Pacom Hardware Installation Guide

800 010 001 June, 2008 Version 1.5

Contents

Pacom Field Controller 1057

In This Chapter **1**

The primary function of the Pacom 1057 field controller is to monitor and control physical security at a remote site. The 1057 reports alarm status information via an existing data network to a central monitoring site typically equipped with a Pacom base station. If the network or data line fails the 1057 automatically utilizes the public-switched or mobile telephone networks to re-establish communication with the Pacom base station.

Access control - A standard 1057 provides control access for up to 10,000 users within a site. This can be expanded to up to 250,000 users with the use of the optional memory expansion unit.

Alarm monitoring- The 1057 can have up to 256 input, and up to 64 outputs. Input/output capability can be expanded with the use of mezzanine cards (16 input or 8 Output) which can be mounted directly onto the 1057 PCB and/or Pacom 1065 16 I/O modules, which communicate with the 1057 over an RS485 loop.

This chapter is written for 1057 revision 05.

Compliance and Accreditation
This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures
This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A—subject to the following conditions:
  - This Device Must Not Cause Harmful Interference
  - This device must accept any interference received, including interference that may cause undesired operation.
- EN61000-3-2
- EN61000-3-3
- EN55022 Class A
- EN50130-4
- EN61000-4-11
- AS/NZS 3548 Class A: Subject to the following condition:
  To comply with EMC requirements when the 1057 is housed in the Small or Large Universal Enclosure, all RS485 cable shielding must be terminated to the chassis earth of the 1057 PCB. A small screw is provided in the vicinity of the RS485 connections for this purpose.
- AS/NZS 3260 - Subject to the following condition:
  Unit shall be connected to Telecommunication Network through a line cord that meets the requirements of ACA Technical Standard TS008.
- TS001
- TS002
- PTC200
- TB21
- IE950
- EN60950
- CS03/110901/01
- Part 68/110901/01

UL Compliance Considerations for USA and Canada

Power Supply Module

- To comply with the UL standard a UL listed Power Supply, approved for use with a Burglar Alarm System, should be used to power this unit (IEC 60950, in USA and Canada). The power supply unit submitted for UL approval with the 1057 was the AMSECO model XT-1840 (18VAC 40VA).
- The above PSU shall be connected to the mains power supply system in a manner complying the requirement of Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, C22.2 in Canada, and the National Electrical Code (NEC), ANSI/NFPA in USA.
- The unit shall be connected to the protective earth in a manner complying with above CEC/NEC requirement,
- A 26 AWG line cord shall be used in USA/CAN, in other countries, local approved line cord shall be used.

Specification Limitations

The 1057 peripheral devices described in this guide have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions, the 1057 and peripheral device features and specifications were tested within the following limitations and conditions.

- Accessories supported for U.L. are: 1061 (Keypad), 1062 (Keypad), 1062-HID (Keypad + Card Reader Interface), 1064 (Card Reader Interface), 1065-IO (I/O board Rev 11), 1065-EC (Elevator Control board Rev 11), 1030-007 (Dual Relay Output), 1050-003 (8-Output Mezzanine), 1050-004 (16-Input Mezzanine), 1057-201 Memory Board, 1057-203 485 Expansion Card, 1050-018 PCB (transient protection for 1050-004), 1050-019 PCB (transient protection for 1050-003).
- The 1067 Intelligent Two Door Controller is not UL Listed
- Connecting a Tecom Alarm Panel via STU Interface is not intended for UL Listed Systems
- The 1057 was tested to 50° C and 85% +/- 5% R.H
- The total power consumed by the 1057 was tested to 675mA, including the current available for peripheral devices supplied from the unit. The 1057 supplies 2A for peripheral devices.
- The 1030-007 dual output relay cards were tested to a rating of 1 A @ 30 V DC
- The 1050-003 8 output mezzanine cards were tested to a rating of 1 A @ 30 V DC
- Any cable attached to the network port of the 1057 cannot exceed 20 feet
- UL approved communications over a non-private network is authorized when the Thales Datacryptor 2000 is implemented for all primary communications
- Pacom Rijndael Algorithm is NIST approved, and complies with Advanced Encryption Standard (AES) FIPS 197, for firmware version 4.02.
- The Fire Management System Interface was not verified by UL
- Fire points are not part of the UL Listed system
- MXL Fire System Protocol is not intended for UL Listed Systems
- Gent Fire Alarm (and Securitas) Fire System Protocol is not intended for UL Listed Systems

Data Cabling Requirements

The following are installation procedures for installing the 1057 controller and peripheral devices to comply with UL requirements

- The network types supported by 1057 and verified by U.L. are: Ethernet, Async Poll and Dialup.
- If an Ethernet cable attached to the 1057 exceeds more than 20 feet, a surge protection device such as the APC model PNET1 is required between the 1057 and the Ethernet cable.
- Any cables attached to the DB connectors (DB 9 and DB25) on the rear of the 1057 should not exceed 20 feet.
- Dial-up communication is a secondary means of communication for the 1057.
- Telephone line surge protection requires Pin 6 of RJ12 (J6) to be connected to earth ground.

Input/Output Cabling Requirements

To comply with UL requirements, if cabling for inputs on the 1050-004 Input Mezzanine Card exceeds 20 feet, a 1050-018 transient board is required. Inputs are wired into the 1050-018. The 1050-018 is mounted on the 1050-004, which in turn is connected to the 1057 controller in one of the mezzanine slots.
To comply with UL requirements, if cabling for outputs on the 1050-003 Output Mezzanine Card exceeds 20 feet, a 1050-019 transient board is required. Outputs are wired into the 1050-019. The 1050-019 is mounted on the 1050-003, which in turn is connected to the 1057 controller in one of the mezzanine slots.

Emission Approval

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the J18 terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240W impedance @ 100MHz.)
- Earth Wiring must be connected.
- If an RS485 star coupler mezzanine card 1057-203 is used with the 1057, All cables used must be shielded and a Ferrite with 1 turn must be positioned around all RS485 Cabling. (Ferrite Details: Fair-Rite #0444173551, or similar. 195W impedance @ 100MHz).
- If a 1061 Keypad is connected a Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals CN2 and CN3 and positioned 2cm from the 1061. (Ferrite Details: Fair-Rite #0444167281, or similar. 210W impedance @ 100MHz).
- If a 1062 Keypad is connected a Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals J3 and positioned 2cm from the 1062. (Ferrite Details: Fair-Rite #0444164281, or similar. 260W impedance @ 100MHz).

1.1.Installation Guidelines

1. Unpack all supplied components and inspecting each for any defects or damage that may have occurred during transit.
2. Check whether the correct components have been supplied as per order and/or packing slip.
3. Mount relevant mezzanine card and memory expansion card on the unit.
4. Connect earth ground to common on connector J18.
5. Ensure that the power supply is disconnected from the mains.

NOTE Power supplies used with the unit must comply with the standards of the local authority labelled with the appropriate certification markings.

Remove the power supply connectors from J18 and J15 so that you can read the labelling beneath. Either connect an 18 VAC power supply to the J18 terminal OR connect a 12-15 VDC power supply to the J15 terminal.

6. Connect the battery supply.

NOTE When connecting batteries to the PCB ensure that the connector is correctly aligned. Connecting the batteries incorrectly may short one of the batteries and cause serious damage to the PCB.

WARNING! An explosion may result if batteries are installed incorrectly. Replace only with the same or equivalent type. Dispose of used batteries according to the manufacturer's instructions.

7. Remove the plastic between the PCB coin battery and the connector.
8. If using a EEPROM (resembles a DB9 dongle), plug it on the RS232 port 1. Ensure that link 12 is IN (power to RS232 port 1).
9. To connect to data network, connect a RJ-45 Ethernet 10 Base-T cable to the Ethernet port. If connecting to another data network, connect the DB25 network cable to the Network port.
10. To connect to the telephone line, connect the RJ12 end of the supplied telephone line cable to the Phone Line port.
11. Connect RS485 device line(s). Run the wire to the required length to connect all devices and a length to run it back to the unit to allow for redundancy in the loop. Determine position of the unit on the device line and accordingly position LNK1 (for J1 line), LNK2 (for J3 line) and LNK 3, 4, and 5 (for J4 line).
12. Set DIP switches 1 and 4 to the ON position.
13. Power up the unit by connecting to a power source.
14. After about 10 seconds the 7-segment display should start cycling.
15. Set DIP switches 1 and 4 to the OFF position.

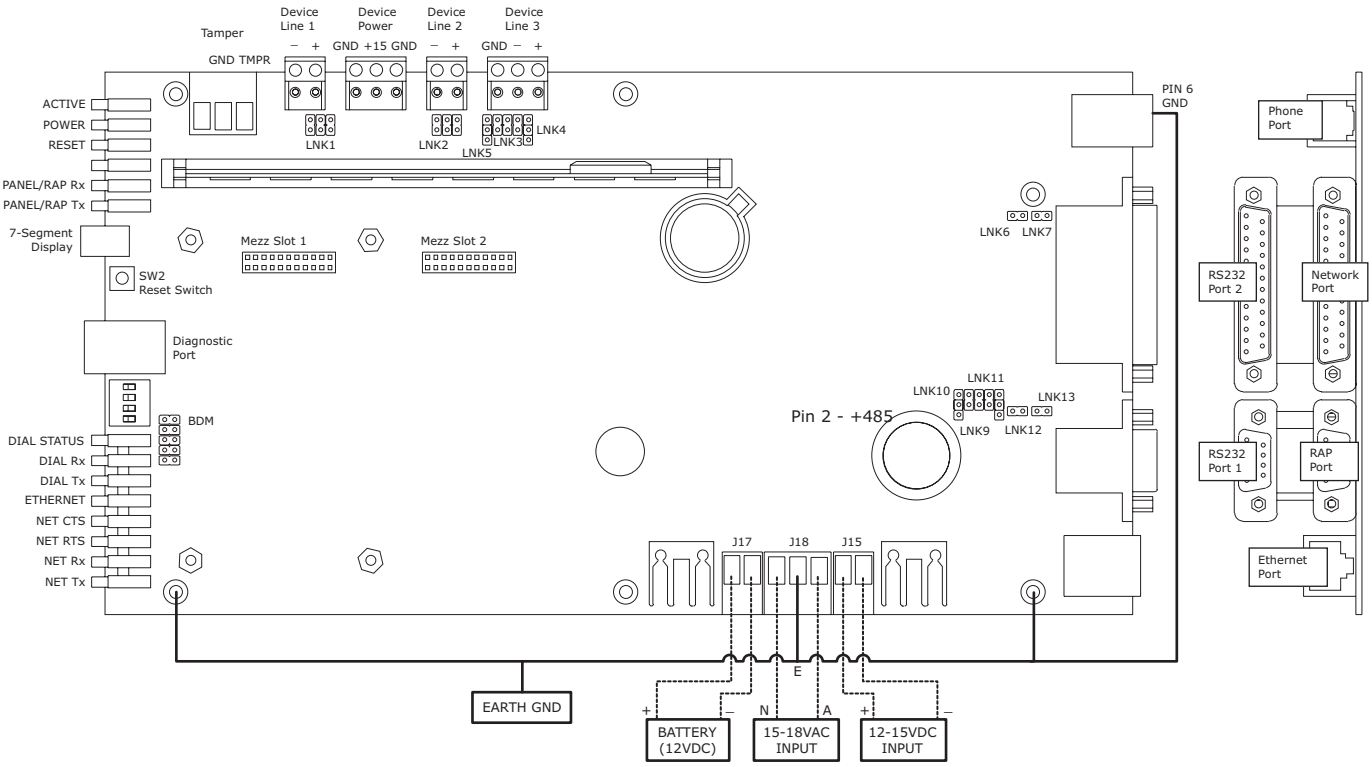
Refer to Adding Devices to the Controller... page 17 for more information on adding devices on the unit.

Technical Specifications

Table 1:

Dimensions	**121mm x 271mm x 380mm**
Environment	**0-50°C, 20-85% +/- 5% relative humidity (non-condensing) at 30°C**
Power Input	**15-18 VAC input @ 5 Amps (fuse protected) or 12 – 15 VDC**
Power Consumption	**260mA @ 12VDC**
Available Auxiliary Power	**675 mA @ 12VDC for peripheral devices**
Battery Charger	**On-board 13.8VDC, 1.1A max.**
Batteries	**2 NP10-6 sealed lead acid (24hrs run time)**
UL Approved Specifications	**Primary Power: 120 VAC @ 490mA using the Amseco XT-1840 transformer, or 12 - 15VDC 2A external UL power supply. Secondary Power: 12VDC 10Ah battery.**
LEDs	**14 Indication LEDs.**
Networks	**X.25, SNA PU2.1, LU6.2 End Node, TCP/IP, Token Ring, Ethernet, PPP and SDLC.**
Modem	**on-board, CCITT V.21, 1200bps, optional external Modem or Optional GSM Module**
Device Loops	**4 device loops are available on the 1057, 2 are permanent, 2 more are configurable (subject to Network Type and communication). 4 of the device loops can support up to 32 Pacom RS485 devices.**
Inputs	**supports up to 256.**
Outputs	**Supports up to 64.**
Keypads	**Supports up to 32 keypads.**
Mezzanine card options	**Pacom 1050-004 16 input card, Pacom 1050-003 8 output card, Pacom 1050-201,202,203 Dial Cards, Pacom 1057-203 RS485 Star Coupler, 1057-204 Dialler Interface (max. 2 devices).**
Memory	**2 MB on-board with Battery Backup, expandible to 6 MB with optional 4, 16 or 32 MB Battery Backed SRAM DIMM Modules.**
Flash Memory	**2 x 16Mb (one running, one standby)**
Tamper switch	**Factory Installed**
3A fuse	**Battery Supply Fuse (slow blow)**
4A fuse	**AC Supply Fuse (slow blow)**
2A fuse	**DC/Device Supply Fuse (RS485 and RS232 Device Loop power) (slow blow)**

Pacom Field Controller 1057
Quick Install



Switch SW3 - Normal Position is all off

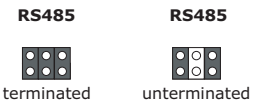
Dip#	Position	Function (on panel reset only)
1	ON	Clear all parameters (except card-access)
2	ON	Read from external EEPROM (if present)
3	ON	Copy on-board RAM to expanded RAM board
4	ON	Clear card-access parameters
1 and 4	ON	Default the panel

