ICS Triplex T8314C

Trusted Fibre TX/RX Unit

ICS Triplex T8314C extends a Trusted Expander Bus connection over single-mode fibre. T8314C converts the copper bus signals to optical signals and back, allowing a remote expander assembly to be located beyond the normal copper-link distance.



Technical Specifications

Product Identity	
Manufacturer	Rockwell Automation, Inc.
Model	T8314C
Platform	Trusted TMR
Product type	Fibre transmitter/receiver unit
Coating	Conformal coating, C suffix
Dimensions	84 × 110 × 40 mm
Functional Configuration	
Optical medium	Single-mode fibre, SC connections
Units per triplicated link	6 units arranged as 3 pairs
Performance & Power	
Link rate	250 Mbit/s
Maximum link distance	10 km, subject to timing limits
Supply voltage	18–32 V DC
Maximum power consumption	1.7 W
Environment	
Operating temperature	0–60 °C

Selected original manufacturer pages follow on pages 3–7.

Compatibility & Selection Guide

System compatibility. T8314C operates with the Trusted Expander Interface and Expander Processor arrangement. The units need no configuration; link diagnostics are obtained through the expansion modules. Routes beyond 2 km require a site survey, and differential delay and round-trip timing must remain within the system limits.

Wiring & Installation Reference

Power and bus connections

Power pins 1 / 2. +24 V DC 1 / 0 V 1 · First supply input

Power pins 4 / 3. +24 V DC 2 / 0 V 2 · Second diode-ORed supply input

Fibre connections. SC Tx / Rx · Use the paired single-mode fibre route

Mounting and handling

Mount the unit. Use TS32 or TS35 DIN rail in either horizontal or vertical orientation.

Allow fibre space. Leave at least 200 mm on either side and observe the fibre cable minimum bend radius.

Verify the whole link. Check all three pairs, correct cable direction, optical budget, skew and round-trip timing before commissioning.

Installation precautions. Do not connect or disconnect while live unless the area is known to be non-hazardous; maintenance is for qualified personnel. The 10 km maximum does not remove the need for optical and timing checks. Use the matching outgoing TC-302-01 and incoming TC-303-01 Trusted cable arrangements.

View terminal diagram (PDF) · PDF page 5 | View mounting diagram · PDF page 4

Manufacturer sources: PD_T8314, Issue 12, July 2016 / Trusted System declaration, ICSTT-CT004L-EN-E; suffix C denotes conformal coating.

Six Units and six fibres are required for each remote link with three located at each end. A dual 24 Vdc power philosophy is employed allowing the user to supply each Unit with dual power feeds.

Individual Units require no configuration prior to installation within a remote communications link. Each Unit operates in a stand-alone mode allowing replacement without interrupting the operation of the Trusted System.

There are no diagnostics available, but the quality of communications may be checked by using the Expander Interface and Processor diagnostics via the application program.

Note: Data is transmitted along the fibre-optic link at a rate of 250 Mb/s. Signal skew will take place but it must not exceed 80 ns, which equates to a cable length difference of 15 metres. For distances greater than 2 km, cable routes must be surveyed to ensure that the propagation time difference between the shortest and longest distance of the three links is less than 80 ns and that the round trip delay does not exceed the Inter-Module Bus (IMB) Timeout time.

2. Installation

The Trusted Fibre TX/RX Unit T8314 may be mounted on either of the TS32 or TS35 DIN rails in the horizontal or vertical position as required.

Note: Allow a minimum of 200 mm on either side of the Unit to allow for the fibre cable bend radius. This bend radius may vary depending upon the type of cable chosen by the user.

5. Pin Connections

5.1. Power Connection Details

Pin	Service
1	+24 Vdc 1
2	0V1
3	0V2
4	+24 Vdc 2

Table 3 Power Connection Details

Note: The 24 Vdc supplies are diode ORed to allow the Unit to be powered from a dual or single source as required.

5.2. Expander Bus Connection Details

Pin	Service
1	TX+
2	TX-
3	RX-
4	RX+

Table 4 Expander Bus Connection Details

6. Specifications

Voltage Range	18 Vdc to 32 Vdc
Power Consumption (Max)	1.7 W
Transmitter power	-15 dBm minimum
Receiver sensitivity	-28 dBm
Maximum propagation time difference	80 ns
Maximum fibre length difference	15 m
Operating Temperature	0 °C to +60 °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 Width Depth	 84 mm (3.3 in) 110 mm (4.3 in) 40 mm (1.6 in)
Weight	320 g (0.7 lb)

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.