



*Manufacturers of Process
Controls and Instrumentation*

Instruction Manual

Model: *MTS-XXX*

Function: *Modular Telemetry System*

- Module:
- XXX=8DI: 8-Channel Digital Input*
 - XXX=8DO: 8-Channel Digital Output*
 - XXX=4AI: 4-Channal Analog Input*
 - XXX=4AO: 4-Channel Analog Output*
 - XXX=PWR: Power Distribution*
 - XXX=RAD: Radio Communication*
 - XXX=4DIO: 4-Channel Digital Input & Output*

Power: *24VDC, 5A max.*

Serial #: _____

(If special or required)

For Technical Assistance And Questions Call
USA: (231) 788-2900 CANADA: (905) 660-5336

WARNING

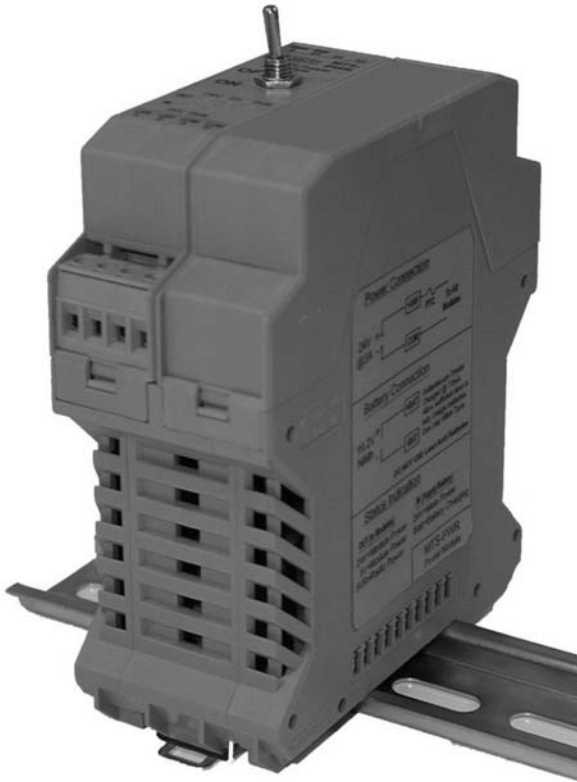
THIS INSTRUCTION MANUAL MUST BE CAREFULLY READ BY ALL INDIVIDUALS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR INSTALLING, USING OR SERVICING THIS PRODUCT. LIKE ANY PIECE OF COMPLEX EQUIPMENT, THIS PRODUCT WILL PERFORM AS DESIGNED ONLY IF INSTALLED, USED AND SERVICED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. OTHERWISE, IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS PRODUCT FOR THEIR SAFETY COULD SUSTAIN SEVERE PERSONAL INJURY OR DEATH.

The warranties made by Pribusin Inc. with respect to these products are voided if the products are not installed, used and serviced in accordance with the instructions in this instruction manual. Please protect yourself and others by following them.

General Warnings and Cautions

- This apparatus is suitable for use in Class I, Division 2 Groups A, B, C & D
- **WARNING: EXPOSURE TO SOME CHEMICALS MAY DEGRADE THE SEALING PROPERTIES OF MATERIALS USED IN THE FOLLOWING DEVICES:**
 - Relay (MTS-8DO only): AROMAT (NAIS), JQ1-24V & JS1-24V (Inspect relays periodically to ensure that no degradation is found)
- **WARNING: EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE LAMPS, FUSES OR PLUG-IN MODULES UNLESS POWER HAS BEEN DISCONNECTED OR THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS.**
- **WARNING: EXPLOSION HAZARD. SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.**
- **WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE CIRCUIT IS LIVE UNLESS AREA IS KNOWN TO BE NON-HAZARDOUS.**
- **AVERTISSEMENT: RISQUE D'EXPLOSION. NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISSE D'UN EMPLACEMENT NON DANGEREUX.**
- **AVERTISSEMENT: RISQUE D'EXPLOSION. LA SUBSTITUTION DE COMPOSANTS PEUT RENDRE CE MATERIEL INACCEPTABLE POUR LES EMPLACEMENTS DE CLASSE 1, DIVISION 2.**

Power Module



Function:

The MTS-PWR is a power supply and distribution module for any MTS based telemetry system. It provides the necessary power to all modules in an MTS stack in an easy to integrate module. It gives visual indication on the status of the power supply.