LEDs

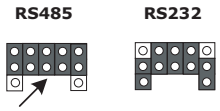
Active	GREEN - Controller in operation
Power	FLASHING RED - Battery low RED - On battery power GREEN - Battery fully charged and running on AC AMBER - Battery on fast charge and running AC
Reset	RED - Controller is reset
RAP Rx	RED - RAP port receiving data
RAP Tx	RED - RAP port transmitting data
Dial	FLASHING RED - Dial-up fail RED - Dialing FLASHING AMBER - Dialing out or incoming ring AMBER - Establishing (modem traing) GREEN - Controller connected to base station OFF - No dial-up activity
M Rx	RED - Onboard modem receiving
M Tx	RED - Onboard modem transmitting
Ethernet	RED - Collision on ethernet or cable disconnected GREEN - Established connection (ethernet active) AMBER - Receiving or transmitting OFF - Not configured for ethernet
CTS	RED - Clear to send signal is received from MSD/PAD
RTS	RED - Clear to request to dend signal is transmitted from MSD/PAD
NET Rx	RED - Data received from network (via MSD/PAD)
NET Tx	RED - Data sent to network (via MSD/PAD)

Communications Links

LNK1 - J1 device loop communication
LNK2 - J3 device loop communication



LNK3, 4 and 5 for J4 device loop
LNK9, 10 and 11 for RAP port



Note: Middle link for RS485 termination
- insert all 3 links if first or last device

LNK6 If installed, puts 12VDC on pin25 of the Network Port
LNK7 If installed, puts 12VDC on pin25 of the RS232 Port 2
LNK12 If installed, puts 12VDC on pin1 of the RAP Port
LNK13 If installed, puts 12VDC on pin1 of the RS232 Port 1

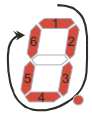
Earth Wiring

Earth Wiring required for UL

RAP Port RS485 Wiring

Pin 1 +12VDC
Pin 2 +485
Pin 3 -485
Pin 5 GND

7 Segment Display

 7-Segment Cycle	Indicates normal operation.
	Remote Terminal Unit offline.
	Data Line DCD Failure **Loss of Communication to LAN Adapter.
	Data Modem Failure **LAN Adapter Fail or Loss of Power to the LAN Adapter.
	Dial-up Communications Failure.
	Unit Cover Open (Tamper Switch Activated).
	Branch Controller has failed.
	**LAN Adapter Loss of LAN Connection. **Router Failed.
	Unit is on Security Poll.
	On Dial Back-up. The RTU is using Dial Back-up, and the primary communications has failed.
	RTU is on secondary communications. The RTU's primary communi-cations has failed, and is using the secondary port configured for communications.
 Decimal Place	Decimal Point ON (bottom right corner) indicates +5V supply is OK. If the decimal point is absent the +5V supply is faulty. Check AC connector.
 Blank Display	Processor fault. Please contact Pacom.

NOTE ** Indicates UDP/IP/PPP networks only.

Pacom Field Controller 1058

In This Chapter **3**

The primary function of the Pacom 1058 controller is to monitor and control physical security at a remote site. The 1058 reports alarm status information via an existing data network to a central monitoring site typically equipped with a Pacom base station. If the network or data line fails the 1058 automatically utilizes the public-switched or mobile telephone networks to re-establish communication.

Access control - A standard 1058 provides access control for up to 1,000 users within a site (500 on a 1058A). This can be expanded to up to 10,000 users with the use of the optional memory expansion unit (1058 only).

Alarm monitoring - The 1058 PCB has on-board connections for 8 alarm inputs and 4 outputs. Input/Output capability can be expanded with the use of a mezzanine card (16 input or 8 output) which can be mounted directly onto the 1058 PCB and/or Pacom 1065 16 I/O modules, which communicate with the 1058 over an RS485 loop.

This chapter is written for 1058 revision 04 and 1058A revision 01.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This product complies with the following standards and accreditations:

- FCC Part 15 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device must not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.
   - EN61000-3-2
   - EN61000-3-3
- EN55022 Class A
- EN50130-4
- EN61000-4-11
- AS/NZS 3548 Class A
- **AS/NZS 3260** - Subject to the following condition: Unit shall be connected to Telecommunication Network through a line cord which meets the requirements of ACA Technical Standard TS008.
- TS001
- TS002
- PTC200
- TB21
- IE950
- EN60950
- CS03/110901/01
- Part 68/110901/01

UL Compliance Considerations for USA and Canada

NOTE: The Pacom 1058 is intended for use in a dedicated system.

Power supply module

- To comply with the UL standard a UL listed Power Supply, approved for use with a Burglar Alarm System, should be used to power this unit (UL 603, in USA and Canada). The power supply unit submitted for UL approval with the 1058 was the AMSECO model XT-1840 (18VAC 40VA).
- The power supply unit shall be connected to the mains power supply system in a manner complying with the requirements of Canadian Electrical Code (CEC), Part 1, CAN/CSA C22.1, C22.2 in Canada, and the National Electrical Code (NEC), ANSI/NFPA in USA.
- The unit shall be connected to the protective earth in a manner complying with the above CEC/NEC requirement
- A 26 AWG line cord shall be used in USA/CAN, in other countries, local approved line cord shall be used.
- The recommended method of connection of this unit is described below

Specification Limitations

The 1058 peripheral devices described in this guide have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions, the 1058 and peripheral device features and specifications were tested within the following limitations and conditions.

- Accessories supported for U.L. are: 1061 (Keypad), 1062 (Keypad), 1062-HID (Keypad + Card Reader Interface), 1064 (Card Reader Interface), 1065-IO (I/O board Rev 11), 1065-EC (Elevator Control board Rev 11), 1030-007 (Dual Relay Output), 1050-003 (8-Output Mezzanine), 1050-004 (16-Input Mezzanine), 1057-201 Memory Board, 1057-203 485 Expansion Card, 1050-018 PCB (transient protection for 1050-004), 1050-019 PCB (transient protection for 1050-003).
- The 1067 Intelligent Two Door Controller is not UL Listed
- The Fire Management System Interface was not verified by UL
- Fire points are not part of the UL Listed system
- MXL Fire System Protocol is not intended for UL Listed Systems
- Gent Fire Alarm (and Securitas) Fire System Protocol is not intended for UL Listed Systems
- Connecting a Tecom Alarm Panel via STU Interface is not intended for UL Listed Systems
- The 1058 was tested to 50° C and 85% +/- 5% R.H
- The total power consumed by the 1058 was tested to 1A, including the current available for peripheral devices supplied from the unit.
- The 1030-007 dual output relay cards were tested to a rating of 1 A @ 30 V DC
- The 1050-003 8 output mezzanine cards were tested to a rating of 1 A @ 30 V DC
- Any cable attached to the network port of the 1058 cannot exceed 20 feet
- UL approved communications over a non-private network is authorized when the Thales Datacryptor 2000 is implemented for all primary communications
- Pacom Rijndael Algorithm is NIST approved, and complies with Advanced Encryption Standard (AES) FIPS 197, for firmware version 4.02.

Data Cabling Requirements

The following are installation procedures for installing the 1058 Field Controller and peripheral devices to comply with UL requirements

- The network types supported by 1058 and verified by U.L. are: Ethernet, Async Poll and Dialup.
- If an Ethernet cable attached to the 1058 exceeds more than 20 feet, a surge protection device such as the APC model PNET1 is required between the 1058 and the Ethernet cable.
- Any cables attached to the DB connectors (DB 9 and DB25) on the rear of the 1058 should not exceed 20 feet (in the same room) from the 1058.
- Dial-up communication is a secondary means of communication for the 1058.
- The 1058 is intended to be used in a dedicated system.
- Telephone line surge protection requires Pin 6 of RJ12 (J6) to be connected to earth ground.

Input/Output Cabling Requirements

To comply with UL requirements, if cabling for inputs on the 1050-004 Input Mezzanine Card exceeds 20 feet, a 1050-018 transient board is required. Inputs are wired into the 1050-018. The 1050-018 is mounted on the 1050-004, which in turn is connected to the 1058 RTU in one of the mezzanine slots.
To comply with UL requirements, if cabling for outputs on the 1050-003 Output Mezzanine Card exceeds 20 feet, a 1050-019 transient board is required. Outputs are wired into the 1050-019. The 1050-019 is mounted on the 1050-003, which in turn is connected to the 1058 RTU in one of the mezzanine slots.

Emission Approvals

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the J11 terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240W impedance @ 100MHz.)
- A ground connection must be added between the J11 Connector and the chassis.
- If an RS485 star coupler mezzanine card 1057-203 is used with the 1058, All cables used must be shielded and a Ferrite with 1 turn must be positioned around all RS485 Cabling. (Ferrite Details: Fair-Rite #0444173551, or similar. 195W impedance @ 100MHz).
- If a 1061 Keypad is connected a Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals CN2 and CN3 and positioned 2cm from the 1061. (Ferrite Details: Fair-Rite #0444167281, or similar. 210W impedance @ 100MHz).
- If a 1062 Keypad is connected a Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals J3 and positioned 2cm from the 1062. (Ferrite Details: Fair-Rite #0444164281, or similar. 260W impedance @ 100MHz).

3.1.Installation Guidelines

1. Unpack all supplied components and inspecting each for any defects or damage that may have occurred during transit.
2. Check whether the correct components have been supplied as per order and/or packing slip.
3. Mount relevant mezzanine card and memory expansion card on the unit.
4. Connect earth ground to common on connector J11.
5. Ensure that the power supply is disconnected from the mains.

NOTE Power supplies used with the unit must comply with the standards of the local authority labelled with the appropriate certification markings.

Remove the power supply connectors from J11 and J12 so that you can read the labelling beneath. Either connect an 18 VAC power supply to the J11 terminal OR connect a 12-15 VDC power supply to the J12 terminal.

The power requirement is dependent on the number of devices the unit has to supply. An installation with large number of peripheral devices supplied from the unit may require a power supply with a larger capacity than the one submitted for approval. Any power supply used must be UL approved.

6. Connect the battery supply. The 1058 will not start with Battery power only.

NOTE When connecting batteries to the PCB ensure that the connector is correctly aligned. Connecting the batteries incorrectly may short one of the batteries and cause serious damage to the PCB.

WARNING! An explosion may result if batteries are installed incorrectly. Replace only with the same or equivalent type. Dispose of used batteries according to the manufacturer's instructions.

7. Remove the plastic between the PCB coin battery and the connector.
8. If using a External EEPROM dongle, connect it on the RAP port and set DIP switch 2 to ON.
9. Wire input and output devices.
10. To connect to data network, connect a RJ-45 Ethernet 10 Base-T cable to the Ethernet port. If connecting to another data network, connect the DB25 network cable to the Network port.
11. To connect to the telephone line, connect the RJ12 end of the supplied telephone line cable to the Phone Line port.
12. Connect RS485 device line. Run the wire to the required length to connect all devices and a length to run it back to the unit to allow for redundancy in the loop. Determine position of the unit on the device line and accordingly position LNK7 (for J6 line).
13. Set DIP switches 1 and 4 to ON.
14. Power up the unit by connecting to a power source.
15. After about 10 seconds the LED3 should flash green.
16. Set all DIP switches to OFF.

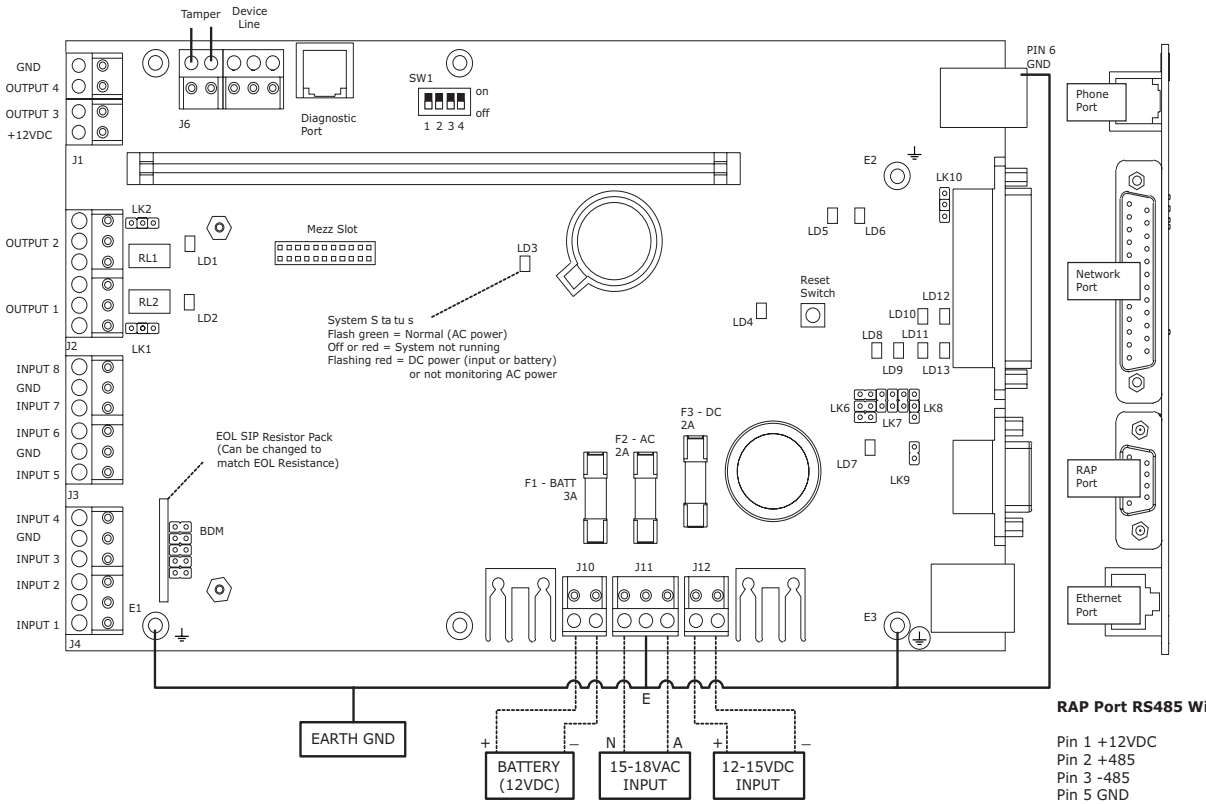
Refer to Adding Devices to the Controller... page 17 for more information on adding devices on the unit.

