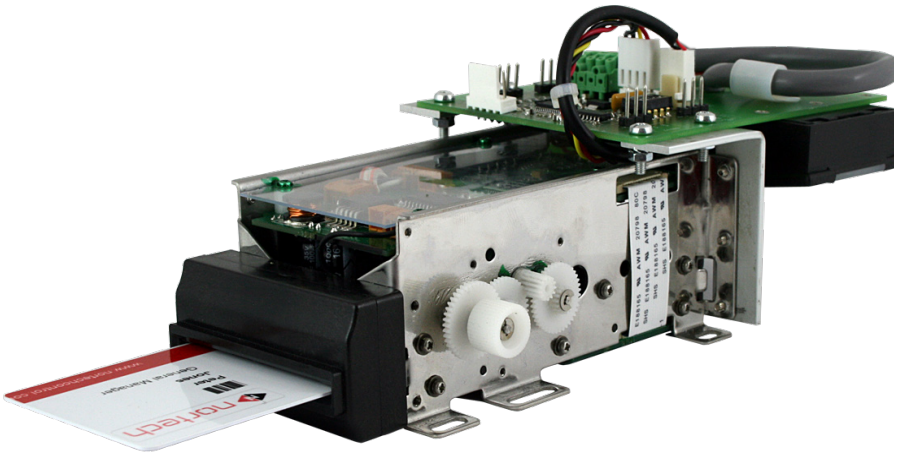
NORTECH

MRC350
Card Capture Reader

INSTALLATION GUIDE



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MRC350 INSTALLATION GUIDE

Issue 1.3

1. OVERVIEW

The MRC350 card capture reader is a front-end device that can be integrated into parking control systems, turnstiles, etc. or be connected as an OEM reader for access control applications. It offers the capability of reading proximity or smart cards when fitted with an appropriate reader head and provides the facility to capture cards when requested to do so by the access control unit.

When a card is inserted into the mouth of the MRC350 reader, the reader draws it in and lines it up with the reading device. The card data is read by the reader and passed to the access control unit. The access control unit then makes a decision to either allow or disallow entry based on the information from the card together with its own stored data. The access control unit signals back to the MRC350 unit to indicate that the card is valid (no signal is received if the card is invalid). A further signal from the controller will be received if the card needs to be captured. The MRC350 will respond to these signals by lighting the appropriate LED and either capturing or returning the card. Any door, turnstile or barrier control signal will be connected directly between the access control unit and that device.

1.1 Card Types and Controller Interfaces

The MRC350 can support proximity and smart card technologies by incorporating an appropriate reader. The type of reader fitted to the MRC350 will be in accordance with particular customer requirements. The output to the access control unit can be either Clock & Data or Wiegand and will depend on the reader model fitted. Please refer to the documentation provided with the specific reader for data connection to the controller.

1.2 Basic Operation

The MRC350 makes the wiring between controller, reader and LED indicators simple. The reader simply requires a ground activated input (referred to as “Return” at the MRC350) from the standard ‘Card Valid’ LED output from the reader interface of the access control unit. It requires a second ground activated input from a “Capture” output generated by the access control unit. The MRC350 will then light an LED indicator appropriate to the response from the access control unit and either capture and return the card.

When a card is inserted into the reader, there are several possible responses from the controller. These are listed together with the resulting action by the MRC350 in table 1.1 below:

Condition	Action
No response from the controller.	After a 3 second time-out, the card is returned and the red LED lights
Controller responds with “return” signal.	Card is returned and green LED lights
Controller responds with “capture” signal.	Card is captured and red LED lights
Controller responds with “return” and “capture” signals (within 500ms of each other).	Card is captured and green LED lights

