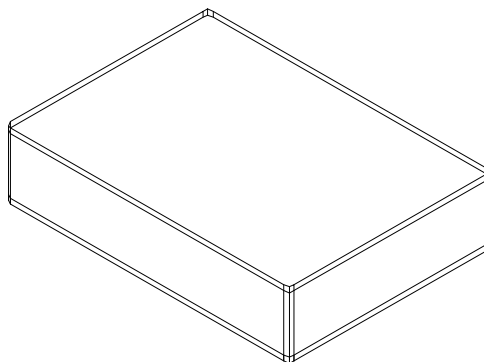


Brady Medium Range RF/ID Reader



Users Guide

Preliminary



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Important Information

Limited Hardware Warranty

Brady USA, Inc. warrants solely to the purchaser that the hardware components of the Medium Range Reader RFID reader will be free from defects in materials and workmanship under normal use for a period of 90 days from the date of shipment by Brady USA. This limited warranty does not extend to any components which have been subject to misuse, neglect, accident, or improper installation or application. Brady USA's liability and the purchaser's remedy for the breach of this warranty shall be at Brady USA's option to either (i) repair or replace defective components or (ii) upon return of the defective components, refund the purchase price paid for the components. *EXCEPT FOR THE LIMITED HARDWARE WARRANTY SET FORTH ABOVE, BRADY USA AND ITS LICENSORS PROVIDE THE HARDWARE ON AN "AS IS" BASIS, AND WITHOUT WARRANTY OF ANY KIND EITHER EXPRESS, IMPLIED OR STATUTORY.*

Limitation of Liability

In no event shall Brady USA or its suppliers be liable for any damages in excess of the price paid by you to Brady USA for the component, regardless of under what legal theory such damages may be alleged arising out of the use or inability to use the component, even if Brady USA has been advised of the possibility of such damages.

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC ID

NUC-BPMR125



Specifications

Input Voltage.....	+12V D/C Nominal
Input Current	
While Activated.....	150 mA
Standby.....	20 mA
Frequency of Operation.....	125 kHz
Modulation	ASK (Amplitude Shift Keying)
Dimensions	6.5" L x 4.5" W x 2" H (16.51 cm L x 11.43 cm W x 5.08 cm H)
Weight.....	2lb(.907 kg)
Temperature	
Operating.....	-4 ° to + 104 ° F (-20 ° to +40 ° C)
Storage.....	-40 ° to + 140 ° F (-40 ° to +60 ° C)
Data output Formats	
RS-232/422/485.....	9600 baud, 1 stop, 8 data, carriage return
Barcode Emulation.....	Code 39
Typical Tag Read Time	
40 Bit.....	20m sec
256 Bit.....	40m sec
1056 Bit.....	100m sec
2048 Bit.....	500m sec



Introduction

Brady RF/ID systems consist of Brady RF/ID tags and a reader/writer for reading data from tags or writing data to tags. Several different types tags and various reader options are available to suite any application.

Brady RF/ID Tags

Brady RF/ID tags consist of a microchip, coil antenna and packaging. Packaging and microchip options can be combined to fit any RF/ID tag requirement.

Microchip options include read only, read write and several different memory capacities for read/write applications. Typically, read only tags are randomly preprogrammed with 40 bits (*10 HEX Characters*) of permanent data. Versions of read only tags are available which can be programmed once with a designated number. This number is then permanently stored in the tag and can be read many times. This type of tag is typically referred to as a WORM (*write once read many*).

Read/write tags have permanent data as well as programmable data. The permanent data is similar to a read only tag. It is usually 32 bits (*8 HEX Characters*) of data which can not be changed. Read/write tags also have memory which can be changed. The amount of changeable memory in a read/write tag ranges from 152 bits (*19 Alphanumeric Characters*) to 1536 bits (*192 Alphanumeric Characters*). Versions of read/write tags are also available with password protection or data encryption for high security applications that require secure data transmission between the reader and the tag.

Packaging options include a variety of forms as well as different case materials for a wide range of operating temperatures and chemical resistance.

Brady Medium Range Reader

The Brady Medium Range Reader is an RF/ID reader which interfaces to a host PC or other data collection device through standard RS-232/422/485 or Wand emulation hardware format.