Technical Specifications

Table 1:

Parameter	Specification
Dimensions:	**216mm x 134mm x 38mm**
Environment:	**0-50°C, 20-85% relative humidity (non-condensing) at 30°C**
Power Input:	**15-18 VAC input @ 2 Amps (fuse protected) or 12 – 15 VDC**
Power Consumption	**260mA @ 12VDC**
Available Auxiliary Power	**740mA @ 12VDC for peripheral devices**
Battery Charger	**On-board 13.8VDC, 500mA max.**
Batteries:	**2 NP10-6 sealed lead acid (24hrs run time)**
UL Approved Specifications	**Primary Power: 120 VAC @ 490mA using the Amseco XT-1840 transformer. Secondary Power: 12VDC 10Ah battery.**
LEDs:	**13 Indication LEDs.**
Networks:	**X.25, SNA PU2.1, LU6.2 End Node, TCP/IP, Token Ring, Ethernet, PPP and SDLC.**
Modem:	**on-board, CCITT V.21, 1200bps, optional external Modem or Optional GSM Module**
Device Loops:	**1 device loop, expandable to 2 with 1058-203 RS485 Star Coupler. Support up to 32 Pacom RS485 devices.**
Inputs:	**8 on-board supervised alarm inputs (10K standard EOL, can be changed if required). Supports up to 256 inputs (up to 64 on 1058A).**
Outputs:	**2 on-board relay control outputs (1A @ 30VDC), 2 open-collector pull-down outputs (100mA @ 30VDC). Supports up to 64 outputs (up to 16 on 1058A)**
Keypads:	**Supports up to 16 keypads (up to 8 on 1058A)**
Card Readers:	**Supports up to 16 card readers (up to 8 on 1058A)**
Mezzanine card options:	**Pacom 1050-004 16 input card, Pacom 1050-003 8 output card, Pacom 1050-201,202,203 Dial Cards, Pacom 1058-203 RS485 Star Coupler (max. 1 device), 1058-204 Dialler Interface**
Memory:	**2 x 4MB SRAM (with on-board battery backup) with optional 4, 16 or 32 MB Battery Backed SRAM DIMM Modules. Does not apply to the 1058A.**
Flash Memory	**2 x 16Mb (one running, one standby)**
Tamper switch	**Factory Installed**
3A fuse	**Battery Supply Fuse (slow blow)**
2A fuse	**AC Supply Fuse (slow blow)**
2A fuse	**Device Supply Fuse (RS485 and RS232 Device Loops) (slow blow)**

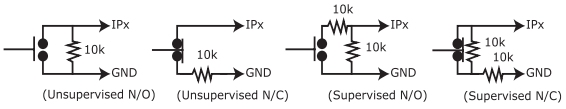
Pacom Field Controller 1058
Quick Install



RAP Port RS485 Wiring

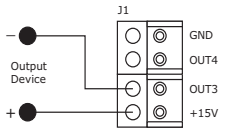
Pin 1 +12VDC
Pin 2 +485
Pin 3 -485
Pin 5 GND

Input Wiring



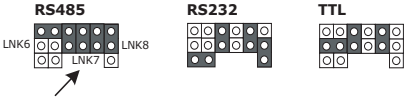
Open Collector Output Wiring

Output 3 and 4 are source to GND
The 1030-007 Dual relay board can be used to add relays to the outputs.



Communications Links

LK7, LK8 & LK9 - RAP (DB9) Port Communications (as follows)



Note: LNK7 is for RS485 Termination - install all 3 links if first or last device

LNK 9 If installed, puts 12V DC on pin 1 of RAP (DB9) port
LNK 10 If installed, puts 12V DC on pin 25 of Network (DB25) port

LK4 & LK5 - OPEN - Recommended position for USA, Canada, Singapore, China and others
CLOSED Recommended position for Australia, Europe, & New Zealand (to meet TELCO requirements).

Switch SW1 - Normal Position is all off

Dip#	Position	Function (on panel reset only)
1	ON	Clear all parameters (except card-access)
2	ON	Read from external EEPROM (if present)
3	ON	Copy on-board RAM to expanded RAM board
4	ON	Clear card-access parameters
1 and 4	ON	Default the panel

LEDs

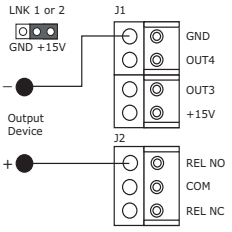
LED 1 RED - Output 2 relay energized
LED 2 RED - Output 1 relay energized
LED 3 FLASHING RED - Battery low
RED - On battery power
GREEN - Battery fully charged and running on AC
AMBER - Battery on fast charge and running on AC
LED 7 GREEN and RED - Ethernet online

LED 4 RED - Power on
LED 5 RED - Modem Rx
LED 6 RED - Modem Tx
LED 8 RED - RAP Rx
LED 9 RED - RAP Tx
LED 10 RED - Net CTS
LED 11 RED - Net Rx
LED 12 RED - Net RTS
LED 13 RED - Net Tx

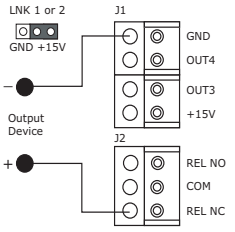
Earth Wiring

Earth Wiring required for UL

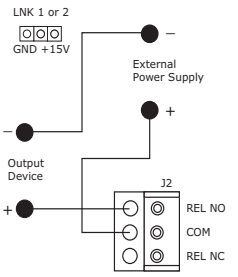
Relay Output Wiring



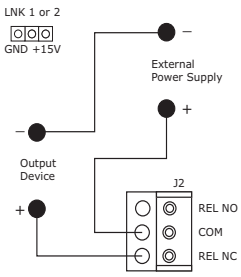
Normally Open with on-board power



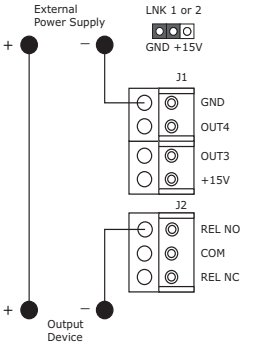
Normally Closed with on-board power



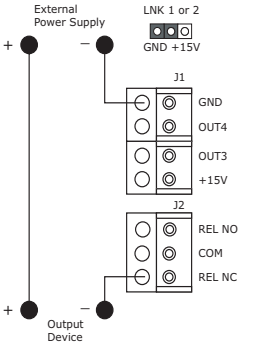
Normally Open with power supply



Normally Closed with power supply

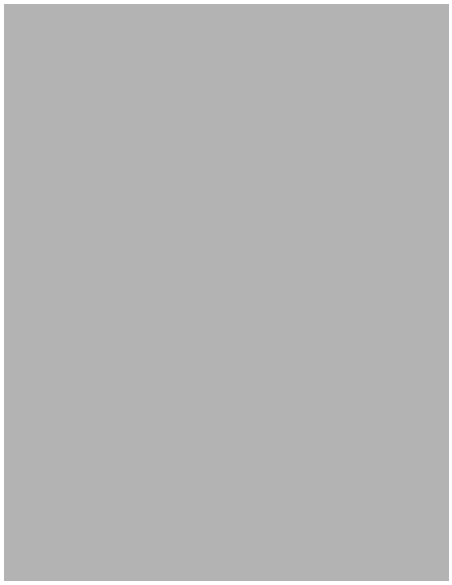


Normally Open with power supply (common GND to 1058)



Normally Closed with power supply (common GND to 1058)

Maintenance Procedures for the Controllers



In This Chapter **5**

Multiple tasks are listed in this chapter to cover typical maintenance on the Pacom controllers. Follow the procedures listed and take into consideration the warnings given.

- Fuse Replacement
- On-board Battery Replacement
- Memory Expansion Module (SRAM)

5.1.Fuse Replacement

Most fuses used on a Pacom controller are slow blow.The 1058 uses the glass type while the 1057 the ceramic type fuses.

WARNING! Always **remove power** before replacing the fuses.

Gently insert a miniature screwdriver underneath the fuse in its mounting and lever the fuse out.

Take due care when removing the fuse, incorrect removal may result in damage to the PCB.

5.2.On-board Battery Replacement

Pacom controllers, 1057 and 1058 use a CR2032 coin type lithium battery. Its measurements are 20 mm (diameter) x 3.2 mm (depth). The battery has a rating of 3 V, 220 mAh @ 0.2 A.

WARNING! Do not remove power from the PCB when removing the battery. If both power and battery are removed, certain configuration parameters will be lost.

To remove the battery, move the clip to the side and remove the battery from its housing.

Take due care when lifting the battery clip. Do not lift the battery clip more than a few millimeters above the battery. Lifting the clip to far will result in PCB damage.

The average operating shelf life is 5 years as per the manufacturer's specifications.

5.3.Memory Expansion Module (SRAM)

WARNING! Always **remove power** prior to removing the memory expansion module (SRAM).

The module is proprietary hardware and must be purchased through Pacom. Sizes available are 4 MB, 8MB, 16MB, and 32MB. All are Battery Backed SRAM DIMM Module.

WARNING! Remove power (both AC and DC supplies) from the PCB.

WARNING! The Memory Expansion Module must remain vertical during installation. If the module is not vertical during installation, damage to the socket may result.

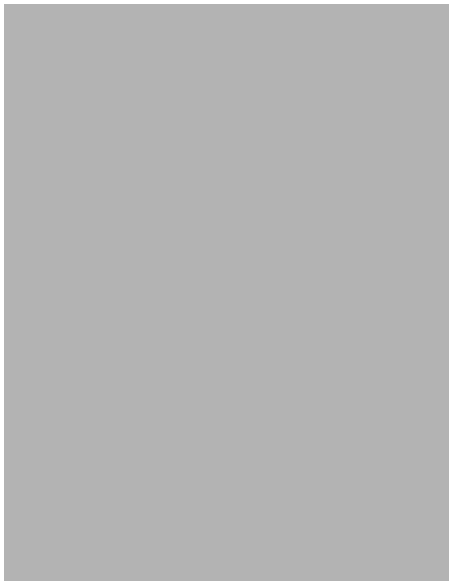
1. Remove the plastic insert from the coin battery of the module.
2. Position the module over the socket with the battery on the module facing the outside of the PCB. Ensure that the module is vertical and the bottom corners of the DIMM are located in the retaining clips.

WARNING! The module must be correctly aligned prior to inserting into the socket provided.

3. Press down firmly until the retaining clips are secure on the DIMM module. Do not insert the module at an angle. The module can be installed only in one position, two keyways prevent incorrect installation.
4. Turn ON DIP Switch 3 during power up. Wait about 20 seconds and then switch DIP switch 3 off, this will copy the on board RAM to the module.

To replace the coin battery on the memory expansion module, follow the instructions in *refer to Section 5.2 On-board Battery Replacement*.

Wiring Information



In This Chapter **6**

This chapter outlines various cabling information that may be required when creating cables to communicate with the Pacom field controllers.

6.1.Diag Port -> PC (DB9)

Table 1:

Diag Port (RJ12)	PC DB9
3	2
4	3
5	5

6.2.DB9, DB25 -> PC (DB9)

Table 2:

DB9 on 1057/ 1058/1058A	DB25 on 1057/ 1058/1058A	PC DB9
2	3	2
3	2	3
5	7	5

6.3.Telephone Connection

Table 3:

RJ12 Modem Port	DB25 on 1057/ 1058/1058A
1	Not Connected
2	Phone (-) 1
3	Ring
4	Tip
5	Phone (-) 2
6	Earth Ground

Adding Devices to the Controller

In This Chapter **7**

There are a number of optional I/O cards, modules and devices that may be fitted to a Pacom controller. How many of these are added is dependent on a system configuration and requirements.

The optional I/O cards, modules and devices available are as follows: keypads, mezzanine cards, Pacom 1065 16 I/O cards, biometric devices, proximity/card reader interfaces, fire management system interface.

The following introduces these components and then provides a matrix on how many of each can be accommodated on Pacom controllers.

7.1.Pacom Controllers Comparatives

Table 1:

I/O Cards / Modules/ Devices	1058A	1058	1057
RS485 multi-drop device line	1	1 (max 2)	4 (max 6)
Maximum Keypads	8	16	16
Maximum Card Readers	8	16	64
Memory expansion	No	Yes	Yes
Mezzanine ports	1	1	2
Maximum inputs	64	256	256
Maximum outputs	16	64	64

7.2.Memory Expansion Cards

Memory cards can be purchased from Pacom to expand the cardholder storage capability of a controller.

Table 2:

Memory card	1058	1057
Standard (no memory expansion) GMS 2 or 3	1,000	10,000
With 4Mb expansion GMS 2.XX	10,000	128,000
With 4Mb expansion GMS 3.XX	10,000	32,000
With 16Mb expansion GMS 3.XX	10,000	128,000
With 32Mb expansion GMS 3.XX	10,000	250,000

NOTE The 1058A does not have a memory slot.

7.3.Building Management Interface

The BMS interface communicates with the Pacom controller over a standard RS232 interface. The RS232 Port1 or RTU Port connector can be used to connect the Trend BMS interface. The port that is used to connect the Trend BMS interface must be configured through GMS software. Refer to *Field Controller Configuration Guide* for information on configuration of ports for Building Management System interface connection.

7.4.Fire Management System Interface

There are 3 types of Fire Management Systems that interface with the Pacom 1058. These are the Cerberus (using CSDL protocol), Securitas (using EBLTalk), and Gent Fire Panels. The Fire Management Systems communicate with the Pacom controller over a standard RS232 interface.

The RS232 Port1 or RTU Port connector can be used to connect the Fire Management System interface. The port that is used to connect the Fire Management System interface must be configured through GMS software.

Fire Management Systems are not for use with UL Listed Access Control and Proprietary Systems. Fire accessories are not suitable for UL Listed Access Control and Proprietary Systems.

7.5.Third Party Network Interface Operation

The Pacom controller can be connected to a variety of Third Party Alarm Panels using various protocols. The controller functions as a protocol converter, reformatting the messages to Pacom format and sending them to the monitoring system over the Network. All other controller functions are disable when operating in this mode.

For more information on supported Third Party Alarm Panels, please contact Pacom Systems.

Pacom Mezzanine Cards

In This Chapter **8**

- Installation Guidelines
- Mounting Instructions

Mezzanine cards are add-on PCB modules that you can use to expand a controller's capacity. These cards mount onto the controllers as a piggy-back mezzanine card. Some of these cards can also be used on the Pacom 1065 to expand its I/O capability.

