



Multi-discipline READERS

Product specification
CATALOGUE

The Impro Multi-discipline Readers are compact and robust Passive Proximity Readers.

New technology allows the Multi-discipline Readers to read both 125 kHz and 13.56 MHz frequency Tags.

These Readers fit seamlessly into new or existing applications allowing you to upgrade Tag technology without replacing existing Tags.

The design of the Multi-discipline Reader allows you to use them with a variety of Terminals and Controllers, within third-party or Impro Access Control Systems.

When used with the Wiegand Reader Module, IXP220 Controller, IXP20 Controller or the Impro iTRT, these Readers use AES 128-bit Encryption with a Diffie Hellman key exchange thus ensuring secure communications on the Wiegand Bus.

You can use the Multi-discipline Readers in both indoor and protected outdoor environments.

www.impro.net

The Keypad Reader versions offer 12-button Keypads, allowing PIN-code entry. All models include a single tone, single volume Buzzer and a single tri-coloured Red, Green or Amber Status LED. You can control the functions of the Buzzer and Status LED to suit the needs of your application.

The Junction Box versions are suitable for indoor applications..





Key Features

- Communications distance of up to 150 m (164 yd) via the Wiegand Bus.
- Read Range 25 – 50 mm (1 – 2 in)
- Suitable for OEM developments.
- Multiple Wiegand output formats (26-bit and 44-bit).
- A single tri-coloured Red, Green or Amber Status LED.
- 12-Button Keypads (Models MDK901/HRW901 and MJK900)
- Programmable facility code for use with PIN-code entry. (Models MDK901/HRW901 and MJK900)
- The Multi-discipline Readers offer industry leading encryption on the Standard Wiegand Bus using AES 128-bit encryption with Diffie-Hellman key exchange. (When used with the Access Portal System (Wiegand Reader Module), or the IXP220 Controller, IXP20 Controller or Impro iTRT.)
- Supports both 125 kHz and 13.56 MHz Tag types.
- CSN Read capability from various Tag types: Slim Tags, Omega Tags, Impro Trinary Tags (1074 and 2074), Philips HITAG™ 1, Philips HITAG™ 2, HID Tags (H10301, H10302 and H10304), ISO 15693-2 iClass Tags, ISO 18092 FeliCa Tags and ISO 14443A MIFARE® Tags.
- PCB mounted Anti-tamper switch.
- A 4 kHz piezo-electric Buzzer.
- An external Wiegand communications bus interface.
- Zero downtime upgrade when used in an Access Portal (Clustered Wiegand Reader Module) installation, or with the IXP220 Controller, IXP20 Controller or the Impro iTRT.
- Compatible with third-party systems using the Wiegand 44-bit output.
- Each reader offers a Scanner Inhibit Input. When you connect the Scanner Inhibit Input to GROUND, the Multi-discipline Reader's scanner turns off and inhibits the keypad (Keypad Model MDK901 & MJK900 models) while connected. When you release the connection, the Reader returns to normal operation.
- A conveniently placed link allows you to use the Reader in OEM applications using either 26-bit or 44-bit Wiegand Protocol.
- Mark resistant housing.

Impro Multi-discipline Readers

MDK901-5-0-GB-XX	MDR901-5-0-GB-XX	HRW900-5-0-GB-XX	HRW901-5-0-GB-XX
MJR900-0-5-GB-XX	MJK900-0-5-GB-XX		

Physical Specifications

MDR901/HRW900 & MDK901/HRW901

Dimensions & Materials

Length	: 200 mm (8 in)
Width	: 123 mm (5 in)
Height	: 31 mm (1 in)
Housing Material	: ABS Plastic (Black)
Face Plate Material	: 304 Stainless Steel (Brushed)

Approximate Weight

MDR901/HRW900	: 75.2 g (2.7 oz).
MDK901/HRW901	: 76.8 g (2.7 oz).

MJR900 & MJK900

Dimensions & Materials

Length	: 120 mm (4.7 in).
Width	: 72 mm (2.8 in).
Height	: 19 mm (0.74 in).
Housing Material	: ABS Plastic (Black)

Approximate Weight

MJR900	: 103 g (3.63 oz).
MJK900	: 103 g (3.63 oz).

Factory Defaults

Default Mode	: 44-bit Wiegand Mode.
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Environmental Specifications

Operating Temperature	: -25°C to +60°C (-13°F to +140°F).
Storage Temperature	: -40°C to +80°C (-40°F to +176°F).
Humidity Range	: 0 to 95% relative humidity at +40°C (+104°F) non-condensing.

Dust & Splash Resistance

Models MDK901 / HRW900 and MDR901 / HRW901	: Designed to work in an indoor or outdoor environment similar to IP54; These Models are, therefore, sealed (conformal coated) against water.
Models MJR900 & MJK900	: Designed to work indoor environment similar to IP20; These models are NOT sealed against water and must not be exposed to rain or splashes.