Table 1.1

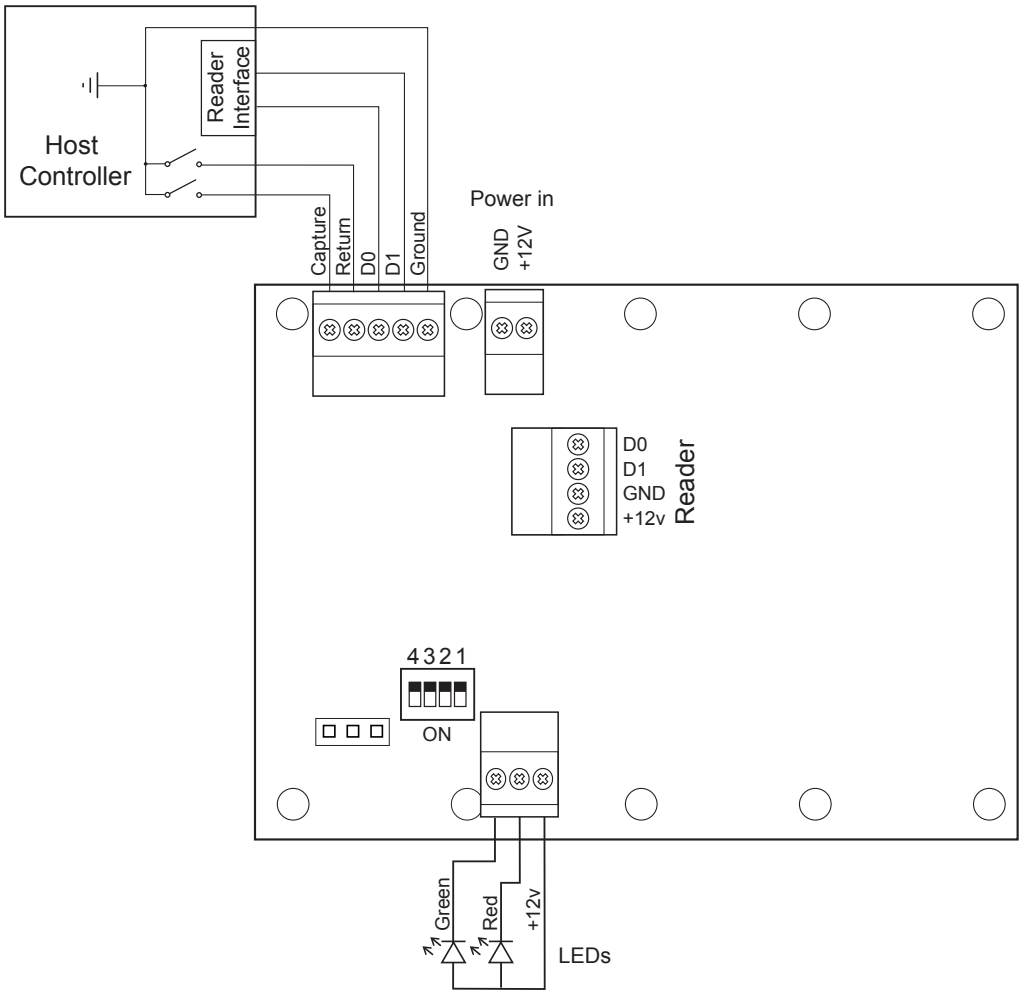
Note: These responses apply when the DIP switches are in their default settings. Refer to section 2.5 for other options.

2. INSTALLATION

2.1 Mounting the Reader

The dimensions for mounting the MRC350 are provided in Appendix A. The unit can be mounted horizontally or vertically. In either case, there should be sufficient space left at the back of the unit (opposite end to the mouth) to allow captured cards to freely fall into a card capture receptacle.

2.2 Connections – Power Supply and LEDs



Power Supply

A 12 VDC regulated power supply unit and mains cable are shipped with the MRC350. Terminate the 12V output cable at the 'Power in' connectors on the top PCB ensuring that the polarity is correct.

LED Indicator Wiring

Wire the LEDs to the top PCB such that the cathode (negative) side of each LED is wired to the associated terminal (see diagram) and the +ve supply terminal is wired to the anode (positive) side of both LEDs.

2.3 Connection to the Access Control Unit

Connect to the Access Control Unit using the 5-way connector block on the top PCB as follows:

MRC350 Top Board	Access Control Unit
Ground	Ground output of reader interface
D1 (Clock)	D1 or Clock signal input of reader interface
D0 (Data)	D0 or Data signal input of reader interface
Return	Green LED (or card valid) output of reader interface.
Capture	Suitable “card capture” open collector (or voltage free relay) output.