Pacom offers a number of mezzanine cards. Those discussed in this chapter are:

- 1050-004 - 16 input mezzanine expansion card revision 01
- 1050-003 - 8 output mezzanine expansion card revision 01
- 1050-201 - modem dial card revision 03
- 1057-203 - RS485 expansion card (also called the star coupler) revision 02

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A
- EN55022 Class A
- EN50130-4
- AS/NZS 3548 Class A

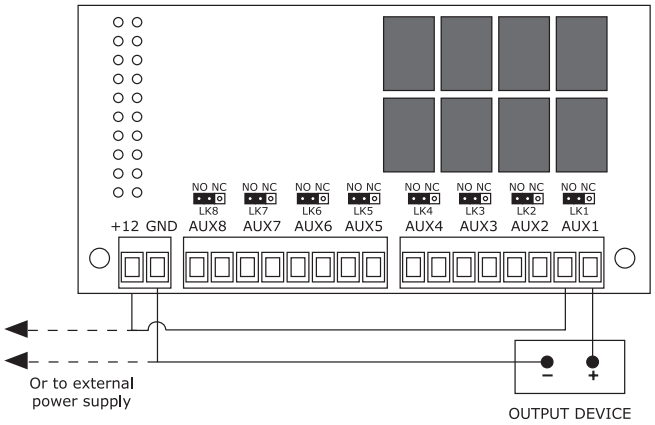
This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

UL Compliance Considerations for USA and Canada

- The 1050-003 8 Output Card is UL approved for wiring up to 20 feet.
- The 1050-004 16 Input Card is UL approved for wiring up to 20 feet.
- For input wiring exceeding 20 feet, connect the 1050-018 to the 1050-004 and wire inputs to 1050-018.
- For output wiring exceeding 20 feet, connect the 1050-019 to the 1050-003 and wire outputs to 1050-019.
- 1050-201 Dial card is UL approved
- 1057-203 RS485 Star Coupler is UL approved

8.1.Installation Guidelines

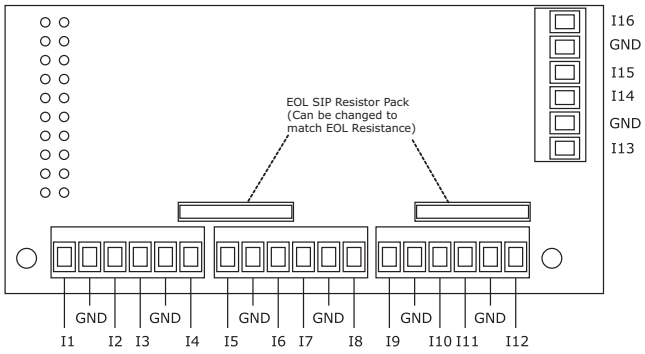


1050-003 Output Card

Links 1 to 8
Normally Open Normally Closed

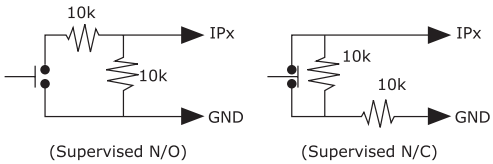
Links correspond to output terminals
Factory default position: Normally open

Applies for UL approved installation: If wiring exceeds 20 feet, connect the Pacom 1050-019 to the 1050-003 and wire outputs to the 1050-019.

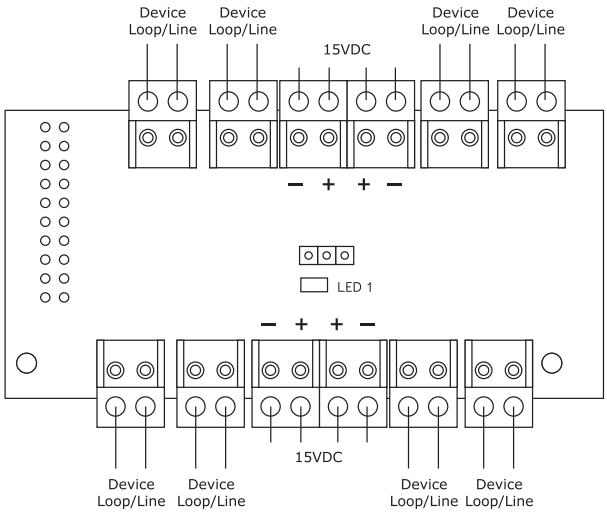


1050-004 Input Card

Input Wiring



Applies for UL approved installation: If wiring exceeds 20 feet, connect the Pacom 1050-018 to the 1050-004 and wire inputs to the 1050-018.



1057-203 RS485 Expansion Card

Features
- Star connection for RS485 devices
- Draws max 150mA, 15VDC @ full load
- 8 separate device lines
- Unused loops do not need termination
- Total 32 devices supported

Maximum supply of 12VDC to devices in star

1050-201 Dial Card

Features
- Mode 3 modem card
- Variants: 1050-201, 1050-202, 1050-203
- 1050-201 - dial into Pacom Basestation
- 1050-202/3 - dial into thrird party controllers

8.2.Mounting Instructions

1. Remove Power from the 1057/1058/1058A/1065.
2. Line up mounting holes of the mezzanine card and the standoffs on 1057/1058/1058A/1065, and connect the Mezzanine Card.

NOTE The 1057/1058/1058A/1065 has 24pin sockets. Ensure that the mounting holes and standoffs line up.

3. Wire mezzanine Cards as required, and power the 1057/1058/1058A/1065.

Pacom Keypad 1061

In This Chapter **9**

- Installation Guidelines
- Setup Menu Options

The Pacom 1061 keypad is an intelligent I/O device that acts as the local user-interface for Pacom controllers.

It offers the following features:

Manage and control - Up to 8 separate areas within a site.

Display - LED display status of areas. Back-lit 2 line x 40 character LCD and adjustable LCD intensity. Programmable customer messages and banner.

Communication - Compatible with all Pacom field controllers. Communication over RS485 line (32 device loop addresses).

Data encryption optional.

On-board inputs and outputs - 2 on-board alarm inputs and 4 on-board control outputs.

Access control - Serial connection point for an access control device (Card or proximity reader etc.) and associated I/O devices (LEDs, Door strike etc.).

User configurations - Program user IDs (99) and program/assign user types (13).

Automatic baud-detect for fast and easy installation setup.

Smart power-save mode.

Programmable buzzer frequencies for personal preferences

Autobaud detect and self-test.

Built-in device tamper switch.

Optional shroud.

This chapter is written for 1061 revision 05.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

- EN55022 Class A
- EN50130-4
  - AS/NZS 3548 Class A.

UL Compliance Considerations for USA and Canada

- The Pacom 1061 is intended for use in a dedicated system.
- This keypad is intended for indoor use only

Specification Limitations

- The 1061 and peripheral devices described in this manual have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions the 1061 and peripheral device features and specifications were tested within the following limitations and conditions:
- The inputs on the 1061 are not end of line monitored and do not meet the UL Electrical Supervision Test requirements. The inputs on the 1061 are intended for card access door monitoring and egress operation only and are not intended for use as protection inputs.
- The unit was tested with an input voltage in the range of 12-15 VDC
- The 1061 was tested to 50° C and 85% +/- 5% R.H.
- Typical power consumption is 53 mA at 12-15V DC. The 1061 will draw a maximum of 230 mA momentarily, if all Area LEDs and backlight LEDs are enabled.
- The Data Encryption function of the 1061 was not verified by UL.
- To meet UL requirements the door strike relay should be connected in a "fail-safe" configuration by connecting the door strike via the normally open and common contacts of the output relay.

Cabling Requirements

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals CN2 and CN3 and positioned 2cm from the 1061. (Ferrite Details: Fair-Rite #0444167281, or similar. 210W impedance @ 100MHz).
- Input and output wiring cannot exceed 20 feet (RS485 excluded. RS485 connections have transorbs).

Emission Approvals

NOTE:To comply with class A requirements when the 1061 is connected to a controller, the controller will require the following modifications:

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the J18 terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240W impedance @ 100MHz.)
- A ground connection must be added between the J18 Connector and the chassis.
- A Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals CN2 and CN3 and positioned 2cm from the 1061. (Ferrite Details: Fair-Rite #0444167281, or similar. 210W impedance @ 100MHz).

9.1.Installation Guidelines

1. Open the unit. With the keypad face down (front panel down), remove the rear panel by inserting a small screwdriver into the two securing-clip release holes, and gently push the screwdriver upward into the holes until the securing-clips release. Lift the rear panel away from the front panel and clear the tamper switch spring on the top of the front panel.
2. Install the rear panel. Secure the rear panel in position with appropriate fastenings. Ensure that about 10cm of cable passes through the access opening.

NOTE If used the optional shroud should also be installed at this time. The shroud hinge is placed between the rear panel and the wall and secured with the lower two screws of the rear panel.

3. Connect the RS485 device line. Remove CN6 terminal block from the PCB. Connect the keypad end of the RS485 cable to the removable section of CN6. Do not plug the connector into the keypad at this stage. Determine whether the keypad will be the first or last device on the device line and accordingly position the link 8.
4. Connect the Pacom controller end of the RS485 cable (ensure that the controller power is disconnected).
5. For protection against voltage surges, connect earth wiring from the controller to earth lug at the back of the PCB.
6. Wire devices (readers) if required.
7. Apply power to the controller.
8. Plug the CN6 connector to the keypad.
9. The keypad will beep to indicate that it is powered, the PCB LEDs will light briefly, and the LCD will display NOT CONFIGURED.

NOTE If the LCD displays OFFLINE, the keypad is not wired correctly.

10. Set the device address. Locate links SW1. Short the two left-hand links of SW1 momentarily. Then follow the instructions on the LCD.

Display	**Action**
Option 1 - Program unit address (SELECT) (NEXT) (PREVIOUS) (QUIT)	Press the key corresponding to Select.
Unit address (1 to 32) [32]: _	Use the numeric keys to enter an address for the unit. All devices in the RS485 line must have a unique address.
Unit address (1 to 32) [n]: _	Where n is the address number specified. If address is incorrect, repeat the steps. DEL/ESC button to return to the main menu. Then press the "QUIT" soft key.
Are you sure? (YES) (NO)	Press Yes.
Please wait...	
NOT CONFIGURED	

11. Remove power from the controller.
12. Mount the 1061 front panel by clipping the top of the front panel (the securing tab) into position, followed by the base of the front panel – ensure that the tamper switch spring is inserted into its hole in the rear panel and making direct contact with the wall, use the guide-post sticking out from the rear panel as a position reference. A click should be heard as the securing clips move into place.

WARNING! If the LCD backlight connector CN4 becomes disconnected, connect back with the red wire to the CN4 terminal marked "+".

13.Apply power.

Use Pacom GMS software to configure the Pacom controller to recognize the keypad on its device line. *For instructions, refer Hardware Configuration manual.*

9.2.Setup Menu Options

Table 1:

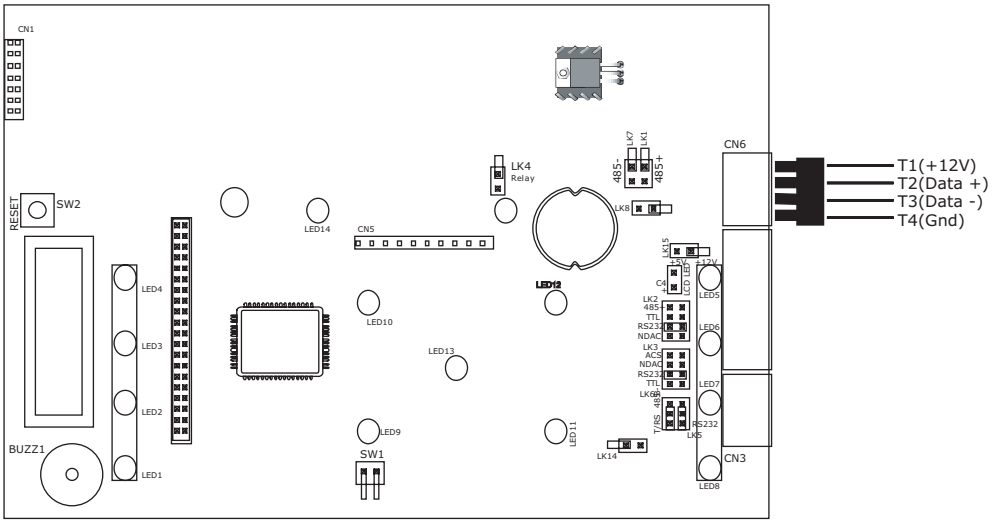
Option 1	Program unit address.	Valid addresses are 1 to 32.
Option 2	Program keypad type	This keypad can support functionality of PACOM 1061 and PACOM 1028 keypads.
Option 3	Program unit baud rate	Valid baud rates are 9600, 4800, 19200 and 38400.
Option 4	Data encryption	Data encryption can be disabled or enabled.
Option 5	Access control type	Currently supported access control devices are Proximity Reader, Finger Scan Unit and Nidac Keypads.
Option 6	Output for external buzzer	Any one of the four outputs can be configured for the external buzzer.
Option 7	Set blink rate for messages	Valid blink rates are 1 to 25, multiples of 100ms. This blink rate applies to the LEDs for AREA 1 to AREA 8 as well.
Option 8	Program buzzer frequency	Valid buzzer frequencies are 1 to 99, multiples of 100Hz. This is only for the internal buzzer on the keypad. On the selection of the new frequency, three beeps are generated with the new frequency. Also just to test different frequencies, press ENT key. Every time ENT key is pressed, test frequency increments by 100 Hz and three beeps are generated using that test frequency (displayed on the LCD).
Option 9	Input alarm polarity	There are two alarm inputs on the keypad PCB. They are labelled DIN1 and DIN2 on pins 4 and 5 respectively on the 8 pin connector CN2. The polarities of these inputs could be - "In alarm when Open or in alarm when Closed".
Option 10	Do self test	Performs a self test to ensure all functions are operational.
Option 11	Displays the software version number of the keypad	
Option 12	Relay on the device loop	By default, it is enabled.
Option 13	Resets parameters to default settings	When selected screen displays "Are you sure?" Press ENT to reset parameters. Press DEL/ESC to abort selection.

Technical Specifications

Table 2:

Enclosure:	**ABS**
Dimensions:	**210mm x 142mm x 34mm**
Weight:	**530g**
Environment	**0-50°C, 20-85% +/- 5% relative humidity (non-condensing) at 30°C**
Power	**Typically 53 mA, 12-15V DC** **The 1061 will draw a maximum of 230 mA momentarily, if all Area LEDs and backlight LEDs are enabled.**
Display:	**Backlit LCD 40 alphanumeric characters x 2 lines**
Keys:	**20 backlit**
LEDs:	**8 x 3-color (red, amber, green)**
Inputs:	**2 non-supervised (Open/Closed). Can also be used as Egress and Door Contact with serial card reader connected to port 2.**
Output points:	**2 open collector, 100mA @ 30 VDC**
Communication Port	**1: RS485** **2: Serial port configurable for RS232**

Pacom Keypad 1061
Quick Install



Addressing

1. Short the two left-hand links of SW1 momentarily.
2. Press the key corresponding to Select.
3. Use the numeric keys to enter an address for the unit.
4. Press DEL/ESC button to return to the main menu.
5. Press the "QUIT" key.
6. Press Yes.