An optional external battery pack can be connected to the MTS-PWR to provide a backup power source. Batteries are NiMh type which have high power density and no memory effect.

Deployment and installation is as simple as plugging the needed I/O modules into the communications module and assigning unique module ID's. Power and communication for the modules are provided through an integral bus.

Standard Features:

- Provides Power to All Modules via Integrated Bus
- Battery Backup Capability
- Power Status Indication
- Integrated Power & Data Bus Reduces Wiring
- Modular Design Provides Maximum Flexibility
- Power: 24 VDC, 5A max.

Configuration:

The MTS-PWR requires no configuration.

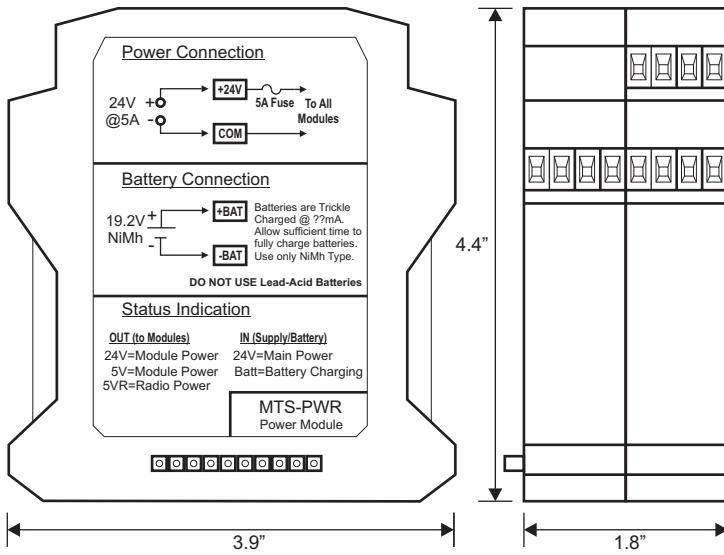
If the Battery Backup option is used, simply connect the batteries to the terminals as indicated on the connection diagram.

Specifications:

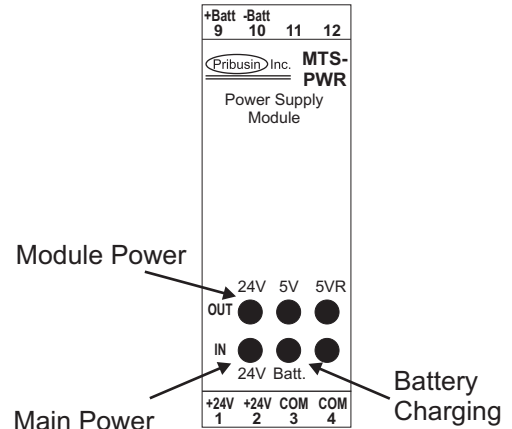
- Input Power: 24VDC, 5A max.
- Output Power: 24VDC, 3A max.
5VDC, 1A max. (x2)
- Reverse Polarity Protection: Yes
- Battery Type: NiMh
- Battery Charging Current: 500mA

