Integriti/Inception
SIFER Keypad Reader

P/N: 994725MF (Multi-format)
994725 (Standard)

Parts List:
- Reader body with integrated pigtail cable.
- Mounting plate.
- Countersunk screw.
- Installation manual. (This document)

Due to on-going product development this manual is subject to change without notice. www.innerrange.com.au

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Specifications

Environment:	Operating Temp: -35°C to +65°C.
	Ingress Protection: IP67
Physical dimensions.	H: 105mm W: 62mm D: 18mm
Mounting plate.	103 mm (H) x 60 mm (W)
Power supply input:	11-14V DC <500mV ripple.
Current consumption:	75 - 115mA typical. 165mA max.
	*Depends on LED configuration.

Maximum Cabling Distance using recommended cables.

Data (Data A/Data B/0V).

Access Module to furthest Reader:	1000m.
Total data cabling on one "RDR RS485" Port:	1000m.

Power (V+/0V). @100mA* per Reader.

To 1 Reader using 2-Pair 7/0.2 cable:	100m.
To 1 Reader using 2-Pair 14/0.2 cable:	200m.
To 2 Readers using 3-Pair (2 pairs for +V/0V)	100m.

For longer cable runs &/or multiple Readers on the same run, one of the following may be required:
- Heavier duty 2-pair cable.
- Additional pair or separate heavy duty fig. 8 for +V/0V.
- A separate battery-backed local power supply.

See "READER POWER" below for more details.

Note: Integriti Module programming (IAC/ILAM/SLAM)
For PIN Code operations (Card And PIN / Card Or PIN / PIN Only); Under 'Readers' ensure that 'PIN Mode' is "SIFER/OSDP/Motorola". The 'PIN device' option is left blank.

Overview

The SIFER Keypad features an attractive design with a backlit, ergonomic keypad and an optical tamper device to alarm the relevant "Reader Fault" System Input on removal from the mounting surface.

The RGB LEDs allow configurable colour, and in an Integriti or Inception system the 2nd LED and beeper can be used in a variety of configurations for Valid/Invalid indication, Door/Area status, DOTL annunciation, Alarm condition, etc.

The standard Reader supports 13.56MHz SIFER Cards utilizing MIFARE® DESFire® EV1 with AES encryption. The Multi-format version also reads CSN or UID data from other 13.56MHz formats including MIFARE Classic®, Mini, Ultralight®, Plus® & JCOP; Felica JIS & NFC; ISO15693; Type B and Picopass. *Refer to the latest SIFER Smart Card Reader Data Sheet for full details of the formats supported.*

Connection to the host Module is via multi-drop RS485 cabling. Up to 16 Readers can be connected on the same Reader bus. Communication is via industry standard OSDP allowing compatibility with other Controllers and bus sharing with other manufacturer's OSDP devices.

In Integriti/Inception systems, Readers can be automatically addressed & have firmware updated over the system wiring.

Integriti compatability.

Product	Min. Version	SIFER Readers per Module
ISC / IAC	V16.01 or later	16 (IAC ONLY)
ILAM	V2.0 or later	16
SLAM	V2.0 or later	4
Integriti Software	V16.0 or later	n/a

Inner Range recommends installing the latest firmware.

Extending Cable

See "Preliminary Installation Notes 3 & 4" on page 2.
The pigtail cable can be extended with twisted-pair multistrand data cable. Pair 1 for Data A/B; Pair 2 for V+/0V. Shielded cable provides additional noise immunity. RS485/RS422 data cable, balanced data cable and multistrand UTP cable are recommended. Specific recommendations are provided below.

READER POWER: Remember to allow for voltage drop on V+/0V over longer distances and/or when Readers are wired in a daisy chain (multi-drop) configuration. Supply voltage drop on the cable is approx. 17mV per metre per Reader using 7/0.2 (24AWG) cable and assuming each Reader draws 100mA.

OVERALL SHIELD (**2** Pair)

Tycab. DPF4702 or DCK4702	Belden. 9842
Electra. EAS7202P or EAS7302P	Garland. MCP-2S
General Cable. B2002CS	Alpha. 6413
Roadworx. RW600224	Olex. JD2PS485A

OVERALL SHIELD (**3** Pair)

Belden. 9843	Tycab. DPF6702
General Cable. B2003CS	Garland. MCP-3S
Electra. EAS7203P	Electra. EAS7303P

INDIVIDUALLY SHIELDED PAIRS (2 Pair)

Tycab. DQQ47025	Garland. MCP-2IS
Alpha. 2466C	Belden. 8723

UTP

Garland UTPL5EMTP (4 Pair stranded UTP patch cable)

If you have a requirement to use other cable types (e.g. short runs of non-twisted cable), please contact Inner Range Technical Support for advice.

Preliminary Installation Notes

1. MOUNTING SURFACE. The SIFER Reader is optimized for mounting on a non-metallic surface. A metallic surface will cause a small decrease in the read range.
   To extend the read range when mounted on a metallic surface, a non-metallic mounting block may be used.

2. IN/OUT READERS. If two SIFER Readers are installed back to back on either side of a Door, mount the Readers at different heights to minimize interference.