RS485 Termination

Pacom Keypad 1062

In This Chapter **11**

- Installation Guidelines
- Setup Menu Options
- Card Reader and Auxiliary Device Connection

The Pacom 1062 keypad is an intelligent I/O device that acts as the local user-interface for Pacom controllers. It offers the following features:

Manage and control - Up to 8 separate areas within a site.

Display - LED display status of areas. Back-lit 2 line x 16 character LCD with adjustable LCD intensity. Programmable customer messages and banner.

Communication - Compatible with all Pacom field controllers. Communication over RS485 line (32 device loop addresses).

On-board inputs and outputs - 2 on-board alarm inputs and 4 on-board control outputs.

Access control - Can also be configured as an access control keypad where it is used as a terminal for a PIN that grants access to a single door or access point. It has serial data and I/O connections for 1 access control device such as a card or proximity reader and associated I/O devices (door strike).

User configurations - Program user IDs (99) and program/assign user types (8).

Automatic baud-detect for fast and easy installation setup. Smart power-save mode. Programmable buzzer frequencies for personal preferences Built-in device tamper switch.

This chapter is written for following 1062 keypads:

Pacom 1062-001Keypad	Rev03
Pacom 1062A Keypad	Rev01
Pacom 1062-HID Keypad	Rev01
Pacom 1062-iCLASS Keypad	Rev01

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A
- EN55022 Class A
- EN50130-4
- AS/NZS 3548 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

UL Compliance Considerations for USA and Canada

- The Pacom 1062 is intended for use in a dedicated system.
- This keypad is intended for indoor use only.
- The Pacom 1062-iCLASS is not UL Approved.

Specification Limitations

- The 1062 and peripheral devices described in this manual have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions the 1062 and peripheral device features and specifications were tested within the following limitations and conditions:
- Egress and Door Contact inputs on the 1062 are end of line monitored. D0 and D1 are not end of line monitored inputs and do not meet the UL Electrical Supervision Test requirements. The inputs on the 1062 are intended for card access door monitoring and egress operation only and are not intended for use as protection inputs.
- The unit was tested with an input voltage in the range of 12-15 VDC
- The 1062 was tested to 50° C and 85% +/- 5% R.H.
- Typical power consumption is 151 mA at 12-15V DC. The 1062 will draw a maximum of 350 mA momentarily, if all Area LEDs and backlight LEDs are enabled.
- The Data Encryption function of the 1062 was not verified by UL.
- To meet UL requirements the door strike relay should be connected in a "fail-safe" configuration by connecting the door strike via the normally open and common contacts of the output relay.

Cabling Requirements

- Input and output wiring cannot exceed 20 feet (RS485 excluded. RS485 connections have transorbs).
- A Ferrite with 1 turn must be positioned around all unshielded cabling connected to 1062 terminals J3 and positioned 2cm from the 1062. (Ferrite Details: Fair-Rite #0444164281, or similar. 260. impedance @ 100MHz).

Emission Approvals

NOTE:To comply with class A requirements when the 1062 is connected to a 1057, 1058, 1058A or Witness RTU, the RTU will require the following modifications:

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the J18 terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240Ω impedance @ 100MHz.)
- A ground connection must be added between the J18 Connector and the chassis.
- A Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals J3 and positioned 2cm from the 1062. (Ferrite Details: Fair-Rite #0444164281, or similar. 260W impedance @ 100MHz).

11.1.Installation Guidelines

1. Open the unit. Remove the philips head locking screw from top of the keypad. With the keypad face down (front panel down), remove the rear panel by inserting a small screwdriver into the two securing-clip release holes, and gently push the screwdriver upward into the holes until the securing-clips release. Lift the rear panel away from the front panel and clear the tamper switch spring.
2. Mount the rear panel in the required position.
3. For protection against voltage surges, connect earth wiring from the controller to earth lug (located between connector CN1 and tamper spring switch) on the PCB.
4. Connect the RS485 device line. Do not plug the connector into the keypad at this stage. Determine whether the keypad will be the first or last device on the device line and accordingly set link 1 of LNK2.
5. Set the keypad function as access control mode or normal alarm mode using link 2 of LNK2.
6. Connect I/O wiring. Remove terminal blocks from J3 and J4. Complete all required wiring.
7. Plug the CN1 connector to the keypad, and the LCD will display NOT CONFIGURED.

NOTE If the LCD displays KEYPAD OFFLINE, the keypad is not wired correctly.

8. Set the device address. Short pin 3 of link 2 momentarily. Then follow the instructions on the LCD.

Display	Action
Option 1 - Program unit address (SELECT) (NEXT) (PREVIOUS) (QUIT)	Press the F1 key to select.
Unit address (1 to 32) [01]: _	Enter an address for the keypad and the press the ENT key. All devices in the RS485 line must have a unique address. DEL/ESC button to return to the main menu. Then press the F4 key to "QUIT".
Are you sure? (YES) (NO)	Press F3 key for Yes.
Please wait...	
KEYPAD OFFLINE	
For alarm mode: INSERTED IN THE LINE For access mode: ACCESS CONTROL ENTER PIN and then INSERTED IN THE LINE	

9. Mount the front panel onto the rear panel on the wall by inserting the bottom of the front panel into its retaining slots and then snapping the top into position. Ensure that the tamper switch spring is inserted freely into its hole through the rear cover so that it is making direct contact with the wall. Insert and tighten the head locking screw on top of the keypad.
10. Apply power.

Use Pacom GMS software to configure the Pacom controller to recognize the keypad on its device line. *For instructions, refer Hardware Configuration manual.*

11.2.Setup Menu Options

The options menu is navigated by use of the function keys:
F1: Select option; F2: Next option; F3: Previous option; F4: Exit. DEL/ESC Return to main menu

Table 1:

Option 1	Program unit address (01)	Valid addresses are 1 to 32.
Option 2	Program unit baudrate (9600)	Valid baudrates are 9600, 4800, 19200 and 38400 (1065A 4800 Only)
Option 3	Data encryption (Disabled)	Data encryption can be disabled or enabled.
Option 4	Output for External Buzzer	Select which output external buzzer is connected.
Option 5	Set blink rate for messages (600ms)	Valid blink rates are 1 to 25, multiples of 100ms. This blink rate applies to the LEDs for AREA 1 to AREA 8 as well.
Option 6	Set scroll rate for messages	The speed at which messages are scrolled across the screen. 1-25 x 100 ms per movement (default 6).
Option 7	Program buzzer frequency (2100 Hz)	Valid buzzer frequencies are 1 to 99, multiples of 100Hz. This is only for the internal buzzer on the keypad. On the selection of the new frequency, three beeps are generated with the new frequency. Also just to test different frequencies, press ENT key. Every time ENT key is pressed, test frequency increments by 100 Hz and three beeps are generated using that test frequency (displayed on the LCD).
Option 8	Program input alarm polarity (Open)	There are two alarm inputs on the keypad PCB. They are labelled D0/Tx and D1/Rx on pins 4 and 5 respectively on the 8 pin connector J5. The polarities of these inputs could be - "In alarm when Open or in alarm when Closed". These are unsupervised inputs with only two states, open and closed. No trouble alarms available.
Option 9	Do self test	Self test, tests all eight area LEDs for all three colors (red, green and amber). After the LED test, the EEPROM, LCD, Keypad and all inputs and outputs on the keypad are tested.
Option 10	Display software version number	Displays the software version number of the keypad.
Option 11	Relay on the device loop	Relay used to disconnect keypad from RS485 device loop when communications become unstable. (0 = Disabled, 1 = Enabled) (Enabled is default)
Option 12	Reset Parameters to default	Resets parameters to default settings. When selected screen displays "Are you sure?" Press Enter key to reset parameters. Press DEL/ENT to abort selection.
Option 13	Program Backlight time	Determines long the backlight will remain lit after keypad activity has ceased.

11.3.Card Reader and Auxiliary Device Connection

WARNING! Incorrect connection of devices may cause damage to the device and the 1062.

11.3.1. Proximity Reader Connection

Table 2:

1062 Terminal	Proximity Reader
J3, Pin 1 (+12 V)	V+
J3, Pin 3 (GND)	-V
J3, Pin 4 (D0 / Tx)	VCA
J3, Pin 5 (D1 / Rx)	SIG

Additional Requirements:

- Pull-up Resistor (120 kΩ) across SIG and V+.
- Series resistor (10 kΩ) between Pin 4 (D0/Tx) and VCA.
- Link 1 on LNK1 on the main keypad PCB must be set to serial input.
- External Device connection as required.

Table 3:

1062 Connection	Signal
J3, Pin 6	Green accept LED Cathode (-)
J3, Pin 7	Red Denied LED Cathode (-)
Aux relay output N/O, J4, Pin 1 Set link 1 in LNK1 for normally open	Strike output
J4, Pin 5	Door Contact
J4 Pin 3	Egress Button

11.3.2. Finger Scan Connection

Table 4:

1062 Terminal	Fingerscanner Terminal
J3, Pin 3 (GND)	Pin 5 (GND)
J3, Pin 4 (D0 / TX)	Pin 2 (Rx)
J3, Pin 5 (D1 / RX)	Pin 3 (Tx)

Additional Requirements

- Fingerscan output must be in Wiegand format.
- Pin 1 on LNK1 set to Input.
- External device connection as required.

11.3.3. Nidac Keypad Connection

Table 5:

1062 terminal	Finger Scan Terminal
J3, Pins 4 & 5 shorted	Data
J3, Pin 3 (GND)	GND

Additional requirements:

- Pin 1 on LNK1 set to Input.

11.3.4. External Buzzer

An external buzzer is usually connected to J3 Pin 8, however the 1062 (in normal mode) can be configured to allow external buzzer connection to any of the four outputs available on the keypad PCB. The Buzzer O/P is selected from the Setup menu. The output settings are as follows:

Table 6:

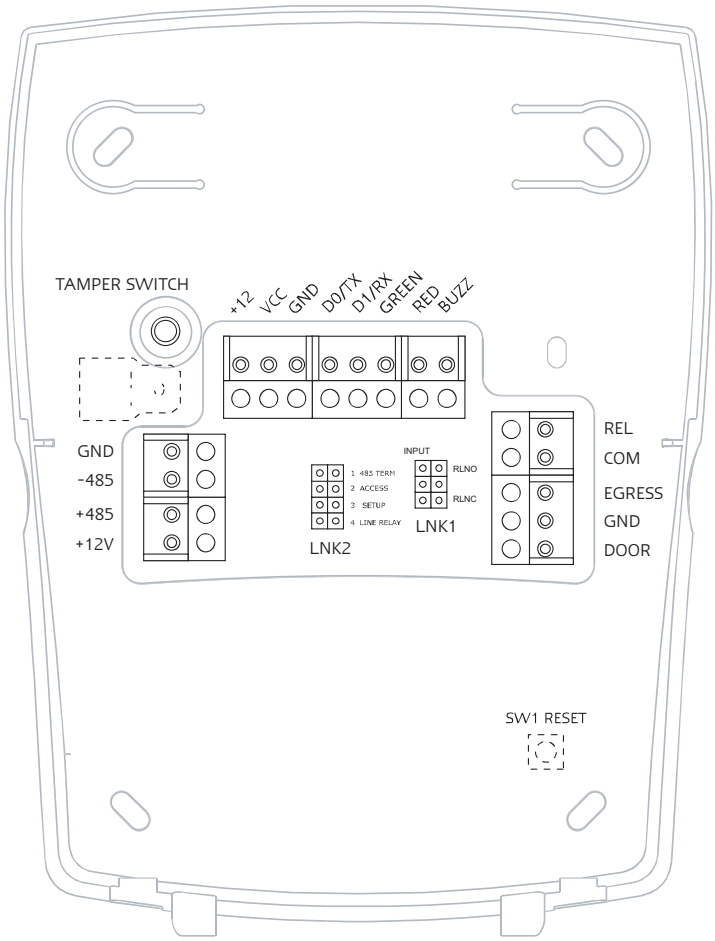
1062 Terminals	**Output Number**
J3, Pin 6 (Green)	1
J3, Pin 7 (Red)	2
J4, Pin 1. Set Pin 1 in LNK1 for normally open	3
J3, Pin 8	4

Technical Specification

Table 7:

Enclosure	**ABS**
Dimensions	**140mm x 115mm x 30mm**
Weight	**400g**
Environment	**0-50°C, 20-85% +/- 5% relative humidity (non-condensing) at 30°C**
Power	**Typically 151 mA, 12-15V DC** **The 1062 will draw a maximum of 350 mA momentarily, if all Area LEDs and backlight LEDs are enabled.**
Display	**Backlit LCD, 16 alphanumeric characters x 2 lines**
Keys	**20 backlit**
LEDs	**8 x tri-color (red, amber, green)**
Inputs	**2 x end-of-line monitored, Egress Button and Door Contacts.** **2 x non end-of-line monitored, D0 and D1. (1062-001 only)**
Outputs	**Door Strike O/P Relay (NO or NC).** **3 x Open Collector O/P, Accept and Denied LEDs and External Buzzer. (1062-001 only)**
Communication Port	**RS485 communication**

Pacom Keypad 1062
Quick Install



LNK 2

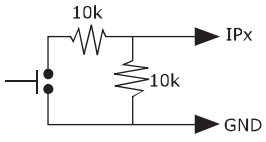
RS485 terminated	Pin 1	RS485 NOT terminated
Access control mode	Pin 2	Alarm mode
Shorted to enter Setup mode	Pin 3	Normal operation
Bypass relay	Pin 4	Normal operation

LNK 1

	Pin 1	Pin 2
D0, D1 normal inputs for card reader		Relay = normaly open
D0=Tx, D1=Rx for Inovonics		Relay = normaly closed

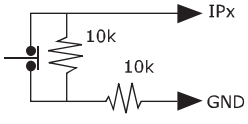
Inputs D0 and D1 are not end-of-line monitored.

Egress button, Door contact and Input wiring



(Supervised N/O)

Secure = 10 kOhms
Alarm = 5 kOhms



(Supervised N/C)

Secure = 10 kOhms
Alarm = 20 kOhms

Addressing

1. Short the pin 3 of LNK2 momentarily.
2. Press the key corresponding to Select.
3. Use the numeric keys to enter an address for the unit.
4. Press DEL/ESC button to return to the main menu.
5. Press the "QUIT" key.
6. Press Yes.

