



Part Number (s):	ISH-103-SN, ISH-103-BN, ISH-103-KN, ISH-163-SN, ISH-163, BN, ISH-163-KN, ISH-IRO (iSMART Reader Only)
iSMART Output:	Wiegand Open Format (All Models)
Keypad Output:	26 Bit Wiegand (ISH-103-SN, ISH-103BN, ISH-103-KN) 8 Bit Word (ISH-163-SN, ISH-163-BN, ISH-163-KN)
Voltage (s):	5 VDC, +/- 0.1V (65mA with Illumination), 30mA without Illumination) 12 VDC, +/-3.0V (70mA with Illumination), (30mA without Illumination)
Temperature:	-40 C to +70 C (-40 F to +160 F)

This iSMART reader is selectable for 5 or 12 volts. There are two pins next to the connector. A jumper plug is installed on one pin. This is the default setting for 12 Volt operation. If 5 Volt operation is required, install on both pins. **DATA 1** and **DATA 0** signals are open collector outputs with 2.2K pull-ups to the internal +5V. The data is sent at 1 msec per bit with a pulse duration of 50 usec. An annunciator beeps with each key press and each iSMART activation. The iSMART is illuminated with GREEN LEDs. If no illumination is desired (GREEN LEDs), cut the blue wire loop to turn it **OFF**. An output is generated with each key press which can be used to drive a CCTV or Security light. Available through the blue wire (see connector wiring), this is an open collector output capable of sinking ¼ A, 30 second on time.

The following output is sent each time the iSMART is activated with a 26 Bit Wiegand Card:
 NOTE: iSMART reader will send any Wiegand format presented to it.

P SSSSSSSS NNNNNNNNNNNNNNNNNN P
 BIT 1 9 10 25 26

BIT 1 is an even parity for the following 12 bits. The sum of bits 1-13 is even. BITS 2-9 are the SITE CODE. BITS 10-25. This is the number (PIN) encoded in the iSMART card or key fob. Leading 0's are added as required. Bit 10 is the most significant bit. BIT 26 is an odd parity over the previous 12 bits. The sum of bits 14-26 is odd.

Example: A key with a site code of 004 and a PIN of 123 will generate the following data stream:
 1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 0 1 1 1

ISH-103 Series (ONLY)

Connector Wiring

- Red – Input Voltage
- Black – Ground
- Green – Data 0
- White – Data 1
- Brown – LED Control

Connector P/N MWH-39

- Pink – Site Code PGM
- Blue - CCTV
- Orange – Keypad Hold Line
- Tan – Case Ground
- Yellow – iSMART Hold Line

WIRING FOR ISH-103:

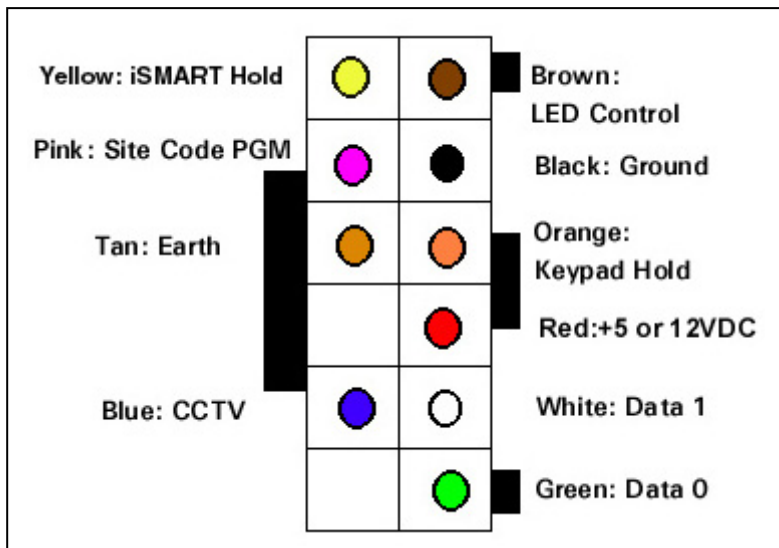
YELLOW – When the iSMART Hold line, YELLOW wire, is pulled “low” iSMART read is stored in the buffer, when the iSMART Hold line is released to a logic “high”, the buffered code is sent.

PINK – ISH-103 only. See RII 11B.

