# Multiprotocol Rail Reader

## Features

▶ Designed for rail applications

▶ Fixed mount, integrated package (reader and RF module)

▶ Reads Association of American Railroads (AAR) format tags and Super eGo® (SeGo) protocol tags

▶ Supports SeGo read/write transactions

▶ Supports tag and mutual authentication

▶ 902-928 MHz RF range operation in North America

▶ Real-time clock

▶ Tag read buffering

▶ Programmable RF output power

▶ Programmable frequency

▶ Supports up to two AT5720 Check Tags

▶ Multiplexes up to four antennas

▶ Direct interface to TransCore's Train Recording Unit (TRU)

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TransCore's Multiprotocol Rail Reader (MPRR) is a fully integrated, self-contained 902- to 928-MHz wireless radio frequency identification (RFID) reader that is specifically designed for rail applications. The MPRR is a replacement for TransCore's AI1200 Reader/AR2200 RF Module systems.

The MPRR can read AAR format and SeGo protocol tags.

All MPRRs provide unparalleled flexibility by offering a real-time clock; expanded tag read buffering; programmable RF output power; programmable frequency range from 860.00 to 930.00 MHz[1] in 250-kHz programmable frequency steps; system integrity checking; and programmable group select.

The MPRR employs advanced multiplexing techniques that improve reader performance at higher train speeds when compared to legacy products. In addition, this unique multiplexing mode provides the capability for one reader to manage up to four antennas, allowing a single reader to be used for two tracks.

The MPRR interfaces directly to TransCore's TRU rail wayside automatic equipment identification (AEI) controller to provide a complete railroad AEI reader system to the North American railroads.

Multiprotocol Rail Readers are quickly and easily installed, tested, and maintained by TransCore trained, authorized personnel.

1.In the United States, the authorized continuous wave frequency band is 902.25 to 903.75 MHz and 910.00 to 921.50 MHz and the authorized modulated frequency band for this product is 911.75 to 919.75 MHz.

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## RF CHARACTERISTICS

### Frequency Range
**AAR-format:** 902.25 to 903.75 MHz and 910.00 to 921.50 MHz

**SeGo protocol:** 911.75 to 919.75 MHz

### RF Control
By sense inputs

### Range
Read performance varies depending on tag and reader configuration and environment.

Consult the *Multiprotocol Rail Reader System Guide* for tag and reader selection.

## I/O CONTROL

**Input:** two independent dry contact closures for sense circuits

**Output:** one tag lock output

RS–232 host interface

## POWER REQUIREMENTS

### Input Power
**AC:** 16 to 20V, 47 to 63 Hz, 35 watts maximum
**DC:** 16 to 28V, 35 watts maximum

### RF Output Power
2 W maximum to 200 mW minimum, selectable in 1-dB steps

## LICENSING

### Equipment License
The user is required to obtain a Part 90 site license from the FCC to operate the unit in the United States. Access the FCC Web site at www.wireless.fcc.gov/uls for more information.

**FCC ID:** FIH05716

**Industry Canada ID:** 1584A-05716

Users in all countries should check with the appropriate local authorities for licensing requirements.

## COMPLIANCE

### RF Interference
Units have been tested and are verified to Part 15 of the FCC rules for a Class A digital device.

### Safety
Multiprotocol Rail Readers comply with the requirements of Underwriters Laboratories UL–60950-1, Standard for Safety of Information Technology Equipment.

## PHYSICAL

### Dimensions
**Size:** 13 x 5 x 2.49 in. (33 x 7.62 x 6.32 cm)

**Weight:** 5.1 lb (2.31 kg)

### Mounting Location
In railside equipment hut or enclosure

### Enclosure
The MPRR is enclosed in an aluminum housing.

## ENVIRONMENTAL

### Operating Air Temperature
-40°F to +158°F (-40°C to +70°C)

### Storage Temperature
-40°F to +185°F (-40°C to +85°C)

### Humidity
95% condensing

### Vibration
The MPRR complies with vibration tolerance limits specified in AREMA C&S Manual, Part 11.5.1, Class C

### Shock, Operational
The MPRR complies with shock tolerance limits specified in AREMA C&S Manual, Part 11.5.1, Class C

## OPTIONS

### Cable Accessory Kits
Cable Accessory Kits allow flexibility in installing the MPRR. Include the part number when ordering.

**Part number 58-7001-001:** MPRR-to-TRU 6-ft (1.8-m) cable assembly

**Part number 58-7001-002:** MPRR-to-TRU 20-ft (6.1-m) cable assembly

**Part number 58-7001-003:** MPRR cable assembly 6-ft (1.8-m), no TRU

**Part number 58-7001-004:** MPRR cable assembly 20-ft (6.1-m), no TRU

### Check Tag Accessory Kit
**Part number 20-7001-001:** MPRR Check Tag Accessory Kit

### Transformer
A Class C transformer (part number 76-1620-005) is available to allow 110V AC to 18V AC conversion. Include the part number when ordering.

### Training
Installation, operation, and maintenance training for TransCore authorized dealers is available through TransCore. For details, contact TransCore.

## DOCUMENTATION

*Multiprotocol Rail Reader Quick Start Guide*
*Multiprotocol Rail Reader System Guide*

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