CR-R880-BL:
Indoor/Outdoor Proximity Reader
with 10cm (4in) read range

Installation Manual

P A R A D O X®
S E C U R I T Y   S Y S T E M S

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Basic Operation

When power is supplied to the reader, the antenna in the reader will emit a continuous low-frequency RF field. When a card is placed within this field, the antenna inside the card will gather the energy present in the field to power the internal circuitry of the card. The card will then transmit its unique identification (ID) number to the Indoor/Outdoor Proximity Reader with 10cm (4in) read range (CR-R880-BL). After receiving the signal, the reader verifies the validity of the signal. If the signal is valid, it will be decoded by the reader and sent in the appropriate output format to the host controller through data cables. The controller then determines what action to take in response to the information received from the reader.

Figure 1: CR-R880-BL Block Diagram
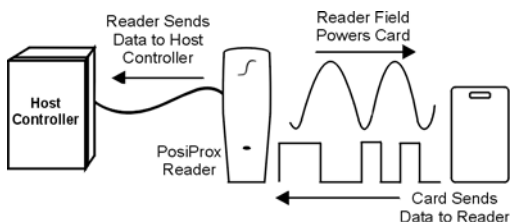
Technical Specifications

Input Voltage:	Typical 13.8Vdc
	Minimum 11.0Vdc
	Maximum 14.5Vdc
Input Current:	Typical 65mA @ 12.5Vdc
	With card present 105mA @ 12.5Vdc
Power Consumption:	Typical 812mW @ 12.5Vdc
	With card present 1.31W @ 12.5Vdc
Read Range*:	CR-R702-A Clam Shell Card
	CR-R704-B Blue Proximity Key Tag
Frequency:	Exciter field 125 KHz Pulse Modulated
	Receive Low Frequency 12.500 KHz
	Receive High Frequency 15.625 KHz
Operating Temperature:	Minimum -35°C (-31°F)
	Maximum +65°C (149°F)
Output Formats:	26-Bit Wiegand, 37-Bit Wiegand, ABA & Custom
Cable Distance:	152.4m (500 feet)
Recommended Cables:	22AWG (.8mm Dia.), Multi-Conductor, Alpha 5196, 5198
	18AWG (1.2mm Dia.), Multi-Conductor, Alpha 5386, 5388
	Belden 9553 (18AWG, 6 conductor, stranded with overall shield)
Led Indicator:	Tricolour LED Display
Face Light:	Blue
Audio Indicator:	Beeper
Colour:	Black
Weight:	9.8 oz. (280g)
Material:	UV resistant, ABS plastic

Dimensions:	5.75" H x 2" W x 1" T
Gang Box Mounting Plate:	Single (available as an option)
Approvals:	CE ①
	Compliant to all EU and EFTA countries except Greece according to RTT&E directives.

*The specified read range assumes no electrical interference and that the card is presented parallel to the reader, with the reader installed and operated as outlined in this manual. The read range will vary depending on the type of card used. The larger the card, the greater the read range. The read range may decrease if reader is mounted on metal.

> *All specifications are subject to change without notice.*

Features

Tricolour LED Display

The CR-R880-BL reader includes a tricolour LED display (red, green and amber) used to indicate the reader's status. When the orange wire is pulled low, the red LED will illuminate. When the yellow wire is pulled low, the green LED will illuminate. When the yellow and orange wires are pulled low (oscillation at 1KHz is required), both LEDs will illuminate producing an amber colour.

Face Light

The CR-R880-BL's elegant blue face light remains illuminated at all times so that it can be easily located in the dark.

Audible Tone

The CR-R880-BL reader includes a built in beeper that will emit a tone every time the brown wire is pulled low.

Weather Resistant

Mount indoors or outdoors.

SwiftRead

After presenting the card, regardless of the card's access status, the LED will flash to indicate that the reader has read the card and the data was sent to the controller. After the SwiftRead period, the controller resumes control of the LED as usual.

