

September 2009

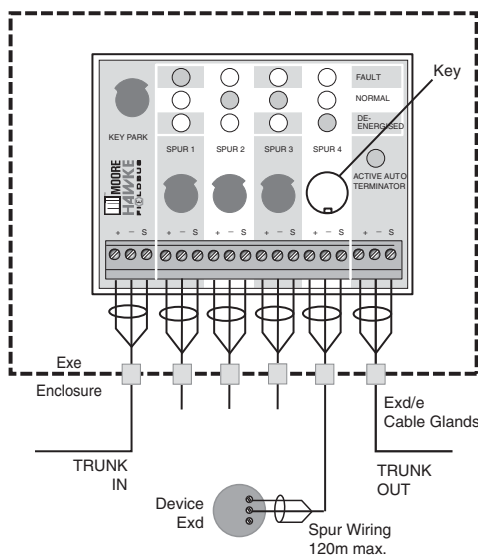
Description

TRUNKGUARD Series 300 Device Couplers (TG300) simplify the use of high power or Exd fieldbus devices in Zone 2 and Zone 1 by allowing “live” access for maintenance and eliminating the need for expensive Exd/Flameproof junction boxes. They enable fast and easy implementation of fieldbus systems by connecting multiple devices to a main fieldbus trunk in FOUNDATION fieldbus™ H1 and PROFIBUS PA networks. TG300 Device Couplers are available in models that handle four or eight fieldbus devices.

Protect Segments from Spur Faults

TRUNKGUARD Device Couplers provide electronic and fully auto-resetting spur short-circuit protection that prevent segment failure caused by single device faults. Utilizing a “FoldBack” technique, any spur that attempts to draw more than approximately 48mA is automatically switched off and not permitted any current flow until the fault is removed. A trickle current is used to determine when the short has been removed. During a short, only 4-5mA is used. This is a significant advantage to “current-limiting” designs on competing units which hold a fault permanently on the segment at a higher than normal current level. This often results in segment failure by overloading the segment power supply. With removal of the short, TRUNKGUARD automatically reconnects the spur to the fieldbus segment.

Figure 1. TRUNKGUARD Series 300 Device Couplers enable fast and easy implementation of Exd/Flameproof FOUNDATION fieldbus and PROFIBUS PA systems.



TRUNKGUARD Fieldbus Device Couplers, to speed specification and installation, are available in ready-to-install, field-mount enclosures complete with cable glands, or as DIN-rail mount units.

Features

- **Perform “Live” maintenance in Zone 1 / Zone 2.** A key-operated magnetic interlock on the TG300 permits individual fieldbus devices to be de-energized for maintenance without de-powering the entire segment, even with high power Exd/Exn loads.
- **Reduce commissioning delays.** Patented* “Automatic Segment Termination” eliminates the most common installation error: segment failure from under or over termination, and assures local parts of a segment will continue to function if remote parts are accidentally disconnected. (With the -MT option, the TG300 is supplied without auto-terminator when external termination is preferred.)
- **Speeds diagnostics and device configuration.** Diagnostic LEDs positively indicate status of spur power, any spur short circuits and status of auto termination.
- **Easy hazardous area installation.** Housed in simple Exe enclosures, safety approvals allow installation in Zone 1 and 2 locations with high power and Exd devices.

* United States Patent No. 7,355,438 and Great Britain Patent No. 2,407,237

Certifications



Sira ATEX Zone 1
Cert. No. 03ATEX5500
II 2 G D
EEx me II T5
Ta - 40°C to +70°C

Sira ATEX Zone 2
Cert. No. 03ATEX4499X
II 3 G D
EEx nC [nL] IIC T5
Ta - 40°C to +70°C



CE Conformant – EMC Directive 89/336/EEC
EN 61326

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TG300

TRUNKGUARD® Series Fieldbus Device Couplers (High Power and Exd Devices in Zone 1 and Zone 2)