800 050 004 June, 2008 Version 2.0

Pacom Card Reader Interface 1064

In This Chapter **13**

- Installation Guidelines
- Third-Party Connections

The Pacom 1064 acts as the local interface for many different card reader devices. For instance, it supports most Wiegand and Magstripe readers. It also supports Wiegand cards up to 64 bits (Data 1/Data 0), clock/data and clock/strobe magnetic stripe formats.

Others readers supported include, HID/Sensor insertion card reader, HID Proximity reader with or without a pinpad, HID Key reader, PAC proximity reader, BCD pinpad.

Reverse read support for magstripe track 2 card readers.

Its other functions are as following:

Inputs and outputs - 4 on-board supervised alarm inputs (Door Status, Request-to-Exit, 2 auxiliary). Strike control relay output.

Buzzer - On-board sonalert (for local alarm annunciation).

Status - Control of the card reader LED to indicate online/ offline status of the unit.

Storage - Intelligent offline mode enabling storage of last 256 valid cards and/or 256 facility codes.

Alternatively, the 1064 can function as a I/O card when connected to a Pacom controller. It can support up to six inputs and four outputs.

This chapter is written for following 1064 models:

- 1064R-002-UL (USA Only)
- 1064R-003 (All except USA)

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

- EN55022 Class A
- EN50130-4
- AS/NZS 3548 Class A: Subject to the following condition:
  - To comply with EMC requirements when the 1057 is housed in the Small or Large Universal Enclosure, all RS485 cable shielding must be terminated to the chassis earth of the 1057 PCB. A small screw is provided in the vicinity of the RS485 connections for this purpose.

NOTE:Transorbs for inputs and outputs are  . For inputs or outputs with no transorbs  , wiring cannot exceed 20 feet.

UL Compliance Considerations for USA & Canada

For inputs and outputs without transorbs, wiring cannot exceed 20 feet.

Emission Approvals

To comply with class A requirements when the 1064 is connected to a 1057/1058 RTU, the 1057 and the 1058 will require the following modifications:

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the AC terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240W impedance @ 100MHz.)
- An earth ground connection must be attached to the chassis along with a ground connection between the AC power connector and the chassis.

13.1.Installation Guidelines

1. Screw the 4 metal standoffs to the enclosure. Use M3 size screws to screw the 1064 in place in the standoffs.
2. Set the device address. Use the address links.
3. Wire tamper to input 4.

NOTE When configuring in GMS, in Card Access Configuration flag the Report Tamper option.

4. For protection against voltage surges, connect earth ground to earth lug CN1.
5. Wire inputs and outputs as required.
6. Connect the RS485 device line. Determine whether the unit will be the first or last device on the device line and accordingly position the link 2.

13.2.Third-Party Connections

Inputs 3, 4, 5 and 6 are fitted with onboard pull-up resistors for defined state alarm monitoring. These four inputs must be changed to pull down resistors to allow connection of third-party connections. To achieve this eight solder links (two links per input) are provided on the underside of the PCB. The onboard resistors are only in the circuit if the links are shorted.

The default of these solder links is all four inputs in the pull-up state. These links are default shorted by PCB tracks and will need to be cut prior to any soldering of the pull-down links.

WARNING! Incorrect connection of devices may cause damage to the device and the 1064.

13.2.1. Connecting to Wiegand Reader

Table 1:

1064 Terminal	Wiegand Reader Terminal
J3, Pin 2 (+5)	5VDC (Power Supply)
J3, Pin 2 (+12)	12VDC (Power Supply)
J3, Pin 4 (Data)	D0 Signal
J3, Pin 5 (CLK)	D1 Signal
J3, Pin 3 (GND)	Ground
1064 Links	Located on underside of PCB
LKU5	Short (default)
LKD5	Open (default)
LKU6	Short (default)
LKD6	Open (default)

NOTE Wiegand readers could require +5VDC or +12VDC for correct operation. Consult the appropriate Wiegand card reader installation manual.

13.2.2. Connecting to Magstripe Track 1/2/3

Table 2:

1064 Terminal	**Magstripe Track 1/2/3 Terminals**
J3, Pin 2 (+5)	5VDC (Power Supply)
J3, Pin 4 (Data)	DATA Signal
J3, Pin 5 (CLK)	CLOCK Signal
J3, Pin 3 (GND)	Ground
1064 Links	Located on underside of PCB
LKU5 (Pull-up)	Short (default)
LKD5 (Pull-down)	Open (default)
LKU6 (Pull-up)	Short (default)
LKD6 (Pull-down)	Open (default)

I/O Connections

Table 3:

1064 Terminals	**Input / Output Connections**
J3, Pin 6 (Green LED)	Accept LED Cathode
J3, Pin 2 (+5)	Accept LED Anode
J3, Pin 7 (Red LED)	Denied LED Cathode
J3, Pin 2 (+5)	Denied LED Anode
J4, Pin 1 (COM)	Strike Relay Common
J4, Pin 2 (NC)	Strike Relay Normally Closed
J4, Pin 3 (NO)	Strike Relay Normally Open
J1, Pin 1 (DOOR)	Door contact input (10 kΩ terminated)
J1, Pin 2 (GND)	Ground
J1, Pin 3 (EGRS)	Egress input (10 kΩ terminated)

13.2.3. Connection via Mosler interface board (8117500A)

Table 4:

1064 Terminals	Mosler interface board(8117500A) Terminals
J3, Pin 1 (+12)	12VDC (Power Supply) (TB2-5)
J3, Pin 4 (Data)	DATA Signal (TB2-2)
J3, Pin 5 (CLK)	CLOCK Signal (TB2-1)
J3, Pin 3 (GND)	Ground (TB2-6)
1064 Links	Located on underside of PCB
LKU5	Short (default)
LKD5	Open (default)
LKU6	Short (default)
LKD6	Open (default)

Magstripe Track Ancillary Device Connection

Table 5:

1064 Terminals	Input / Output Connections
J3, Pin 6 (Green LED)	Accept LED (TB2-8)
J3, Pin 7 (Red LED)	Denied LED (TB2-7)
J4, Pin 1 (COM)	Strike Relay Common
J4, Pin 2 (NC)	Strike Relay Normally Closed
J4, Pin 3 (NO)	Strike Relay Normally Open
J1, Pin 1 (DOOR)	Door contact input (10 KΩ terminated)
J1, Pin 2 (GND)	Ground
J1, Pin 3 (EGRS)	Egress input (10 KΩ terminated)

13.2.4. Connecting to Binary Keypad

Table 6:

1064 Terminals	Input / Output Connections
J3, Pin 6 (Green LED)	Accept LED Cathode
J3, Pin 2 (+5)	Accept LED Anode*
J3, Pin 7 (Red LED)	Denied LED Cathode
J3, Pin 2 (+5)	Denied LED Anode*
J4, Pin 1 (COM)	Strike Relay Common
J4, Pin 2 (NC)	Strike Relay Normally Closed
J4, Pin 3 (NO)	Strike Relay Normally Open
J1, Pin 1 (DOOR)	Door contact input (10 KΩ terminated)
J1, Pin 2 (GND)	Ground
J1, Pin 3 (EGRS)	Egress input (10 KΩ terminated)
	* May not apply to some readers for correct LED operation

Binary Keypad Ancillary Device Connection

Table 7:

1064 Terminals	Binary Keypad Terminals
J3, Pin 2 (+5)	'+' (Power Supply)
J3, Pin 3 (GND)	'-' (Ground)
J3, Pin 5 (IN6)	'D' (MSB of Binary Data)
J3, Pin 4 (IN5)	'C'
J1, Pin 6 (IN4)	'B'
J1, Pin 4 (IN3)	'A'
1064 Links	Located on underside of PCB
LKU3	Open
LKD3	Short
LKU4	Open
LKD4	Short
LKU5	Open
LKD5	Short
LKU6	Open
LKD6	Short

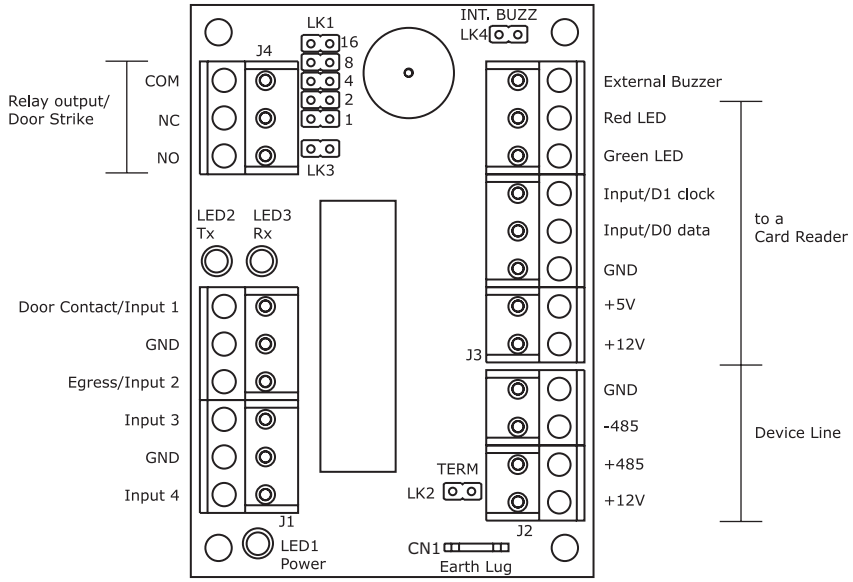
Table 8:

1064	Input / Output Connections
J3, Pin 6 (Green LED)	Accept LED Cathode
J3, Pin 2 (+5)	Accept LED Anode
J3, Pin 7 (Red LED)	Denied LED Cathode
J3, Pin 2 (+5)	Denied LED Anode
J4, Pin 1 (COM)	Strike Relay Common
J4, Pin 2 (NC)	Strike Relay Normally Closed
J4, Pin 3 (NO)	Strike Relay Normally Open
J1, Pin 1 (DOOR)	Door contact input (10K terminated)
J1, Pin 2 (GND)	Ground
J1, Pin 3 (EGRS)	Egress input (10K terminated)

Table 9:

Dimensions	**76.2mm (3.0”) x 59mm (2-1/3”).**
Weight:	**136.1 grams (4.8 oz.)**
Environment	**0-50°C, 20-85% +/- 5% relative humidity (non-condensing) at 30°C**
Power	**Typically 35mA @ 12VDC with no devices attached.**
Alarm inputs	**Four supervised, two additional unsupervised in I/O mode. All supervised inputs can be configured as analogue inputs**
Output points	**One onboard relay (1.0A @ 30 VDC contacts).**
	One onboard sounder and/or open collector output.
	Two open collector outputs.
Communication	**Two wire RS-485.**
Options	**I/O mode (provides six inputs and four outputs).**
Processor Chip	**The processor I/C is removable to allow for quick software upgrades.**

Pacom Card Reader Interface 1064
Quick Install



Link1 - Address Link

0=Open 1=Short

Short - Terminated

Open - Not Terminated

Address	Pins 16 8 4 2 1	Address	Pins 16 8 4 2 1
1	0 0 0 0 0	17	1 0 0 0 0
2	0 0 0 0 1	18	1 0 0 0 1
3	0 0 0 1 0	19	1 0 0 1 0
4	0 0 0 1 1	20	1 0 0 1 1
5	0 0 1 0 0	21	1 0 1 0 0
6	0 0 1 0 1	22	1 0 1 0 1
7	0 0 1 1 0	23	1 0 1 1 0
8	0 0 1 1 1	24	1 0 1 1 1
9	0 1 0 0 0	25	1 1 0 0 0
10	0 1 0 0 1	26	1 1 0 0 1
11	0 1 0 1 0	27	1 1 0 1 0
12	0 1 0 1 1	28	1 1 0 1 1
13	0 1 1 0 0	29	1 1 1 0 0
14	0 1 1 0 1	30	1 1 1 0 1
15	0 1 1 1 0	31	1 1 1 1 0
16	0 1 1 1 1	32	1 1 1 1 1

Communication Links

LK2

Terminated

Not Terminated

Operational Link

LK3

Card access mode

Input/Output mode

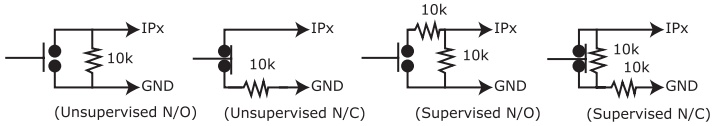
Internal Buzzer Link

LK4

Enabled on output 4

Disabled

Input Wiring



Pacom I/O 1065

15

In This Chapter

- Installation Guidelines
- Devices that Require More Current
- Consideration while Wiring Power

The 1065 I/O is used to modularly expand the alarm input and output points of any Pacom controller. The 1065 communicates via an RS-485 multi-drop device loop hosted by the controller.

It provides connection to 16 supervised alarm inputs and 4 outputs.

The input and output capacity of the 1065 module can be expanded locally by installing up to 2 Pacom mezzanine cards (16-input or 8-output). These mezzanine cards can be mix-n-matched to increase the input/output capacity of one 1065 I/O module to either: 48-inputs & 4-outputs; 32-inputs & 12-outputs or 16-inputs & 20-outputs depending on the configuration.

This chapter is written for following 1065 model revision 11 with I/O functionality.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

This product complies with the following standards and accreditations:

- FCC Part 15 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device must not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.
    - EN61000-3-2
    - EN61000-3-3
- EN55022 Class A
- EN50130-4
- EN61000-4-11
- AS/NZS 3548 Class A
- **AS/NZS 3260** - Subject to the following condition: Unit shall be connected to Telecommunication Network through a line cord which meets the requirements of ACA Technical Standard TS008.
- TS001
- TS002
- PTC200
- TB21
- IE950
- EN60950
- CS03/110901/01
- Part 68/110901/01

UL Compliance Considerations for USA and Canada

NOTE: The Pacom 1065 is intended for use in a dedicated system.

Power supply module

- The unit shall be connected to the protective earth in a manner complying with the above CEC/NEC requirement.
- A 26 AWG line cord shall be used in USA/CAN, in other countries, local approved line cord shall be used.
- The recommended method of connection of this unit is described below

Specification Limitations

The 1065 peripheral devices described in this guide have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions, the 1065 and peripheral device features and specifications were tested within the following limitations and conditions.