MTS-PWR

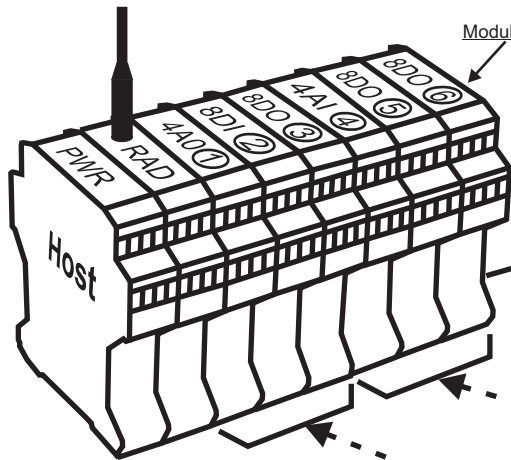
Module Dimensions:



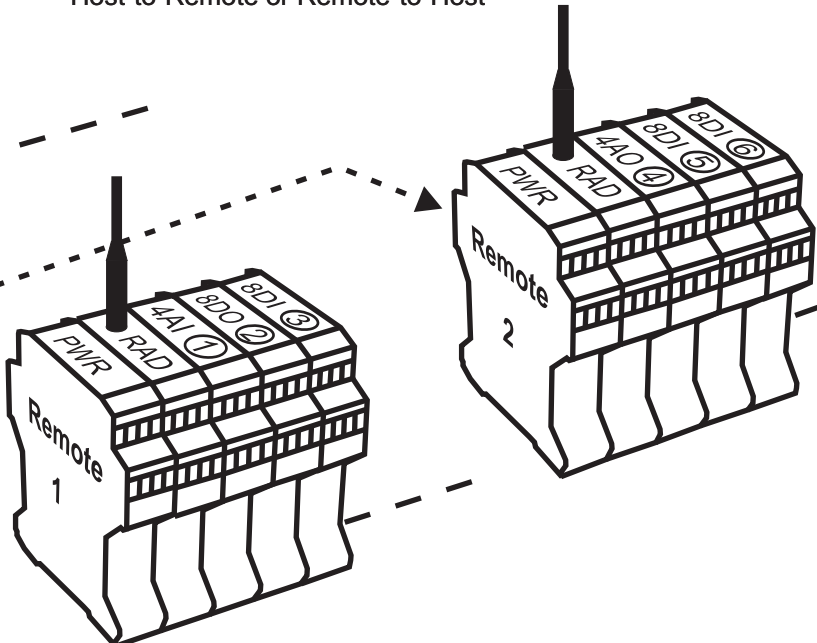
Top View:



System Example:



- Each Input module must have an Output module counterpart
- Each module pair uses the same module ID
- One host radio module can communicate with up to 99 remote radio modules
- Module pairs may be arranged to exchange signals either from Host-to-Remote or Remote-to-Host



Part No.	Description
MTS-RAD	Wireless Communication Interface
MTS-4DIO	4 Digital Inputs & 4 Digital Outputs
MTS-8DI	8 Digital Inputs
MTS-8DO	8 Digital Outputs
MTS-4AI	4 Analog Inputs
MTS-4AO	4 Analog Outputs
MTS-PWR	24VDC Power Module

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MTS-PWR Functional Description:

The MTS-PWR is a power distribution module that is used to provide power to an MTS module stack. It provides the necessary power for the communications module and the I/O modules via the integrated bus connector at the base of all modules.

A built-in battery charging function can be used in conjunction with an external battery (optional) to provide back-up power in the case of a main power failure.

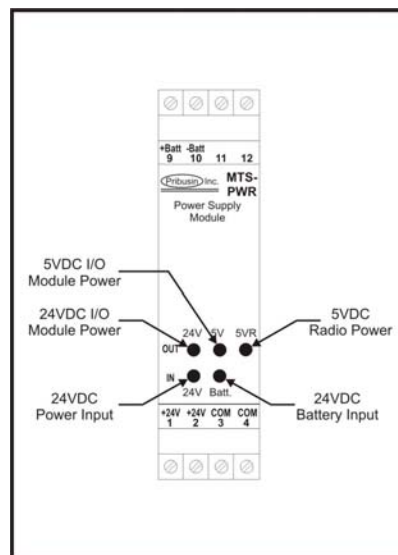
Power Indication:

The MTS-PWR has several power indication lights to show the status of the input power, the various internal power supply voltages and the presence of a battery.

