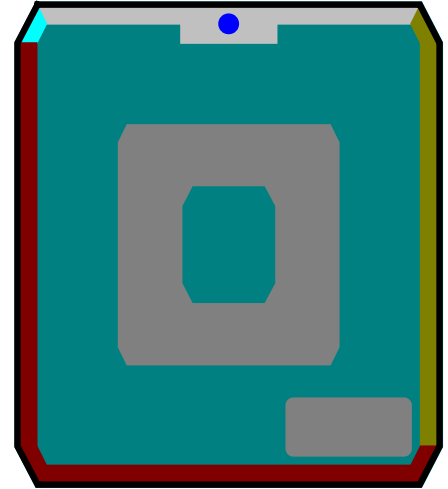# Low Profile Multi-Output Format Proximity Reader Operation and Installation Instructions

Features

- **Easy Installation**
- **Reads ISO Cards (PAC P.N. 21030)**
- **Status LED indicates Access Authorized**
- **Rated for Indoor and Outdoor use**
- **Offered in Dark Grey or Off-White Colors**
- **Outputs in PAC Output Format, Wiegand 26, 32, 64 Bit Format, ANSI Magstripe**

Description

The KeyPAC Low Profile (PAC Part Number 20441) proximity reader is an accessory commonly used on a majority of access control systems. The Low Profile uses pre-encoded ISO proximity cards (PAC Part Number 21030). Each card is encoded with a unique code that outputs a serial number to the access control system.

The Low Profile is weather resistant and suitable for indoor or outdoor use. Cards are read at a distance of up to 4 inches.

This reader is also available in off-white by ordering PAC Part Number 20446.

How the Reader is Used

The Low Profile is connected to a reader input on a door controller, time and attendance unit or control panel, that can except a PAC format, Wiegand 26/ 32/ 64 Bit format or ANSI Magstripe format. The Low Profile detects and reads the unique embedded coding from each ISO card when it is presented within 4 inches of the reader. The Low Profile will then output this coding, that has been received by the card, to the receiving door controller, time and attendance unit or control panel.

How the Reader Operates

The Low Profile has an LED to indicate reader status. When the reader's LED is red the reader is ready to read a card and output the coding to the control panel. When a valid card is read the output will begin sending the information to the control panel. If the card is valid, the control panel will activate and output to the Low Profile turning the LED to green. This change of the LED will most commonly indicate a Access Granted condition or an acknowledgment that the control panel has received and logged the coding from the card.

Items Included with the Low Profile

- 1   Low Profile Proximity Reader
- 1   Reader Backplate
- 1   Metal Oxide Varistor (to wire across the lock)
- 10   Crimp Connectors

Connecting the Low Profile to the Control Panel or Wiegand Interface Unit

Connect the Low Profile to the Door Controller, Time and Attendance unit or Control Panel as described in the Operation and Installation Manual provided with the corresponding unit. Use five wires, six wires if tamper is used, to connect the Low Profile reader to the controlling unit.

Length: 1m   **Gauge**:   7/0.2, 0.22mm²

Colour	Signal	Notes
Black	0V	Return (power and signal)
Red	+12V	Power, unregulated +12V DC (nominal) Full details including current use are in the specification section on the back page of these instructions
Yellow	SOUNDER	Sounder input, active low. If not used then crimp the end to prevent shorts.
White	DATA1 DATA SIGNAL	Wiegand Magstripe PAC - signal output
Green	DATA0 CLOCK n/c	Wiegand Magstripe PAC - Not connected. Crimp the end to prevent shorts
Brown	VCA/LED VCA/LED VCA/LED	Wiegand - Valid Code Accept, lights LED, active low below +4.5V Magstripe - Valid Code Accept, lights LED, active low below +4.5V PAC - Connect to door controller reader channel, LED
Blue	DR1 - TAMPER	Wiegand Magstripe PAC - Tamper connection (connected to 0V inside reader)

Installing the Reader

Choose the Best Mounting Location for the User

The normal height for the reader is approximately 48 inches (four feet) from the floor, on the unhinged side. Check local regulations regarding proper mounting locations for disabled or handicapped persons.