- The 1065 was tested to 50° C and 85% +/- 5% R.H
- The total power consumed by the 1065 was tested to 1A.
- The 1030-007 dual output relay cards were tested to a rating of 1 A @ 30 V DC.
- The 1050-003 8 output mezzanine cards were tested to a rating of 1 A @ 30 V DC.
- Any cable attached to the network port of the 1065 cannot exceed 20 feet.

Input/Output Cabling Requirements

To comply with UL requirements, if cabling for inputs on the 1050-004 Input Mezzanine Card exceeds 20 feet, a 1050-018 transient board is required. Inputs are wired into the 1050-018. The 1050-018 is mounted on the 1050-004, which in turn is connected to the 1065 RTU in one of the mezzanine slots.
To comply with UL requirements, if cabling for outputs on the 1050-003 Output Mezzanine Card exceeds 20 feet, a 1050-019 transient board is required. Outputs are wired into the 1050-019. The 1050-019 is mounted on the 1050-003, which in turn is connected to the 1065 RTU in one of the mezzanine slots.

Emission Approvals

- If an RS485 star coupler mezzanine card 1057-203 is used with the 1058, All cables used must be shielded and a Ferrite with 1 turn must be positioned around all RS485 Cabling. (Ferrite Details: Fair-Rite #0444173551, or similar. 195W impedance @ 100MHz).
- If a 1062 Keypad is connected a Ferrite with 1 turn must be positioned around all unshielded cabling connected to terminals J3 and positioned 2cm from the 1062. (Ferrite Details: Fair-Rite #0444164281, or similar. 260W impedance @ 100MHz).

15.1.Installation Guidelines

1. Screw the 4 metal standoffs to the enclosure. The unit can be wall shelf or cabinet mounted inside an enclosure. Use M3 size screws to screw the unit in place in the standoffs.
2. Remove the connectors from CN1, CN2, CN3 and CN4 so that you can read the labelling beneath.
3. Set the device address. Use the address links (SW2).
4. Wire tamper to LNK5 (if required).
5. For protection against voltage surges, connect earth ground to earth lug CN1.
6. Determine input and output requirement. Mount the required mezzanine card for the configuration needed.
7. Wire inputs and outputs on-board and mezzanine card.
8. Connect the RS485 device line. Determine whether the unit will be the first or last device on the device line and accordingly position the LNK3.

Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line. *For instructions, refer Hardware Configuration manual.*

15.2.Devices that Require More Current

The transistor controlled outputs on the 1065 can also be connected to a Pacom 1030/007 dual output relay card. The output relay card is used to provide for output devices that require more than 12V DC, or for 12V DC devices that require more current than the 1065 can supply. In either case an external power supply is required.

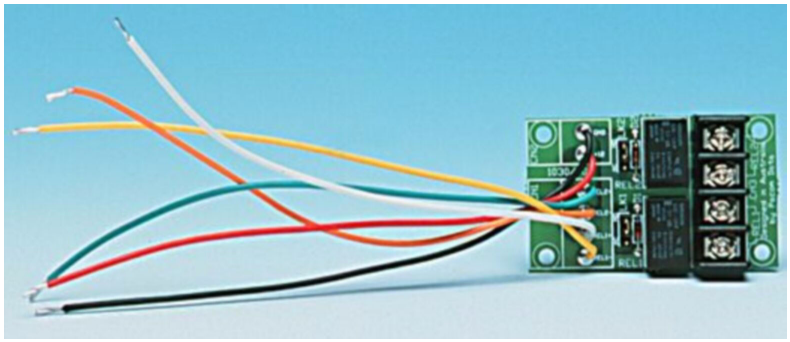


Table 1:

1030-007 Terminals	1065 Terminals
REL1-	OUTB3
GND	any GND on 1065 PCB
REL2-	OUTB4

15.3.Consideration while Wiring Power

Power for the 1065 16 I/O can be supplied from the controller or from an external power supply. However Pacom controllers are limited in the amount of current they can supply to external devices and in most cases it will be necessary to connect the 1065 to its own power supply.

At 12 VDC:

- A Pacom 1058 RTU can supply up to **740mA**.

- A Pacom 1057 RTU can supply up to **2A**.

The power requirements of each 1065 16 I/O module are as follows.

- The 1065 PCB requires **100mA.**
- Mezzanine cards require **120mA** each.
- Dual-output relay cards require **20mA** each.
- 4 Outputs @ **200mA** each (when powered from RTU).

If a 1065 16 I/O has two mezzanine cards, and is using all 4 onboard outputs, it will require a total of 1.14 A. In case the 1065 is connect to a 1058 it will require its own power supply. If however it connects to the 1057 controller, the controller can service the requirement. But consider that the 1057 can supply 2A, which leaves only be 860 mA for other devices on the RS485 line. Unless there are only a few devices in the line, it is recommended to install a separate power supply for the 1065.

If the voltage or amperage requirements of any input/output device exceed that which the 1065 can provide, an external power supply must be installed for that device. If the external power supply is 12V DC, it can be wired into the CN8 power connector on the 1065 so as to provide power to the 1065 as well as a terminal connector from which input/output devices can take their power.

Table 2:

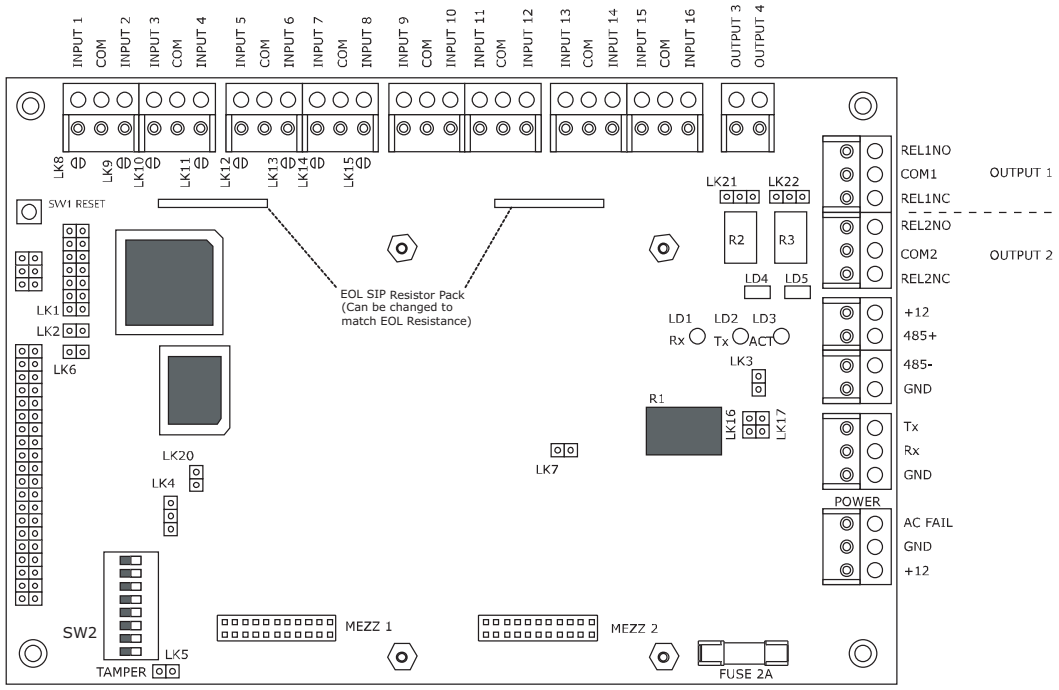
PCB Dimensions	**272 mm x 160 mm**
PCB Weight	**175 g**
Operating Environment	**0-50° C (32-122°F), 20-85% +/- 5% relative humidity (non condensing) at 30°C**
Power Input	**12-15 VDC, (Can be supplied from RTU or external power supply).**
Power Consumption	**100mA @ 12 VDC**
Inputs	**16 end of line monitored inputs with SIP Resistor packs for matching EOL resistors with values down to 3 kΩ. Default resistor packs of 10kΩ included.** **All inputs can be configured as analogue inputs**
Outputs	**2 Relay controlled outputs** ▪ 12V DC 1A max each when powered from External power supply. **2 Open-Emitter Transistor controlled outputs** ▪ 12V DC 200mA max each when powered from RTU.
Mezzanine Card slots	**2 x 24 pin**

Pacom I/O 1065
Quick Install

SW2 - Address switch

Address	Switch
	5 4 3 2 1
1	0 0 0 0 0
2	0 0 0 0 1
3	0 0 0 1 0
4	0 0 0 1 1
5	0 0 1 0 0
6	0 0 1 0 1
7	0 0 1 1 0
8	0 0 1 1 1
9	0 1 0 0 0
10	0 1 0 0 1
11	0 1 0 1 0
12	0 1 0 1 1
13	0 1 1 0 0
14	0 1 1 0 1
15	0 1 1 1 0
16	0 1 1 1 1
17	1 0 0 0 0
18	1 0 0 0 1
19	1 0 0 1 0
20	1 0 0 1 1
21	1 0 1 0 0
22	1 0 1 0 1
23	1 0 1 1 0
24	1 0 1 1 1
25	1 1 0 0 0
26	1 1 0 0 1
27	1 1 0 1 0
28	1 1 0 1 1
29	1 1 1 0 0
30	1 1 1 0 1
31	1 1 1 1 0
32	1 1 1 1 1

0=Off 1=On



Switches on SW2

6: ON - debounce count high
OFF - debounce count low
7: Not used-OFF at all times
8: On to reset to Factory Defaults

LEDs

LD1- RED - RS485 receiving data
LD2 - RED - RS485 transmitting data
LD3 - RED - Power supplied to the unit
LD4 - RED - Output 2 active
LD5 - RED - Output 1 active

Communications Links

RS485 Not terminated — LNK3 — RS485 Terminated

Unit disconnects if RS485 line unstable (reconnects every 30 sec) — LNK7 — Unit stays connected

No power through RS485 port to devices — LNK23 — Power to devices from RS485 port

RS485+ pull up — LNK16 — RS485- pull down — LNK17

RS232 from mezz card — LNK4 — RS232 from RS232 port

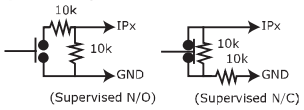
Miscellaneous Links

I/O operation	LNK1 (all 7 links)
EEPROM=4MB	LNK2
Tamper connected	LNK5 — Tamper NOT connected
AC fail pull up	LNK18
AC fail pull down	LNK19
Transmit control	LNK20
Output 1 Control	LNK21
Output 2 Control	LNK22

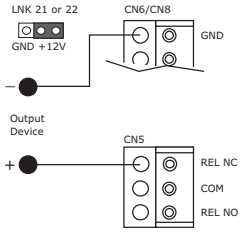
Camera Wiring

Ouput	Corresponding Input	Solder Links
01 (Camera On)	1 (film count), 2 (film out)	LK8 and LK9
02 (Camera On)	3 (film count), 4 (film out)	LK10 and LK11
03 (Camera On)	5 (film count), 6 (film out)	LK12 and LK13
04 (Camera On)	7 (film count), 8 (film out)	LK14 and LK15

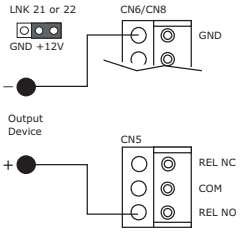
Input Wiring



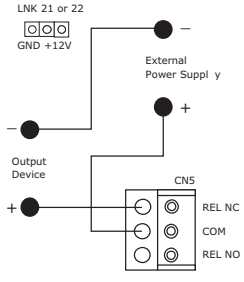
Relay Output Wiring



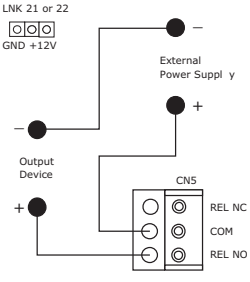
Normally Open with on-board power



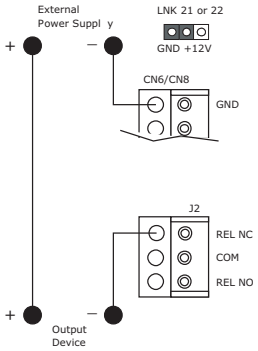
Normally Closed with on-board power



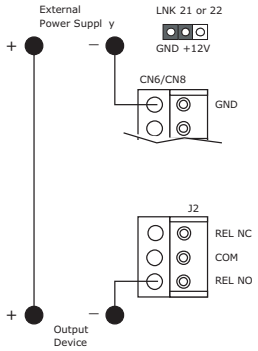
Normally Open with power supply



Normally Closed with power supply



Normally Open with power supply (common GND to 1065)



Normally Closed with power supply (common GND to 1065)

Pacom Elevator Controller Card 1065

17

In This Chapter

- Installation Guidelines

The Elevator Controller (1065EC) connects to a Pacom controller via RS485 and is used to control access to the floors serviced by an elevator. A card reader is positioned in the elevator car and upon receipt of a valid card, the floors authorized for that card holder are enabled.

When connected to a controller, each 1065EC can control access to up to 16 consecutively numbered floors. If the Elevator services floor 1 and floors 20-30 although it is less than 16 floors it may require two 1065EC's.

A 1058 can control access in up to 2 elevators whereas a 1057 can control up to 16 elevators (each with a maximum of 128 floors per elevator).

This chapter is written for following 1065 model revision 11 with EC functionality.