The 24VDC IN light indicates the presence of an external DC main power source. It should be ON during normal operation of an MTS system.

The Battery light indicates the charging status of an external battery. It is ON if an external battery is charging. If the battery is fully charged the light may go dim or go out completely.

The three power OUT lights indicate the status of the three power supplies for the MTS stack. All three lights must be on for the MTS to operate properly. If one or more of the lights is OFF then check the input power to be sure it is 24VDC.



Battery Backup:

The MTS-PWR has a built-in battery backup function that allows for the connection of an external battery. In the event of a loss of 24VDC main power, the battery will automatically supply power to the MTS stack for a limited amount of time. The battery capacity and the power consumption of the MTS stack determine the amount of time that the battery can supply power to the MTS stack.

This battery must be a 19.2V NiMh type. Suggested battery capacity is 3Ah.

MTS-PWR Installation:

Physical Mounting:

The MTS-PWR module easily snaps onto standard 35mm top-hat style DIN rail for mounting. Each module has a 10-position interconnect bus near the base that provides power and inter-module communication. Once modules are snapped onto the DIN rail they simply slide together and connect via their integrated interconnect bus. See figure 1 below for an illustration.

To remove a module, slide it off the end of the DIN rail or insert a screwdriver into the slot of the retaining clamp at the base of the module and push the screwdriver towards the module – now lift it out.

WHEN ASSEMBLING A STACK OF MODULES OR ADDING OR REMOVING A MODULE MAKE SURE POWER TO THE WHOLE STACK IS OFF.

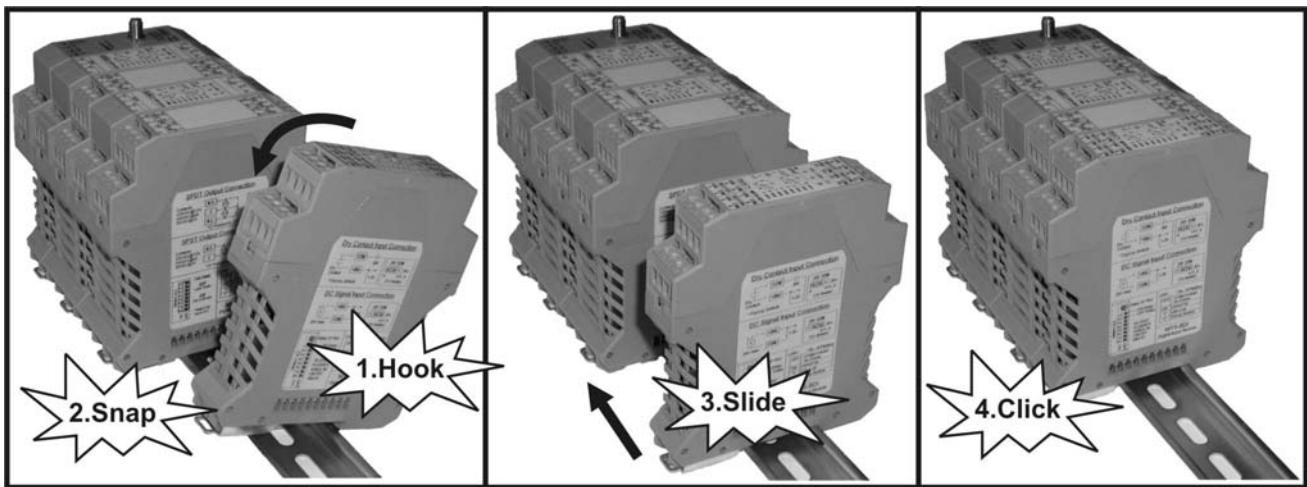


Figure 1

Wiring:

To facilitate easy installation, all terminals are plug-in style and can be removed for wiring purposes. Figure 2 shows the arrangement of the power input terminals and the optional battery connection.