3. CABLING. SIFER Readers are wired in a star and/or daisy-chain configuration from the "RDR RS485" Port, within the limits defined under Specifications on page 1.
   The pigtail cable can be extended using twisted pair cable. 2-pair, 7/0.20 twisted pair data cable is recommended.
   See "Wiring Diagram" opposite.
   See "Specifications" and "Extending Cable" on page 1 for cabling distances and recommended cables.
   If the cable has more than 2 Pairs, a spare pair may also be connected in parallel to V+ & OV to reduce voltage drop.

4. SHIELDED CABLE. If shielded cable is used:
   a) Do NOT use the shield as the 0V (negative) connection or allow the shield to contact other wiring or metalwork.
   b) Shield is terminated to a protective earth (if available) or 0V, at one end of the cable. i.e. At the host Module.

5. Make a note of the Serial number of each Reader & where it will be installed. *See "Serial Number" opposite.*

Installing the Reader

1. Mount the SIFER Keypad on a flat, solid surface at an appropriate height for easy keypad use. Determine the mounting location and ensure that cable access is available.

2. If the mounting plate is attached to the body of the Reader, remove it. Insert a small flat blade screwdriver into one of the two rectangular slots at the bottom rear of the Reader and gently lift the mounting plate out of the Reader body.

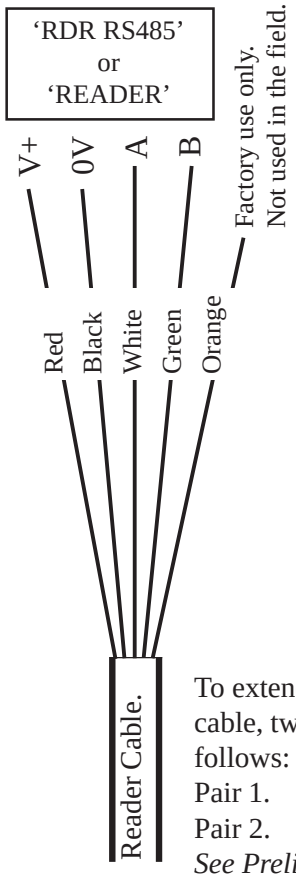
3. Using the mounting plate, or the template opposite, mark out, then drill holes for the 2 mounting screws and the cable entry at the mounting location, then secure the mounting plate to the surface using appropriate hardware.

4. Join the extending cable (if required) to the Reader pigtail cable using appropriate terminals/joiners. Note the wire colours (as they may be different), then route the cable from the mounting location to the Access Module.

5. Fit off the cable to the Access Module "RDR RS485" terminal as shown above opposite.

6. Test the installation, then fit the Reader body to the mounting plate as follows:
   a) Position the tabs in the top of the Reader body into the slots at the top of the mounting plate.
   b) Push the bottom of the Reader body onto the mounting plate until it clicks into place.
   c) Secure the body to the mounting plate at the bottom of the assembly with the countersunk screw provided.

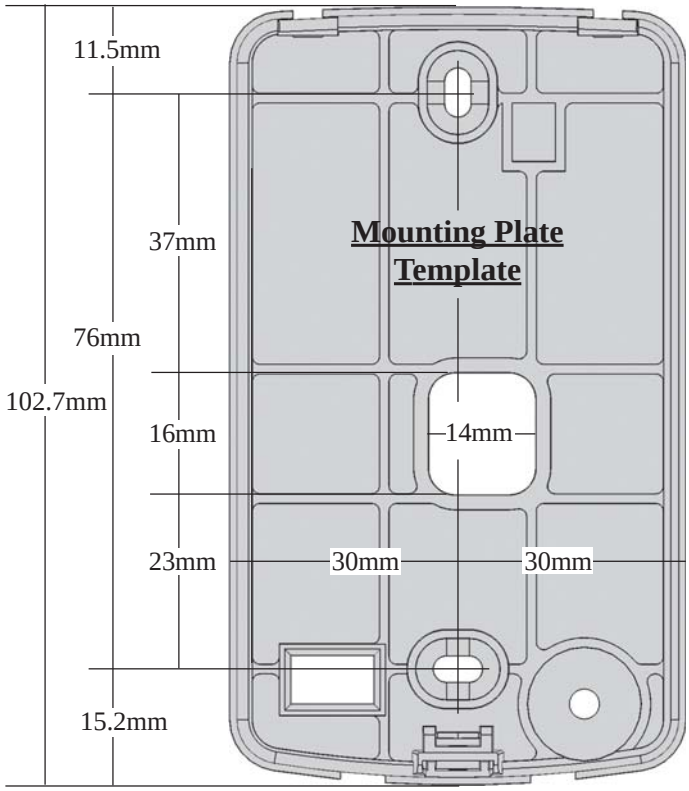
Wiring Diagram



MODULE TERMINAL ID 'RDR RS485' / 'READER'	
Module Type	**PCB ID**
Integriti IAC	T7
Integriti ILAM	T1
Integriti SLAM	T1
Inception Cont.	READER

READER CONNECTIONS	
Colour	**Purpose**
Red	+12V supply
Black	0V supply
White	Data A
Green	Data B
Orange	Factory only

To extend the length of the Reader pigtail cable, twisted pair cable is used as follows:
Pair 1. Data A and Data B
Pair 2. V+ and 0V.
See Preliminary Installation Notes 3 & 4.

Serial Number

The Serial number is the bottom line of digits on the label affixed to the top rear of the Reader.