BLUE – Pressing any position on the Keypad will generate a 30 second 0.25 amp intermittent duty grounding output.

ORANGE – ISH –103 series – When ORANGE wire is pulled “low”, codes entered on the keypad are stored in the buffer, when it is released to a logic “high”, the buffered code is sent.

BROWN – When the BROWN wire is pulled “low”, GREEN LED will be on and RED LED off. When it goes “high”, GREEN LED will be off and RED LED on.



ISH-163 Series (ONLY)

Connector Wiring

Red – Input Voltage
Black – Ground
Green – Data 0
White – Data 1
Brown – LED Control

Connector P/N MWH-57

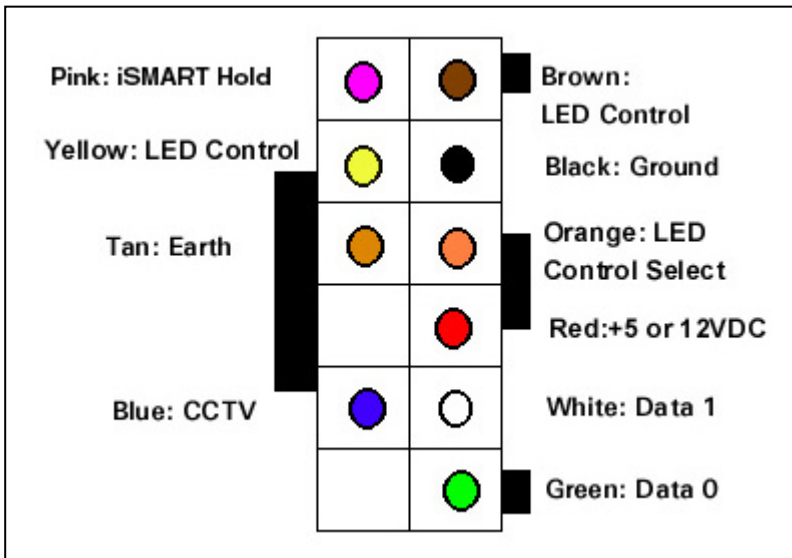
Pink – iSMART Hold Line
Blue - CCTV
Orange – LED Control Select
Tan – Case Ground
Yellow – LED Control

WIRING FOR ISH-163:

PINK – ISH READER HOLD. When the iSMART Hold line, PINK wire, is pulled “low” iSMART read is stored in the buffer, when the iSMART Hold line is released to a logic “high”, the buffered code is sent.

BLUE – Pressing any position on the Keypad will generate a 30 second 0.25 amp intermittent duty grounding output.

ORANGE – LED control select. When Orange is grounded the LED’s are controlled by Brown only. When Brown is floating the RED LED is on, when Brown is grounded the GREEN LED is on. When Orange is not connected the LED’s are controlled by Yellow & Brown. Grounding Yellow turns on the RED LED. Grounding Brown turns on the GREEN LED.



Installation Instructions: 1) Set the jumper for the proper input voltage (5 or 12). Jumper is in Hardware Kit. 2) The ISH-PRO will mount to a J-box using the 6-32 X 1” Pan Head screws or use the 6 X 1” Wood screws with or without the plastic anchors for wall mounting (The lower one will be covered by the label). 3) The Keypad will mount to the housing using the 6-32 X 5/8” Flat Head screws which are then covered by the labels.

ISH-103-SN, ISH-103-BN, ISH-103-KN ONLY: 4) *Option 1:* Use harness marked “MWH-39” for iSMART to Controller connection via one port. Plug Keypad onto the harness that is part of the ISH-PRO then set the Keypad for 5V. *Option2:* Use separate harnesses for iSMART to Controller connection via two ports. Use harness marked “MWH-38A” for Keypad to Controller connection to one port. Use harness marked “MWH-39” for iSMART to Controller connection via the second port.

ISH-163-SN, ISH-163-BN, ISH-163-KN ONLY: 5) *Option 1:* Use harness marked “MWH-57” for iSMART to Controller connection via one port. Plug Keypad onto the harness that is part of the ISH-PRO then set the Keypad for 5V.

Option2: Use separate harnesses for iSMART to Controller connection via two ports. Use harness marked “MWH-38” for Keypad to Controller connection to one port. Use harness marked “MWH-57” for iSMART to Controller connection via the second port.