WARNING: MORE THAN ONE LIVE CIRCUIT – SEE DIAGRAM.

AVERTISSEMENT: PLUS QU'UN CIRCUIT SOUS TENSION – VOIR LE DIAGRAM

WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT WHILE CIRCUIT IS LIVE OR UNLESS THE ARE IS KNOW TO BE FREE OF IGNITIBLE CONCENTRATIONS OF FLAMMABLE GASES OR VAPORS.

AVERTISSEMENT: RISQUE D'EXPLOSION. NE PAS DEBRANCHER TANT QUE LE CIRCUIT EST SOUS TENSION, A MOINS QU'IL NE S'AGISEE D'UN EMPLACEMENT NON DANGEREUX.

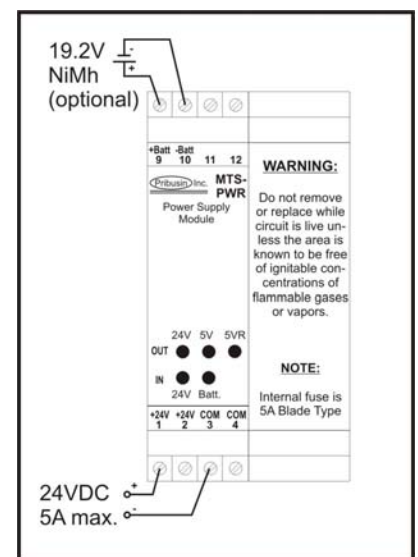


Figure 2

MTS-PWR Fuse Servicing:

To check or replace the internal fuse of the MTS-PWR it is necessary to remove the circuit board and cover assembly from the enclosure body. When doing so, make sure that you adequately protect yourself against static electricity buildup by wearing proper grounding straps.

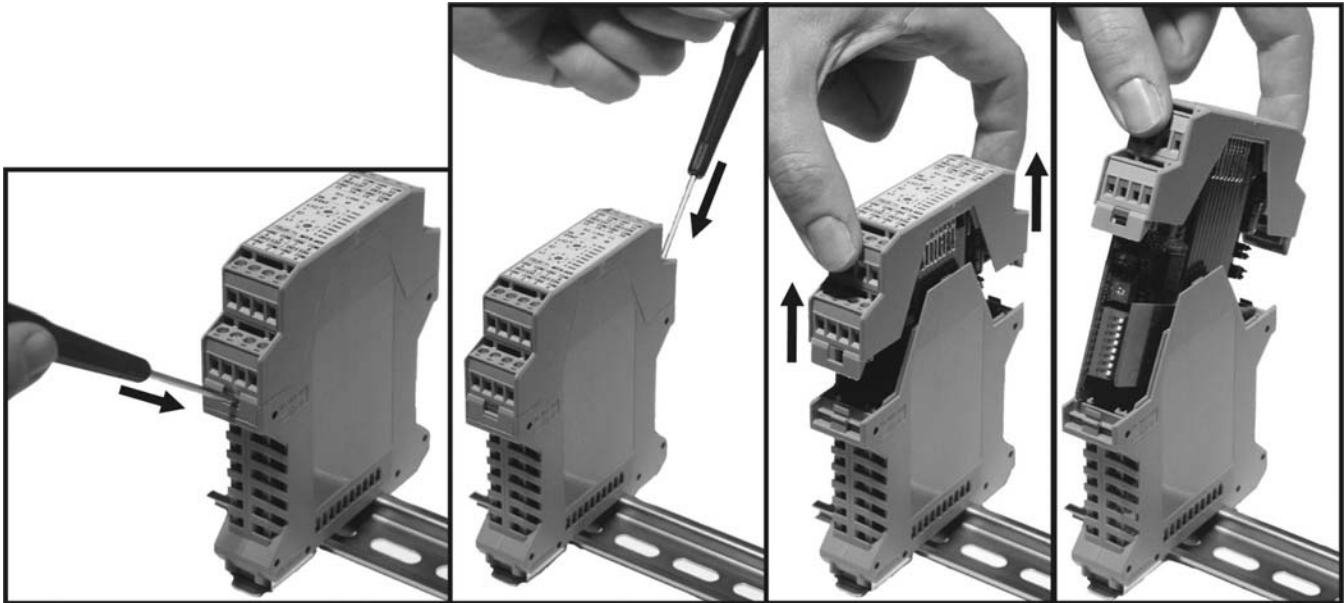
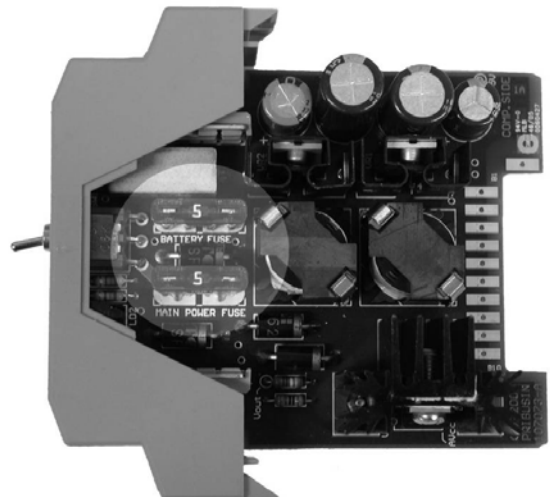