Specifications

Communications FOUNDATION fieldbus™ H1 and PROFIBUS PA	Performance (continued) Maximum Voltage Drop Trunk IN to OUT: 0.7V Terminator: 100Ω/1μF (Internal Automatic Segment Termination is standard; For manual termination, specify the -MT option with the MooreHawke model number “TRK-TERM” Trunk Terminator manually fitted on the final device coupler on the segment)	Terminals Type: Exe-approved terminals with IP30 shrouds and fillers Wire Size: Handles sizes between 0.8-2.5mm ² /12-24AWG
Performance Supply Voltage: 10 to 32Vdc Maximum Segment Current: 800mA Maximum Quiescent Current: TG304: 13mA@32V _{FB} ; 5mA@16V _{FB} TG308: 23mA@32V _{FB} ; 10mA@16V _{FB} * 3mA less with -MT option Maximum Spur Output Current: I _{Slim} =48mA Spur Short Circuit Load: I _{Ssc} =5mA (32V), 3mA (16V) Spur Voltage Drop: 0.7V@20mA	Indicators Spur: GREEN (normal) RED (fault) YELLOW (de-energized) Auto-Terminator: GREEN LED is on when auto-termination is activated	Cable Glands (Device Couplers with Enclosures) Type: Armored/Unarmored Material: Nickel-plated brass Ambient Conditions Operating: -40°C to +70°C (-40°F to +158°F) Storage: -40°C to +85°C (-40°F to +185°F) Relative Humidity: 0-95%, non-condensing Surge Protection: EN61326, EN61000-4-5 1KV (1.2/50μsec) RFI/EMI Immunity: 10V/m@80-1000MHz,

Environmental Advantages

TRUNKGUARD Device Couplers (TG300) can be ordered in ready-to-install, field-mount enclosures designed for applications in rugged and hazardous field conditions. Options include GRP (Glass Reinforced Polyester) and stainless steel enclosures. Both offer IP66 protection. Standard cable glands are nickel-plated brass, and can be ordered for use with unarmored or armored cable. Compound seal glands (for cable with inter-core spaces, i.e., unfilled cable), and quick-connect plugs and sockets are also available.

Complete Fieldbus Device Coupler and Power Conditioner Systems

MooreHawke offers the isolated TRUNKGUARD TPS400 Fieldbus Power Supply for powering our TRUNKGUARD Fieldbus Device Couplers. The TPS400 provides TRUNKGUARD Device Couplers with up to 500mA per segment with load-sharing duplex modes and optional pluggable surge protection.

Wiring the TG300 in Zone 1

Each TG300 Device Coupler has terminals for up to four or eight spurs, plus TRUNK IN and TRUNK OUT (See Figure 1). For multiple units, TRUNK OUT can be looped into the next TRUNK IN. Segment termination is automatically provided by the final TG300 unit in the segment. There is no need to provide an external terminator.

LEDs Indicate Spur Status—The TG300 features bright LEDs that indicate the status of each spur as “Normal” (GREEN), “Fault” (RED) or “De-Energized” (YELLOW). “Normal” indicates that the spur has sufficient voltage for device operations, and that the spur current is within limits. “Fault” indicates that the short-circuit protection mechanism is active for that spur. “De-Energized” is ON only when the DISCONN Key has positively isolated that spur.

Exe-Approved Terminals—The TG300 terminals are protected to IP30 by special plastic terminal shrouds and entry fillers. This allows access to the unit “live” in Zone 1 areas. The shrouds have holes for a small screwdriver (blade <2.5mm) and do not need to be removed for wiring. Wiring should be locally acceptable in Zone 1. Typically, steel wire armored or toughened sheath cable is appropriate.

Ordering Information

Unit	Mounting/Enclosure Type	Number of Spurs	Gland/Connector Type	Gland Entry Size
TG3 TRUNKGUARD Device Coupler for Flameproof Zone 1 and Zone 2 Locations	0 DIN-Rail Mount (No enclosure)	4 Fieldbus Spurs 8 Fieldbus Spurs	Not Applicable	-DIN (No cable glands) Universal DIN-style enclosure mounts on 32mm (EN50035) G-type and 35mm (EN50022) Top Hat DIN-rails
	2 Stainless Steel 316, IP66 Enclosure 3 Standard GRP (Glass Rein- forced Polyester), IP66 Enclosure	4 Fieldbus Spurs 8 Fieldbus Spurs	-A Unarmored Cable Glands (standard) -B Armored Cable Glands -C Compound Seal Cable Glands -D No Cable Glands	GLAND ENTRY SIZE FOR: -O (standard) Unarmored Cable (7.5-11.9mm O.D.); Armored Cable (9.5-16.0mm O.D.)
	4 Stainless Steel 316, IP66 Enclosure with E-Z vertically removable lid and bottom entry cable gland plate	4 Fieldbus Spurs 8 Fieldbus Spurs	NOTES: 1. Gland/connector selection is for all entry ports. 2. Weatherproof seals are provided for all glands, but not sockets.	-S Unarmored Cable (3.0-8.0mm O.D.); Armored cable (5.5-12.0mm O.D.) -MT Option: Specify for TG300 without auto-termination. NOTE: Auto-termination cannot be restored or reactivated on site. (e.g., TG334-A-O-MT)