Diagnostic Test

All CR-R880-BL readers perform a self-diagnostic test to ensure proper operation at start-up and verify the integrity of the data lines. Every time power is applied to the reader, the green LED will flash twice to indicate the diagnostic test was performed and no problems were found. If the reader determines a problem after performing the diagnostic test, the green and red LEDs will toggle on and off and the beeper will emit a pulsing tone.

Installation

Important Notes on Selecting an Installation Site

Please consider the following when installing the CR-R880-BL card reader:

1. Avoid wiring the CR-R880-BL cables in the same conduit with AC power cables, lock power, or signal wiring.

2. Maintain all reader wiring a minimum of 30 cm(12") away from other wiring such as: AC power, computer data wiring, telephone wiring, wiring to electric lock devices, etc.
3. Avoid installing within 1.1m (3.5 feet) of computer monitors or CRTs. The minimum distance will vary depending on the type of monitor or CRT.
4. Avoid installing in proximity to sources of broad spectrum EMI noise such as: motors, pumps, generators, DC to AC converters, uninterruptible power supplies, AC switching relays, light dimmers, computer monitors and CRTs.
5. Avoid installing in proximity to potential sources of RF signal transmitters such as: cellular telephones, two way radios, etc.

Mounting

After selecting the appropriate mounting position for the reader, use the reader's mounting-plate (refer to page 12) as a guide and drill two mounting holes and a 3/8" to 1" hole for the reader cable. If you wish to mount the CR-R880-BL on a gang box, a single gang box mounting plate (CR-MTPLATE) is available as an option (refer to page 13). Place a grommet around the edge of the hole for the reader cable. At the reader end, prepare the cable by cutting the cable jacket back 1-¼" and stripping the wires ¼". After wiring the cables as described below, screw the mounting plate onto the selected installation site, snap the reader onto the mounting plate and affix with a screw as shown on page 12.

Mounting on Metal

Although metal may decrease the read range, the CR-R880-BL card reader can be mounted on metal. However, do not box in or surround the card reader with any kind of metal. If the reader must be installed in a metal enclosure, ensure that the face of the card reader is not covered and that there's at least 4cm (1.6") between the card reader and the metal on all sides of the card reader.

Wiring

Using the recommended cables listed in the technical specifications on page 3, splice these cables together with the pigtail of the reader and seal the splice. Route the cable from the reader to the host controller. Do not wire the CR-R880-BL cables in the same conduit with AC power cables, lock power, or signal wiring. Maintain all reader wiring a minimum of 30cm (12") away from other wiring such as: AC power, computer data wiring, telephone wiring, wiring to electric lock devices, etc. Connect the cables as shown in Figure 2 on page 10 for Wiegand connections, or Figure 3 on page 11 for ABA connections. Trim and cover all conductors.

Important Installation Notes

⚠️ **Do not connect the shield wires together at the reader cable splice. With the shield wire already terminated at the reader, simply terminate the shield at the controller. Do not connect the shield to the black wire at the reader cable splice. (refer to Figure 2 on page 10 and Figure 3 on page 11).**

- LED and "beeper" operations are programmed via the Centaur Access Control Software, if using another controller refer to appropriate instructions.
- Do not use "twisted pair" with either output format.
- Pull the orange wire low to illuminate the red LED.
- Pull the yellow wire low to illuminate the green LED.
- Pull both the orange and yellow wires low to illuminate the red and green LEDs, producing an amber colour (an oscillation of 1KHz is required).
- Pull the brown wire low to activate the "beeper".
- Follow the recommended cable types and lengths, listed in the technical specifications on page 3.
- For open collector (non-terminated output), consult your system manufacturer for correct cable length and type.
- The data out internal circuit configurations are as shown below.