Figure 4

Figure 4 shows how to open the MTS enclosure. **Before proceeding, make sure all power is turned off to the MTS stack.** Using a small screwdriver, push in the two locking tabs on either side of the MTS just below the lower terminal plug. This unlocks the cover. Gently pull on the cover away from the enclosure body until the circuit board is free of the enclosure. Perform the necessary steps and replace the cover and board assembly in the same orientation as it was removed. Be sure not to accidentally rotate the assembly by 180° when re-inserting it into the enclosure body. When inserting the lower end of the circuit board(s), make sure the board(s) slides into the guide-rails on the inside of the enclosure. Gently push on the top cover until it is firmly seated and the locking tabs click in place.

Power & Battery Fuse:

The Power and Battery fuses are a blade-type, ATC-5, 32VDC, 5A fuse. In the event that a fuse is found to be blown, make sure to investigate the possible causes of the fuse failure before replacing the fuse. Possible causes include a short circuit in the external wiring to one of the modules, a defective module, or an overload caused by too many modules on a stack.



MTS System Overview:

This section describes the concept and operation of a typical MTS system. The example below uses two remote sites, labeled 'Remote 1' and 'Remote 2'. Following are important points to note when designing or installing an MTS system:

- Every MTS system has one Host Stack and one or more Remote Stacks
- Each stack consists of at least one power module (MTS-PWR), one communications module (MTS-xxx, see table below for xxx), and one or more I/O modules
- I/O modules are always paired (one input module and one output module)
- One module of each pair (either input module or output module) MUST be on the Host Stack
- Each module pair MUST use the same Module ID
- Modules may be arranged to send their signals from Host-to-Remote or Remote-to-Host depending on which stack the input and output modules are located

Figure 8 shows a typical two remote system with a mixture of I/O modules arranged in ways so that some modules send signals from the Host Stack to the Remote Stacks while other modules send signals from a Remote Stack back to the Host Stack.