Mount the reader on any firm flat surface. Avoid mounting the reader on rough textured surfaces.

There must be a distance of at least 36 inches (three feet) between two readers. Therefore, if using readers to control entry and exit from an area, they must be mounted on opposite sides of the door.

No special precautions are needed if the reader is mounted outside, as it is fully encapsulated. The connections made to the flying lead, however, may need protection.

Route the Cable

Install the Low Profile up to 200 feet from the Control Panel or Wiegand Interface Unit using 22 AWG wire or up to 500 feet using 18 AWG wire. Run a five or six wire cable from the controlling unit to the Low Profile mounting location.

Protect the Low Profile cable from EMI: Do not route the Low Profile cable close to the power lines for the electric lock. Use shielded cable to eliminate possible interference to the data from the electric lock.

Splicing the Cable to the Wiring Harness

Use the crimp connectors provided, or other suitable means such as soldering, to splice the wiring harness, provided on the Low Profile to the end of the cable. When using 22 AWG cable, you should twist the wires together and double them over before inserting them in the crimp.

Mounting the Reader
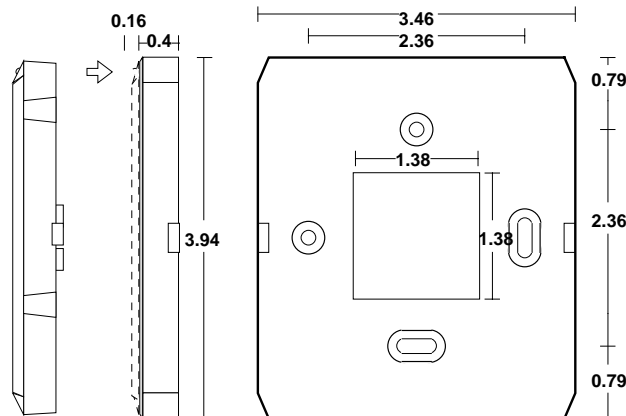
This reader comes in two parts, the reader itself with flying lead, and a backplate.

1. The wiring harness should be routed through the aperture in the backplate.

2. Attach the backplate to a flat surface using #6 screws - or a mounting screw suitable for the material to which the reader is being mounted. The two holes are 2.4 inches apart. Use the top (round) hole first, and the lower (oval) hole to ensure the reader is straight.

3. Push the reader, with the green LED to the top, onto the backplate, the locking tabs on each side should snap into place.

Removing the Reader

The reader can be removed from the backplate by placing a small flat-bladed screwdriver into the apertures on each side of the backplate. Take care not to damage the reader or backplate.

Reader Operation

Normal Operation and LED Control

The reader LED will normally be red when the door or system is in the closed condition. When a card is presented within range of the reader the code in the card will be read and the coding sent to the controlling unit. If the card is valid for that door or system at that time the LED will go green which is controlled by the N.O. relay or LED connection of the Control Panel. The LED will stay green while the Brown LED wire is shorted to Common.

> **WARNING: For Output formats other than PAC, the output format of the reader will be reprogrammed for a PAC system if the White and Brown wires are shorted and power is applied to the reader**. The reader will need to be sent in for repair to have the output format reset once this has occurred.

Tamper Operation

The Blue wire tamper connection is a normally closed circuit between the blue wire and black wire common connection. If the cable is cut this connection will go to an open circuit which can be used to indicate a tamper violation condition.

Specification

Dimensions	3.46in x 3.94in x 0.56in	
Voltage	10.5v DC to 20v DC	
	(supplied by Door Controller, Wiegand Interface or Control Panel)	
Current	Idle: Reading:	75-85mA 75-85mA
Temperature:	Operating Storage	-10C to +55C (14°F to 130°F) -30C to +80C (-20°F to 175°F)
Humidity:	Operating	0-90% RH at 30C ±2C (85°F±5°F) for 24 hours
Reading Range:	0-4 inches	
Lead Length:	36 inches	

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC ID   OQL-PAC-LP