The Brady Medium Range Reader was designed to be used in various Industrial applications which require rugged and reliable equipment. Versions of the Medium Range Reader are available with an Intrinsically Safe Rating which allow them to be used in explosion hazard areas. The Medium Range Reader is water resistant and can withstand many of the harsh chemicals found in industrial manufacturing and petrochemical processing.



Setup and Wiring

The following is a simple procedure for setting up and operating the Brady Medium Range Reader/writer. Follow the instructions carefully. *Any deviation from these instructions may void the Limited Hardware Warranty.*

Upon Receipt

- Remove items from shipping the container.
- Check package contents for the following items:
 1. Brady Medium Range Reader Reader/Writer
 2. Optional accessories.
- Fill out and return product registration card.

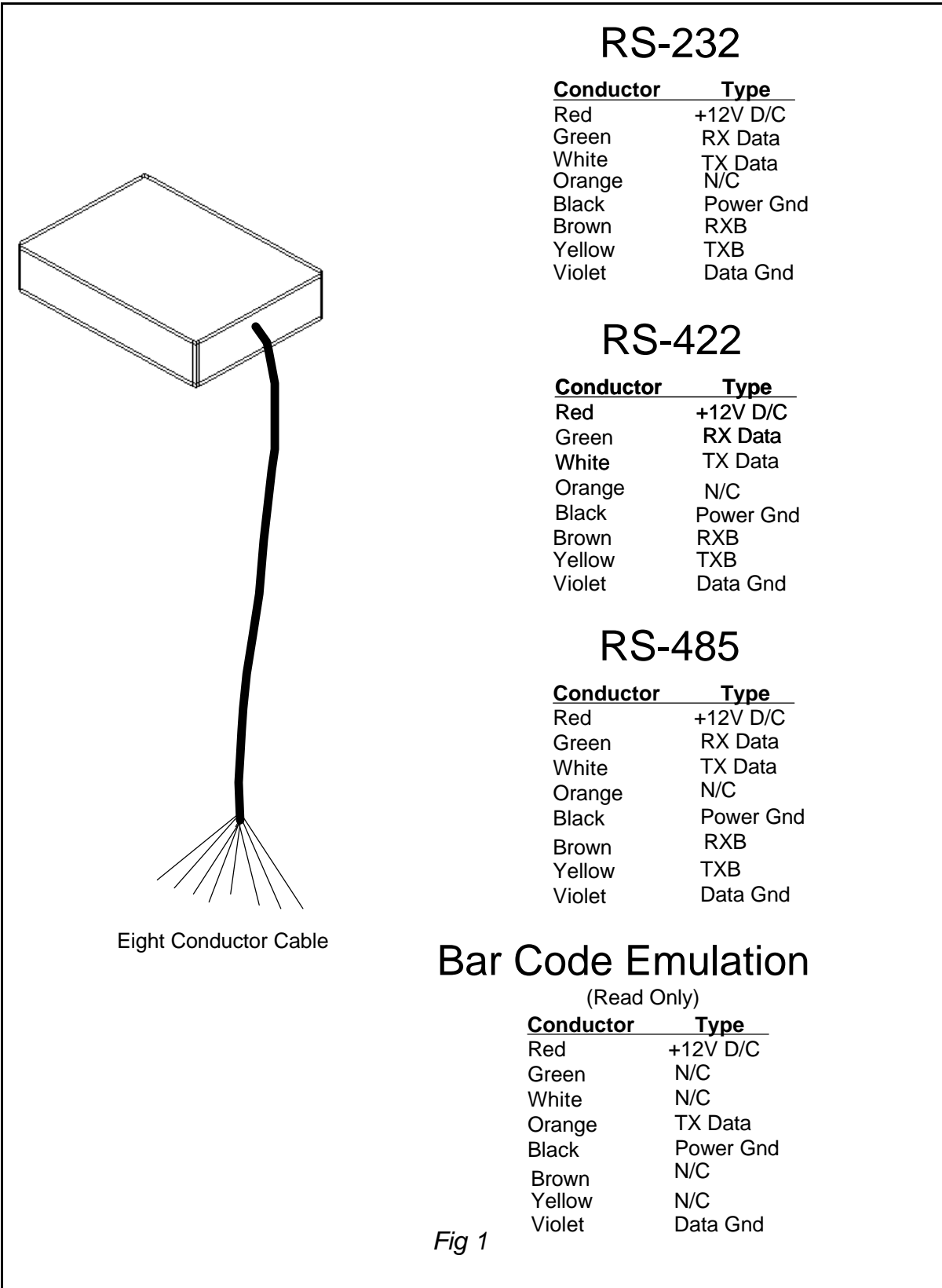
Brady Medium Range Reader Power Supply Requirements