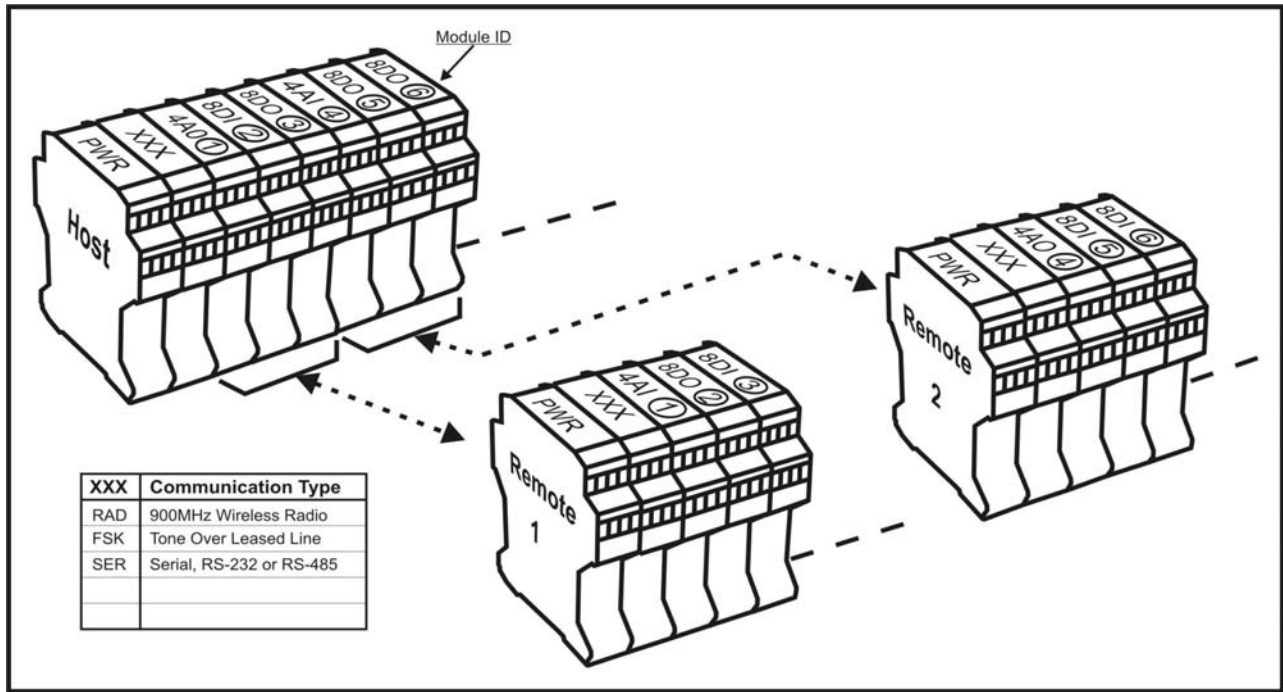


Figure 8

This table shows the modules that are currently available. Check our website at www.pribusin.com or with your local representative for the latest list of available modules.

Model No.	Description
MTS-RAD	900MHz Wireless Comm. Module
MTS-8DI	8 Channel Digital Input Module
MTS-8DO	8 Channel Digital Output Module
MTS-4AI	4 Channel Analog Input Module
MTS-4AO	4 Channel Analog Output Module
MTS-PWR	24VDC Power Module

Restocking Policy

All product returned to Pribusin Inc. in prime condition (not damaged, scratched or defaced in any way) within seven (7) months from the original date of shipment is subject to a 50% restocking charge. All product must be accompanied by a Return Authorization number (RA number) which must be obtained from Pribusin Inc. prior to returning any product.

After seven (7) months from the original date of shipment, products cannot be returned for restocking.

Custom designed products, modified products or all non-standard products may not be returned for restocking.

Warranty Policy

Pribusin Inc. warrants equipment of its own manufacture to be free from defects in material and workmanship, under normal conditions of use and service, and will replace any component found to be defective, on its return to Pribusin Inc., transportation charges prepaid, within one year of its original purchase. Pribusin Inc. will extend the same warranty protection on equipment, peripherals and accessories which is extended to Pribusin Inc. by the original manufacturer. Pribusin Inc. also assumes noliability, expressed or implied, beyond its obligation to prelace any component involved. Such warranty is in lieu of all other warranties, expressed or implied.