OPEN COLLECTOR OUTPUT
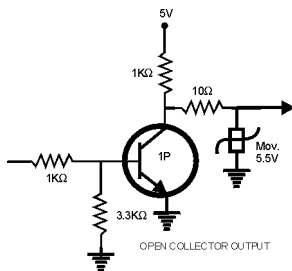
Card Presentation Test

Place the card parallel to the CR-R880-BL reader and move it toward the reader until the card code displays on the controller screen. At this point, the card is read, decoded, data transmitted to the controller and the

controller has responded accordingly. To read the card again, remove and re-insert the card into the reader's field.

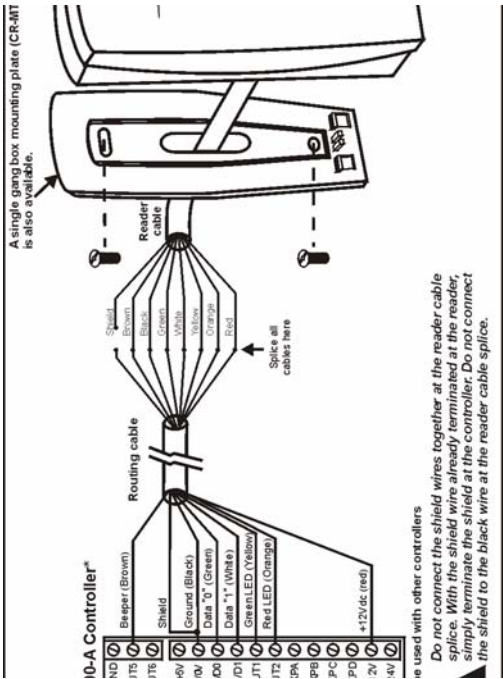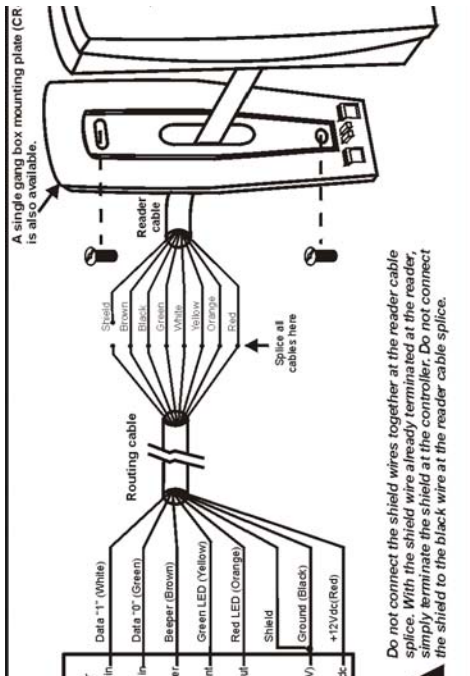*Figure 2:* **Wiegand Output Wiring Diagram**

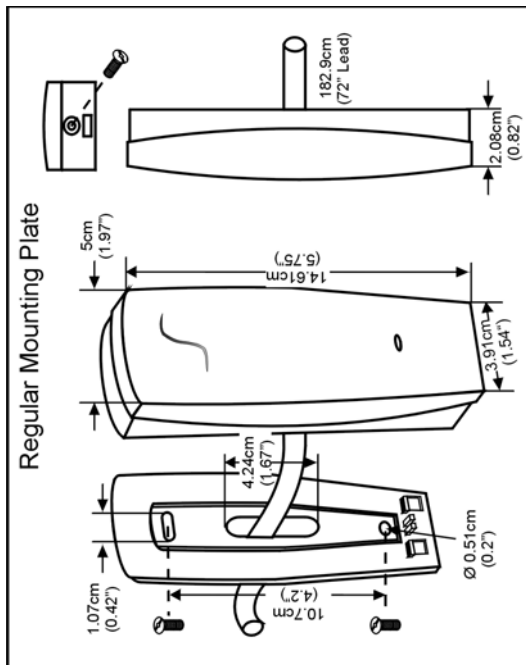**Figure 3:** ABA Output Wiring Diagram

A single gang box mounting plate (CR- is also available.