The Brady Medium Range Reader needs to be powered from a 12V D/C, 500mA Linear Power Supply. Using a Switch Mode or similar supply may degrade reader performance or render it inoperable.

Connecting the Brady Medium Range Reader to a Data Collection Device

The permanently attached cable is used for connecting the Brady Medium Range Reader reader/writer to a host computer or data collection device. (See Fig 1 page 6) Because of the many different data collection devices and serial port formats which can be used, consult the owners manual of the data collection device to be used for proper wiring and connector information.

Once you have determined the proper wiring and connector information for the data collection device, the cable can be connected to the Brady Medium Range Reader cable. *Proper splicing techniques should be used when adding additional cable to the Brady Reader cable.*



RS-232

Conductor	Type
Red	+12V D/C
Green	RX Data
White	TX Data
Orange	N/C
Black	Power Gnd
Brown	RXB
Yellow	TXB
Violet	Data Gnd

RS-422

Conductor	Type
Red	+12V D/C
Green	RX Data
White	TX Data
Orange	N/C
Black	Power Gnd
Brown	RXB
Yellow	TXB
Violet	Data Gnd

RS-485

Conductor	Type
Red	+12V D/C
Green	RX Data
White	TX Data
Orange	N/C
Black	Power Gnd
Brown	RXB
Yellow	TXB
Violet	Data Gnd

Bar Code Emulation

(Read Only)

Conductor	Type
Red	+12V D/C
Green	N/C
White	N/C
Orange	TX Data
Black	Power Gnd
Brown	N/C
Yellow	N/C
Violet	Data Gnd

Fig 1





Wiring Requirements for the Brady Medium Range Reader

RS-232

Wire Gauge	Cable Length (Max.)
22 AWG Shielded	100 ft.

Note: Cable shield should not be unconnected at the reader and terminated to earth ground at the power supply.

Special low capacitance cable is available which extends the distances given in the table above.

RS-422

Wire Gauge	Cable Length (Max.)
22 AWG Twisted Pair, unshielded	4000 ft.

Note: Do not use Standard Shielded cable for RS-422 data communication.

RS-485

Wire Gauge	Cable Length (Max.)
22 AWG Twisted Pair, unshielded	4000 ft.

Note: Do not use Standard Shielded cable for RS-485 data communication.

Barcode

Wire Gauge	Cable Length (Max.)
22 AWG Twisted Pair, unshielded	10 ft.



Medium Range Reader Operation

Operating Hints

Because the Brady RF/ID System uses radio frequency (RF) energy to communicate between the tag and the Medium Range Reader, there are several important points to keep in mind while setting up and operating the system.

- Metal affects both Medium Range Reader and tag antennas by reducing the read range of the overall system. If at all possible, keep tags and the Medium Range Reader antenna away from metal.
- Interference from other electronic sources can reduce read range. If the interference is strong enough, it may render the system inoperative. When reading tags, keep the Medium Range Reader and tags as far away from these sources as possible. *These sources include but are not limited to:*
 1. CRTs (*Computer Monitor, CCTV Monitor TV's*)
 2. Light Dimmers
 3. Brush-type motors

Operating the Medium Range Reader

Operation of the Brady Medium Range Reader is accomplished remotely by sending a series of commands from the host computer. To read/write to a tag the host sends a series of commands to the reader over the serial communication line. The reader will initiate these commands and responds back to the host with the status of these commands and information gathered from tags.

See the software programmers manual for further details on reader commands.

Troubleshooting Procedure

If you should experience problems in the normal usage of your Brady Medium Range Reader the following troubleshooting procedure will help in determining the cause of the problem and a possible solution to the problem.