Drop Endurance	: 2 m (6.56 ft) drop (in packaging).
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Approvals

CE Approved	: MDK901/HRW900, MDR901/HRW901.
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Electrical Specifications

Power

Input Voltage Rating	: 8 V DC to 14 V DC, polarity sensitive.
Power Requirements	Current (mA) Power (W)
Supply Voltage 12 V DC (All indicators on)	: 100 1.2
Permissible Input Supply Ripple Voltage (Max)	: 1 V _{pp} at 50 Hz.

Wiegand Bus

Electrical Interface	: '0' and '1' data streams.
Tag Information Data Format	: 44-bit Wiegand or 26-bit Wiegand.
Key Information Data Format	: 26-bit Wiegand, 8-bit Burst Mode.

Inputs

Quantity	: 4.
Type	: Dry Contact.
Function	: Operation of the Buzzer, LED and Scanner Inhibit.
Protection Range	: +15 V Continuous.

Other

Optical Anti-tamper	: Open Collector Output on Purple Line. GND reference on Grey Line.
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NOTE: In OEM applications, connect the Purple and Grey wires to a Dry Contact Input. In Access Portal Systems (connecting to a Wiegand Module clustered with a Cluster Controller Module), and on IXP20 (iTRT version) and IXP220 Systems (when connected direct to the Controller or via the Impro iTRT) it is unnecessary to connect these lines as the Software handles the Anti-tamper.

User Interfaces

Buzzer

Volume & Tone	: 4 kHz piezo-electric, single volume, single tone.
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Keypad (MDK901/HRW901 & MJK900 Models)

Keys	: 12 Alphanumeric keys.
Keypad Durability	: Maximum 200 000 key presses.
Type	: 5 Digit codes in the range 00000 to 65535. 4 Digit codes in the range 0000# to 9999#.

Status Indicator

Status LED	: Tri-coloured Red, Green or Amber (Default) (externally visible).
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Related Information

For extra information relating to these products refer to the:

- Impro Multi-discipline Readers Hardware Installation Manual (MDR300-0-0-GB-XX).

Warranty Details

This product conforms to our Warranty details on www.impro.net.

Ordering information

Order the Impro Multi-discipline Readers using the following Part Numbers:

MDR901-5-0-XX/	:	Impro (MDK) Multi-discipline Reader
HRW900-5-0-XX	:	
MDK901-5-0-XX/	:	Impro (MDR) Multi-discipline Keypad Reader
HRW901-5-0-XX	:	
MJR900-0-5-GB-XX	:	Impro (MJR) Multi-discipline Junction Box Reader
MJK900-0-5-GB-XX	:	Impro (MJK) Multi-discipline Junction Box Keypad Reader