2.4 Connecting an OEM Reader

If you have purchased the MRC350 without a reader fitted and you wish to fit one, drill appropriate holes and fit the reader to the underside of the top board so that, when a card is at the holding position within the mechanism, it is positioned in front of the reader. Wire the reader to the 4-way connector block as shown in the diagram on the previous page.

2.5 DIP Switch Settings

Ensure that the MRC350 is correctly configured for your application. There are 2 DIP switches that need to be set to obtain the best performance for the application and connected access control unit.

Switch	Function	OFF	ON
1	Card handling on no/delayed ACU response (note 1)	After 3 seconds return card and illuminate the red LED	Hold card until ACU responds.
2	Time window for detection of Return and Capture signals (note 2)	500ms (third party ACU’s)	50ms (Nortech ACU’s)

Notes:

1. Default setting is ‘OFF’. Do not change this unless specifically requested to do so.
2. Default setting is ‘OFF’. This allows for different delay times between the Return and Capture signals from third party controllers. If used with a Nortech access control unit, this can be set to ‘ON’ to improve the card handling response.

2.6 Testing

To ensure that the installation is correct, you will need to carry out a series of tests using the appropriate card types. Use both valid and invalid cards of the correct technology plus a card of the wrong technology to check that the unit responds as expected. Also set the Access Control Unit to capture a valid card and an invalid card and check that the capture sequence is as expected (refer to Table 1.1).

If the unit doesn’t respond as expected, check that all wiring, controller settings and cards types are correct. If the problem persists, contact your supplier.

Note: If both LEDs are continuously flashing, this indicates that the card capture mechanism is not responding correctly to the control PCB. If this occurs, check the connections from the top PCB to the card capture mechanism, and disconnect and reconnect the power to the unit. If the condition persists, contact the Nortech technical support team for further advice.