Reader cable

Shield
Brown
Black
Green
White
Yellow
Orange
Red

Splice all cables here

Routing cable

Data "1" (White)
Data "0" (Green)
Beeper (Brown)
Green LED (Yellow)
Red LED (Orange)
Shield
Ground (Black)
+12Vdc(Red)

Do not connect the shield wires together at the reader cable splice. With the shield wire already terminated at the reader, simply terminate the shield at the controller. Do not connect the shield to the black wire at the reader cable splice.

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Dimensions

Figure 4: **Regular Mounting Plate**

Regular Mounting Plate

182.9cm (72" Lead)

2.08cm (0.82")

5cm (1.97")

14.61cm (5.75")

3.91cm (1.54")

4.24cm (1.67")

Ø 0.51cm (0.2")

1.07cm (0.42")

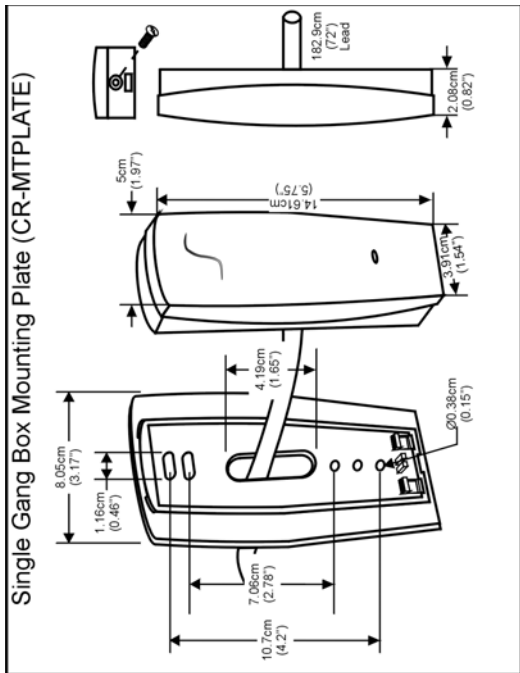10.7cm (4.2")

Figure 5: Gang Box Mounting Plate

Single Gang Box Mounting Plate (CR-MTPLATE)

Warranty

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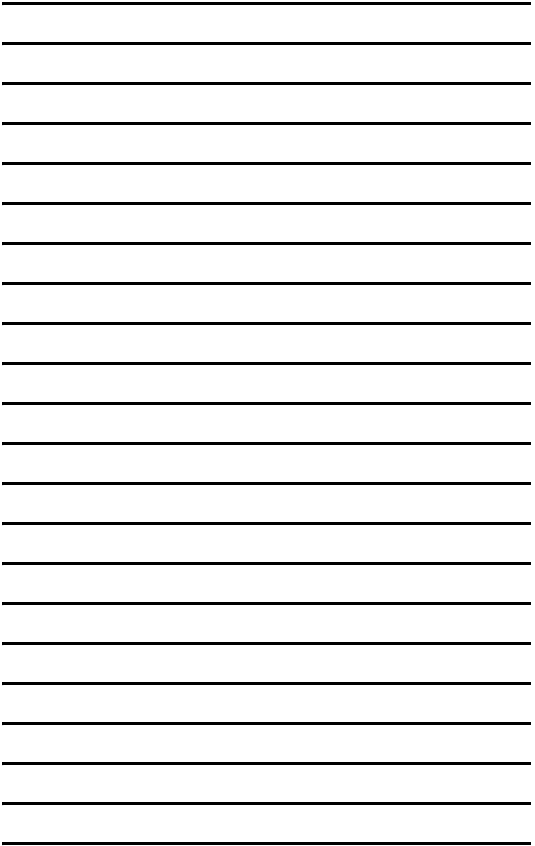
Notwithstanding the preceding paragraph, the Seller's maximum liability will be strictly limited to the purchase price of the defective product. Your use of this product signifies your acceptance of this warranty.

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