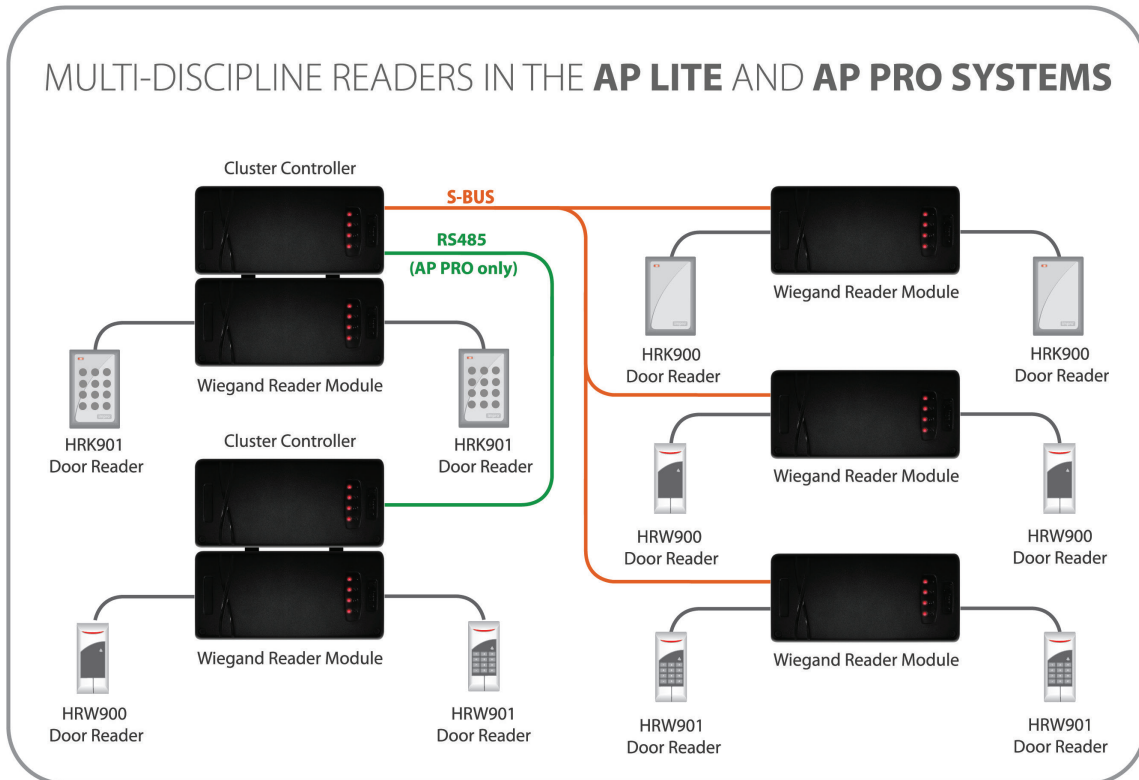
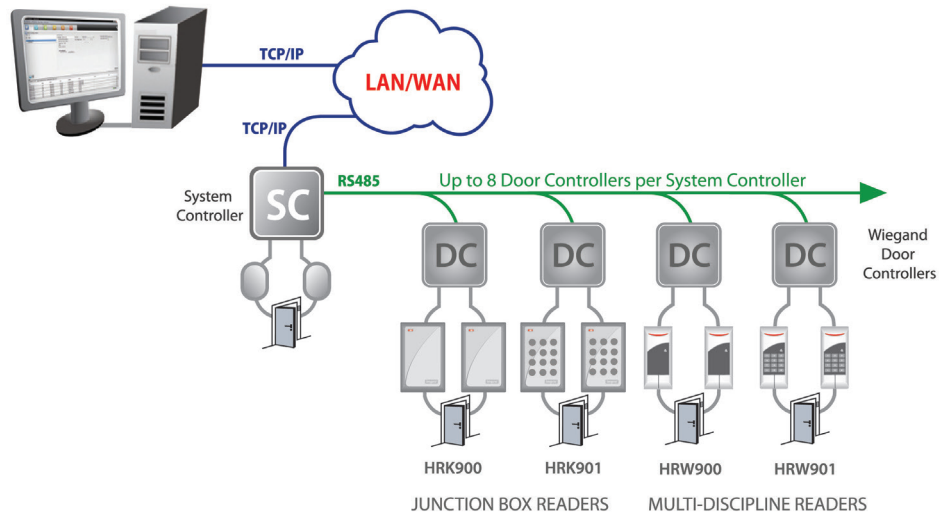


Figure 1: Impro Multi-discipline Readers - System Overview

MULTI-DISCIPLINE READERS IN AN IXP20 SYSTEM



MULTI-DISCIPLINE READERS IN AN IXP20 SYSTEM

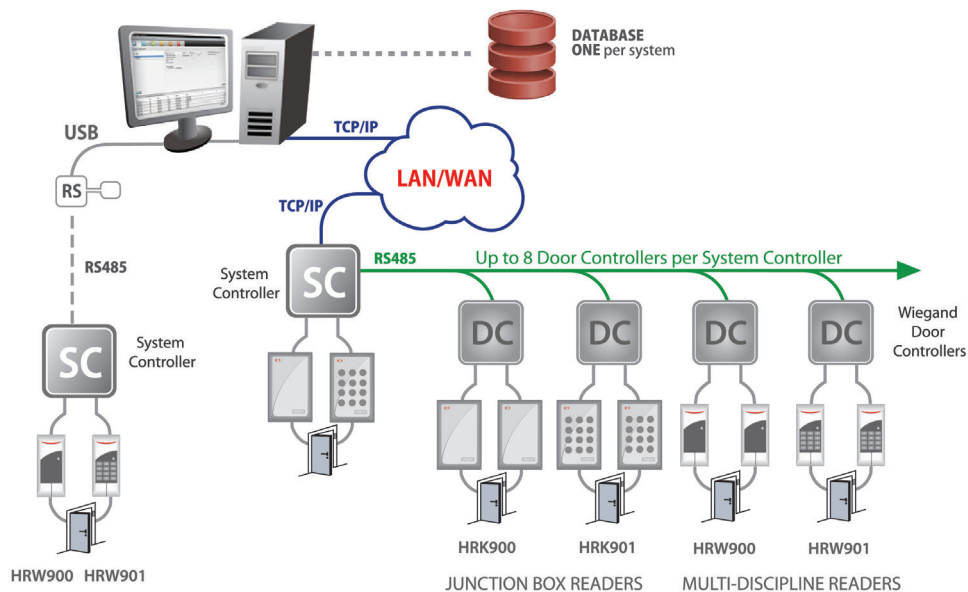


Figure 2: Impro Multi-discipline Readers - System Overview

This Product Specification Catalogue applies to the Impro, MDR901-5-0-XX/HRW900-5-0-XX, MDK901-5-0-XX/HRW901-5-0-XX, MJR900-0-5-GB-XX and MJK900-0-5-GB-XX. (The last two digits of the Impro stock code point to the issue status of the document or product).

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