When ordering, specify: Unit • Mounting or Enclosure Type • Number of Channels -Gland/Connector Type -Gland Entry Size

Model number example: TG334-A-O
(4-Spur Device Coupler in GRP Enclosure with Cable Glands for Unarmored Cable)

TG308-DIN
(8-Spur Device Coupler for DIN-Rail Mounting)

Manual Trunk Terminator for Use with
-MT Option, Specify: **TRK-TERM**

Figure 2. DIN-Rail Mounting Installation Dimensions (Base Units).

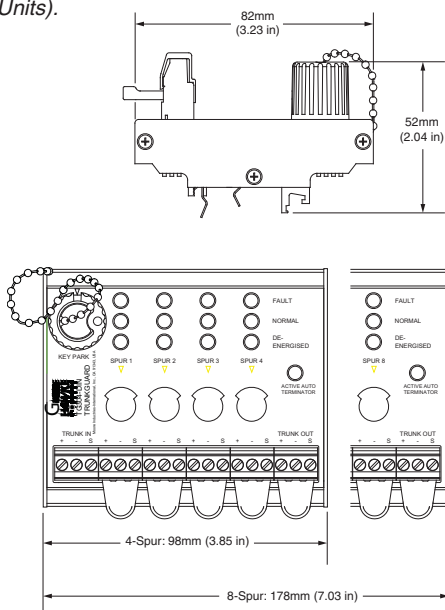
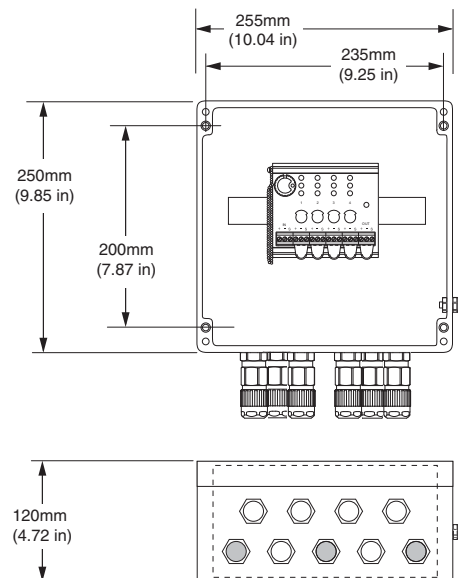


Figure 3. GRP (Glass Reinforced Polyester) Enclosure Installation Dimensions for TG334 (4-Spur) Models.



TG300

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Figure 4. GRP (Glass Reinforced Polyester) Enclosure Installation Dimensions for 8-Spur (TG338) Configuration.