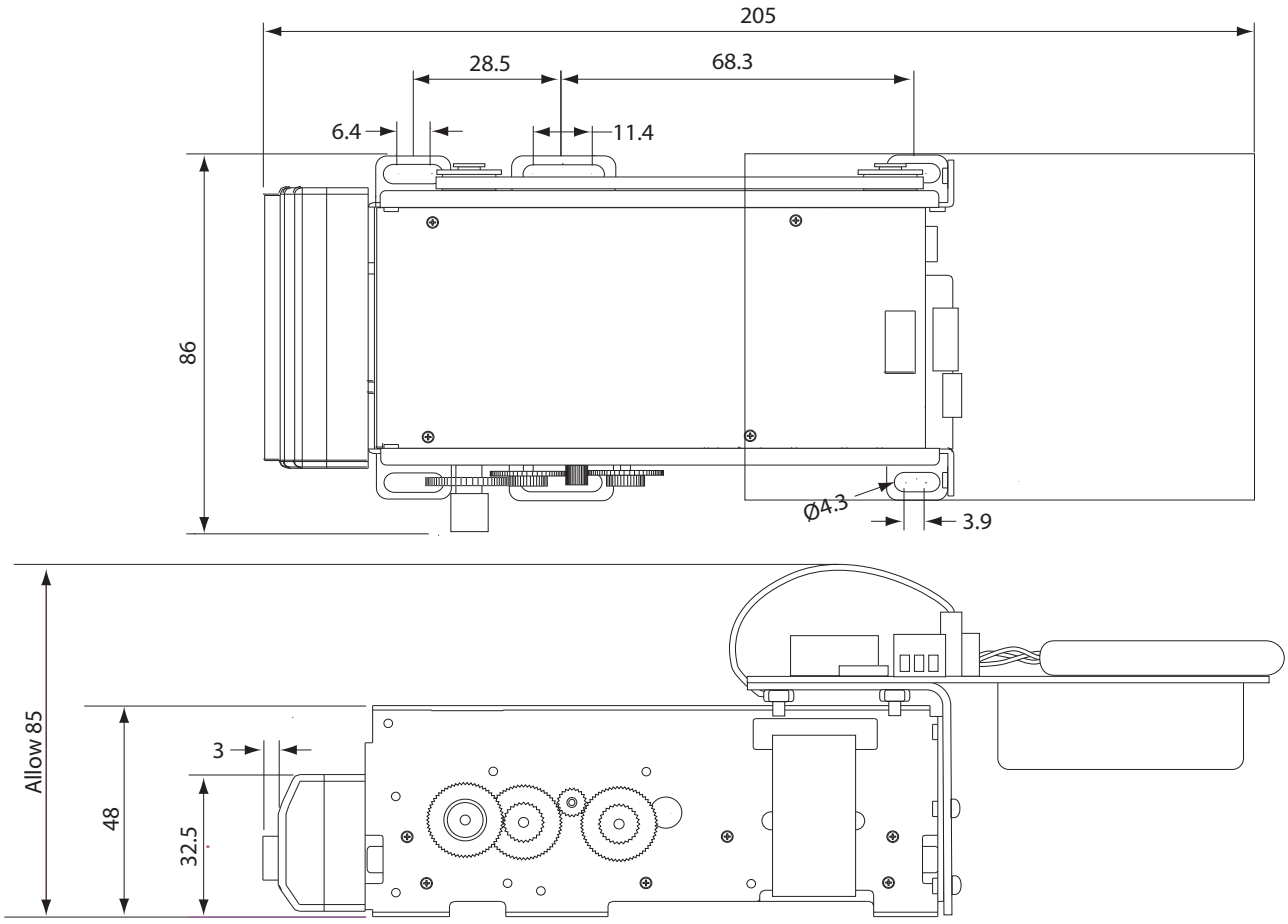
3. TECHNICAL DETAILS

Power supply:	12V DC ±5%
Current draw (excluding attached reader):	50mA at rest, 1.5A active
Card carrying speed	80cm/s
Motor type:	DC motor
Card thickness:	0.2mm – 1.2mm (If the thickness is between 0.2mm-0.6mm or 1.0mm-1.2mm, the probability of card movement will double.)
Operating temperature:	0°C to +50°C
Storage temperature:	-20°C to +70°C
Operation humidity:	0 to 90% (non-condensing)
Storage humidity:	0 to 90% (non-condensing)
Size in mm (H x W x D):	85 x 86 x 205 (width and depth may vary depending upon attached reader)
Size in mm (cards):	86 x 54 (Standard ISO)
Weight	483g

APPENDIX A – UNIT DIMENSIONS

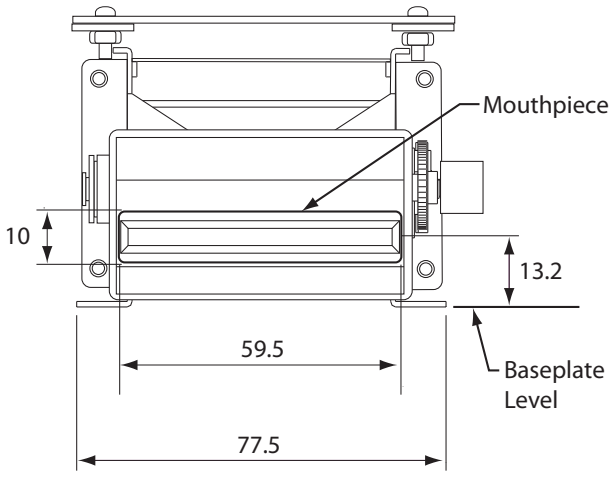
The following diagrams provide the information necessary to mount the unit in an OEM housing.

Figure A.1 - Overall Dimensions



Note: Allow sufficient space at rear of unit for captured cards to be collected.

Figure A.2 – Dimensions for Front Panel Aperture



Note: Figure A.2 shows the dimensions of the unit with relation to the faceplate. The aperture in the faceplate should be positioned relative to the base plate mounting position and of a suitable size to accommodate the mouthpiece of the unit.