 36

Pin	Service
6	Channel 37
7	Channel 38
8	Channel 39
9	Channel 40
10	Not used

Table 6 TBG5 Connections

4.7. TBSS Connections

Pin	Service
1	Not used
2	Not used
3	SmartSlot link
4	SmartSlot link
5	SmartSlot link
6	Channel 41
7	Channel 0

Table 7 TBSS Connections

4.8. TB1 to TB40 Connections

The pin connections of TB1 to TB40 are identical and are detailed below:

Pin	Service
1	Field power
2	Signal in
3	0 V

Table 8 TB1 to TB40 Connections

4.9. Links

There are six configurations links on the VFTA. Links 1 to 5 inclusive are NOT fitted. Link 6 is fitted to provide the field power monitor circuit reference.

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5. Specifications

Voltage Range (Field Supply)	18 Vdc to 28 Vdc
Fuses	40-off 2 A 40-off 315 mA 40-off 50 mA
Maximum Current (Field Supply)	2.52 A per power group
Recommended Operating Current (Field Supply)	220 mA per channel
Power Consumption (Field Supply)	9 W maximum
Signal Input Range	0 mA to 20 mA
Operating Temperature	0 °C to +70 °C (+32 °F to +140 °F)
Non-operating Temperature	-25 °C to +70 °C (-13 °F to +158 °F)
Relative Humidity range (operating, storage & transport)	10 % – 95 %, non-condensing
Environmental Specifications	Refer to Document 552517
Dimensions	
Height	110 mm (4.33 in)
Width	360 mm (14.17 in))
Depth (including mounting rail and connectors)	68 mm (2.67 in)
Weight	950 g (2.1 lb)