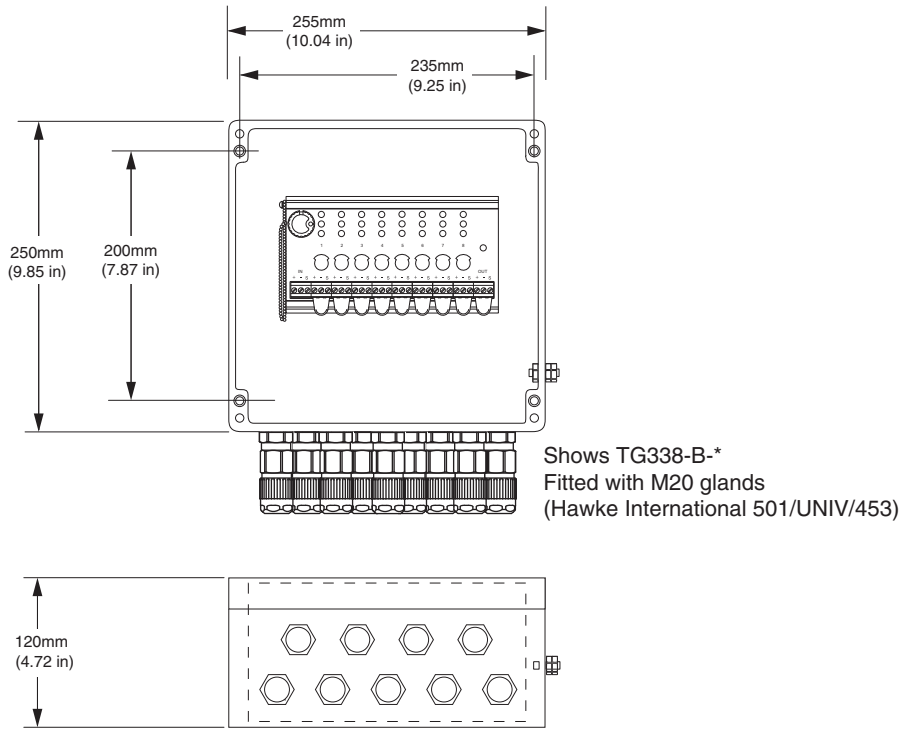
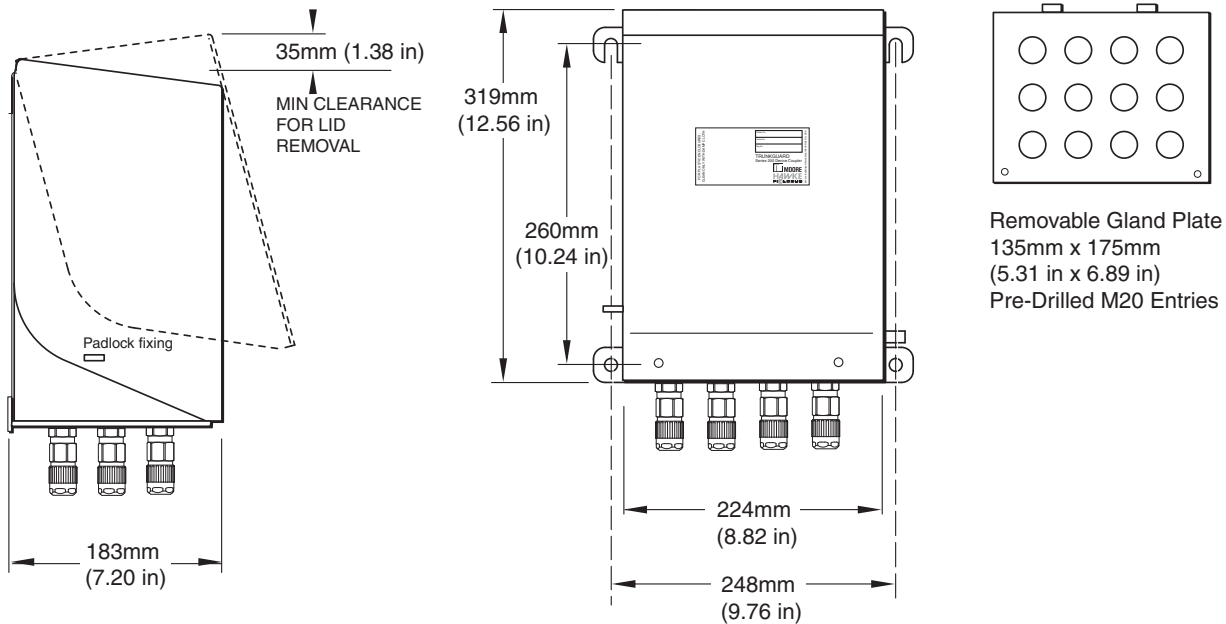


Figure 5. Stainless Steel 316 with E-Z Vertically Removable Lid and Bottom Entry Cable Gland Plate Installation Dimensions for 4-Spur (TG344) and 8-Spur (TG348) Configurations.



WORLDWIDE • www.miinet.com

United States • info@miinet.com
Tel: (818) 894-7111 • FAX: (818) 891-2816

Belgium • info@mooreind.be
Tel: 03/448.10.18 • FAX: 03/440.17.97

China • sales@mooreind.sh.cn
Tel: 86-21-62491499 • FAX: 86-21-62490635

Australia • sales@mooreind.com.au
Tel: (02) 8536-7200 • FAX: (02) 9525-7296

The Netherlands • sales@mooreind.nl
Tel: (0)344-617971 • FAX: (0)344-615920

United Kingdom • sales@mooreind.com
Tel: 01293 514488 • FAX: 01293 536852