17.1.Installation Guidelines

17.1.1. Addressing

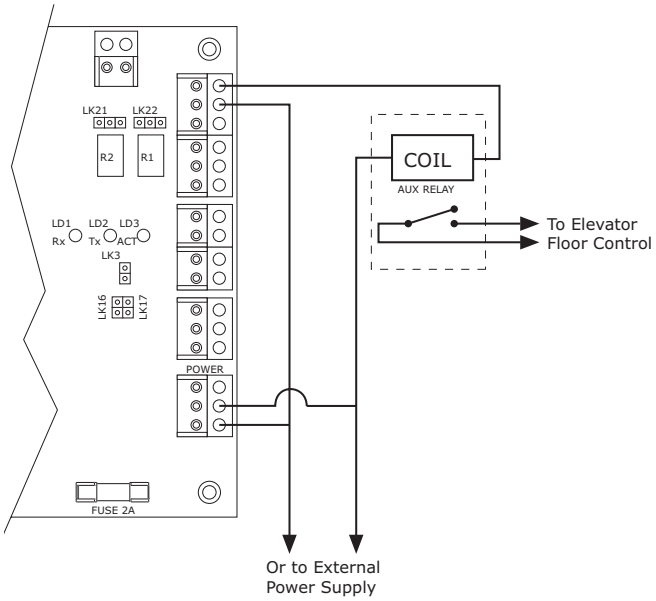
To set the address of the 1065 EC, use SW2 and set as shown below:

SW2 - Address switch

Address	Switch
	5 4 3 2 1
1	0 0 0 0 0
2	0 0 0 0 1
3	0 0 0 1 0
4	0 0 0 1 1
5	0 0 1 0 0
6	0 0 1 0 1
7	0 0 1 1 0
8	0 0 1 1 1
9	0 1 0 0 0
10	0 1 0 0 1
11	0 1 0 1 0
12	0 1 0 1 1
13	0 1 1 0 0
14	0 1 1 0 1
15	0 1 1 1 0
16	0 1 1 1 1
17	1 0 0 0 0
18	1 0 0 0 1
19	1 0 0 1 0
20	1 0 0 1 1
21	1 0 1 0 0
22	1 0 1 0 1
23	1 0 1 1 0
24	1 0 1 1 1
25	1 1 0 0 0
26	1 1 0 0 1
27	1 1 0 1 0
28	1 1 0 1 1
29	1 1 1 0 0
30	1 1 1 0 1
31	1 1 1 1 0
32	1 1 1 1 1

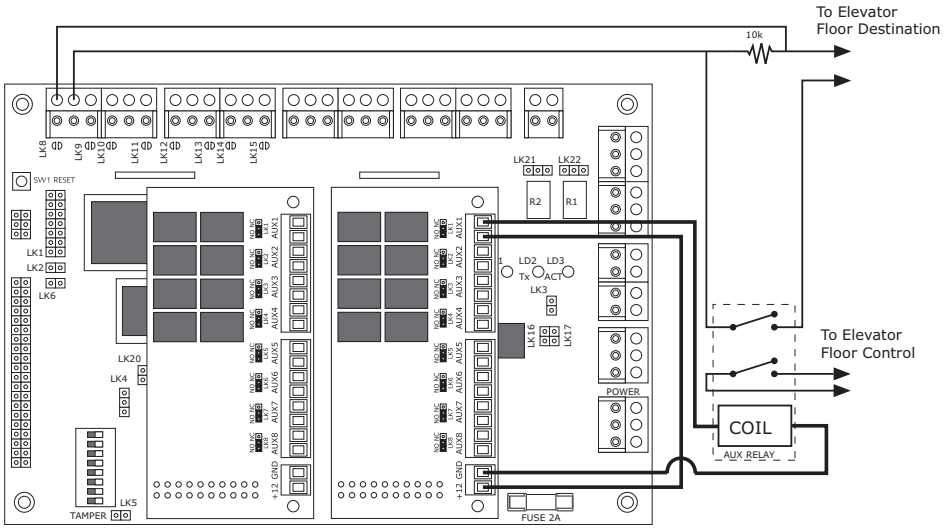
0=Off 1=On

17.1.2. Floor Control



The normally open contacts of an auxiliary relay (1 for each floor) are wired into the push button circuit for each floor. The floor button will only be enabled when the auxiliary relay is energized. The output of the 1050-003 is used to activate the auxiliary relay.

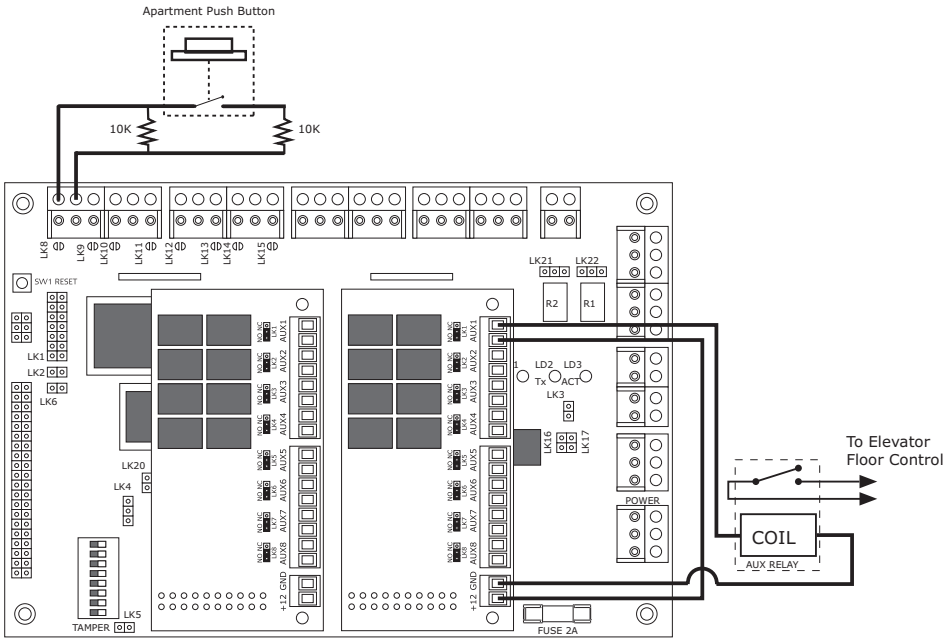
17.1.3. Floor Destination Monitoring



Each floor button must also be monitored. So use 2 relays per floor, one to monitor the floor button and one DPDT to enable the floor button and the floor button relay.

The normal state of the alarm inputs must be reset (10kW) and go into alarm when the button is pushed. The input has to be shorted or read 5kW (50% of SIP pack resistance) for an alarm. It can not go open when the button is pushed.

17.1.4. Apartment Floor Selection



The normally open contacts of an auxiliary relay (1 for each floor) are wired into the push button circuit for each floor. The floor button will only be enabled when the auxiliary relay is energized. The output of a 1050-003 is used to activate the auxiliary relay. The floors can also be enabled by a remote egress button (or any system trigger). This remote egress button can be connected to the 1065EC or any other input in the system (requires macro if not connected to 1065EC).

Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line.

Pacom Two Door Controller 1067

In This Chapter **18**

- Installation Guidelines
- Third-Party Connections
- In/Out Reader Wiring
- Connecting the Spare Outputs as GPOs

The Pacom 1067 intelligent two door controller acts as the local interface for a variety of card reader devices. It can support up to two card readers and their ancillary devices, such as accept and denied LEDs, buzzers, door shunt, strike and egress signals.

It also has 4 spare outputs (2 relay and 2 open collector) that can be configured as General Purpose Outputs (GPOs). GPOs are used in the alarm configuration and can be activated by any input or trigger in the system.

The two reader interfaces on the 1067 operate independently, i.e. two readers connected to the same 1067 do not have to be the same type (unless they are PAC Proximity readers).

Most Wiegand and Magstripe readers are supported by the 1067. The 1067 also supports the following readers: HID/ Sensor insertion card reader, HID Proximity reader with or without a pinpad, HID Key reader, Magstripe track 2 reader with or without the Mosler interface card (8117500A), Magstripe track 2 reader with a Wiegand output interface, PAC proximity reader, BCD pinpad, Securitas card reader.

This chapter is written for 1067 revision 02.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.
  - EN55022 Class A
  - EN50130-4
  - AS/NZS 3548 Class A

Emission Approvals

To comply with class A requirements when the 1067 is connected to a 1057 RTU, the 1057 will require the following modifications:

- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn positioned close to the J18 terminal on the AC input Cable. (Ferrite Details: Fair-Rite #0431167281, or similar. 240W impedance @ 100MHz.)
- A ground connection must be added between the J18 power connector and the chassis.

18.1. Installation Guidelines

1. If using the stand-alone 1067. Screw the 4 metal standoffs to the enclosure. Use M3 size screws to screw the unit in place in the standoffs.

   If the 1067 plugs into a back plane, do the following steps first and then slide it into the plane while ensuring the pins on the unit match up to plug on plane.
2. Remove the connectors from J1, J2, J3, J4, J5, J8, J9, J10, J11 and J12 so that you can read the labelling beneath.
3. Set the device address. Use the address links (SW1).
4. Wire tamper to LNK7.
5. Wire inputs and outputs as required.
6. Connect the RS485 device line. Determine whether the unit will be the first or last device on the device line and accordingly position the LNK10.

Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line. *For instructions, refer Hardware Configuration manual.*

18.2.Third-Party Connections

18.2.1. Connecting to Magstripe Track 1/2/3

Table 1:

Reader A		Reader B		Magstripe Track 1/2/3
J5	**J6**	**J12**	**J6**	
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	5VDC (Power supply)
Pin 4	Pin 17	Pin 4	Pin 18	Data Signal
Pin 5	Pin 19	Pin 5	Pin 20	Clock Signal
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground

Solder links: Default configuration, all LKU Short, all LKD open.

Magstripe Track 1/2/3 I/O Connections

Table 2:

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Accept LED Anode (+)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Denied LED Anode (+)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door contact input (10Ω terminated)
Pin 2	37, 38, 39 or 40	Pin 2	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress input (10Ω terminated)

18.2.2. Connection via Mosler interface board (8117500A)

Table 3:

Reader A		**Reader B**		**Mosler interface board (8117500A)**
J5	**J6**	**J12**	**J6**	
Pin 1	33, 34, 35 or 36	Pin 1	33, 34, 35 or 36	12VDC (Power supply) (TB2-5)
Pin 4	Pin 17	Pin 4	Pin 18	Data Signal (TB2-2)
Pin 5	Pin 19	Pin 5	Pin 20	Clock Signal (TB2-1)
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground (TB2-6)

Solder links: Default configuration, all LKU Short, all LKD open.

Magstripe Track Ancillary Device Connection

Table 4:

Reader A		**Reader B**		**Input/Output Connections**
J5	**J6**	**J12**	**J6**	
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-) (TB2-8)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Accept LED Anode (+)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-) (TB2-7)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Denied LED Anode (+)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close

18.2.3. Connecting to Wiegand Reader

Table 5:

Reader A		Reader B		Wiegand Reader
J5	**J6**	**J12**	**J6**	
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	5VDC (Power supply)
Pin 1	33, 34, 35 or 36	Pin 1	33, 34, 35 or 36	12VDC (Power supply)
Pin 4	Pin 17	Pin 4	Pin 18	D0 Signal
Pin 5	Pin 19	Pin 5	Pin 20	D1 Signal
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground (TB2-6)

Solder links: Default configuration, all LKU Short, all LKD open.

NOTE Wiegand readers could require +5VDC or +12VDC for correct operation. Consult the appropriate Wiegand card reader installation manual.

Wiegand Reader Ancillary Device Connection

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	May not apply to some readers for correct LED operation.
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Accept LED Anode (+)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Denied LED Anode (+)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door contact input (10Ω terminated)
Pin 2	37, 38, 39 or 40	Pin 5	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress input (10Ω terminated)

18.2.4. Connecting to Binary Keypad

Reader A		**Reader B**		**Binary Keypad**
J5	**J6**	**J12**	**J6**	
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	+ (Power supply)
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	- (Ground)
Pin 4	Pin 17	Pin 4	Pin 18	C
Pin 5	Pin 19	Pin 5	Pin 20	D (MSB of binary data)
J5	**J6**	**J9**	**J6**	
Pin 6	Pin 7	Pin 6	Pin 8	B
Pin 4	Pin 5	Pin 4	Pin 6	A

Table 6:

Solder Links			
LKU 1	Open	LKU3	Open
J5	**J6**	**J12**	**J6**
LKD1	Short	LKD3	Short
LKU2	Open	LKU4	Open
LKD2	Short	LKD4	Short
LKU7	Open	LKU11	Open
LKD7	Short	LKD11	Short
LKU8	Open	LKU12	Open
LKD8	Short	LKD12	Short

Binary Keypad Ancillary Device Connection

Table 7:

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	May not apply to some readers for correct LED operation.
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Accept LED Anode (+)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-)
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	Denied LED Anode (+)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door contact input (10Ω terminated)
Pin 2	37, 38, 39 or 40	Pin 5	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress input (10Ω terminated)

18.2.5. Connection to Securitas Reader

Table 8:

Reader A		Reader B		Securitas Reader
J5	**J6**	**J12**	**J6**	
Pin 1	33, 34, 35 or 36	Pin 1	33, 34, 35 or 36	+V
Pin 4	Pin 17	Pin 4	Pin 18	Tx-
Pin 6	Pin 21	Pin 6	Pin 22	Rx+
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	0V
				Rx- short to 0V 390Ω between Rx+ and 0V

Solder links: Default configuration, all LKU Short, all LKD open.

NOTE A 390Ω 5% 1/4W resistor is required on the 1067 between pins 2 and 6 of:

- J5 for Reader A
- J12 for Reader B

18.3.In/Out Reader Wiring

In/Out readers are used to keep track of the number and or the location of personnel within a site. The hardware is installed so that a card reader and/or keypad is positioned on either side of doors in sensitive areas.

For readers to work together on a single door they are required to be set up in a master-slave arrangement so that the two normally independent interfaces of the 1067 can operate together. The door strike and door contacts are connected to the master interface and the master will activate the door strike on a valid card read from itself or the slave.

When connecting card readers for in/out operation to the 1067 the following configuration requirements must be considered:

- The card readers used for Master and Slave on a single door must have consecutive reader numbers but do not necessarily have to be connected to the same 1067. However this is usually the most simple and logical wiring option.
- Either interface can be Master or Slave.
- Area 1 is reserved for outside or a public area. Time In Attendance (TIA) entries are not generated for area 1.
- GMS requires information regarding the **Area No.** (Area where the reader is) and the **Area No. Entering** (Area that the door leads to) these fields in GMS must be configured correctly for both readers. When Installing several In/Out readers in a site, it is recommended that a simple drawing be created with the positions of the readers and the area numbers. this greatly simplifies the entry of these parameters.
- Although the Door is controlled by the master the Shunt and strike times from the slave are used when the slave reader is used to access the door.
- The in/out transaction is not validated until the door is opened and then closed to signify that the card holder has proceeded through the door. If the door contacts are not monitored then the Shunt Time in GMS on both readers must be set to 0.

18.4.Connecting the Spare Outputs as GPOs

The 1067 has 4 spare outputs (2 Relay and 2 Open collector) that can be configured as General Purpose Outputs (GPOs) GPOs are used in the alarm configuration and can be activated by any input or trigger in the system. The Relay Outputs can be connected with power Supplied from the 1067 or from an external supply and can be +ve or -ve switching. The open collector outputs provide a ground when triggered, +12 V is supplied from any convenient or unused +12V terminal on the PCB. Once connected the outputs will require configuration via GMS software. For configuration procedures, please refer to the *Hardware Configuration Guide*.

Technical Specification

Table 9:

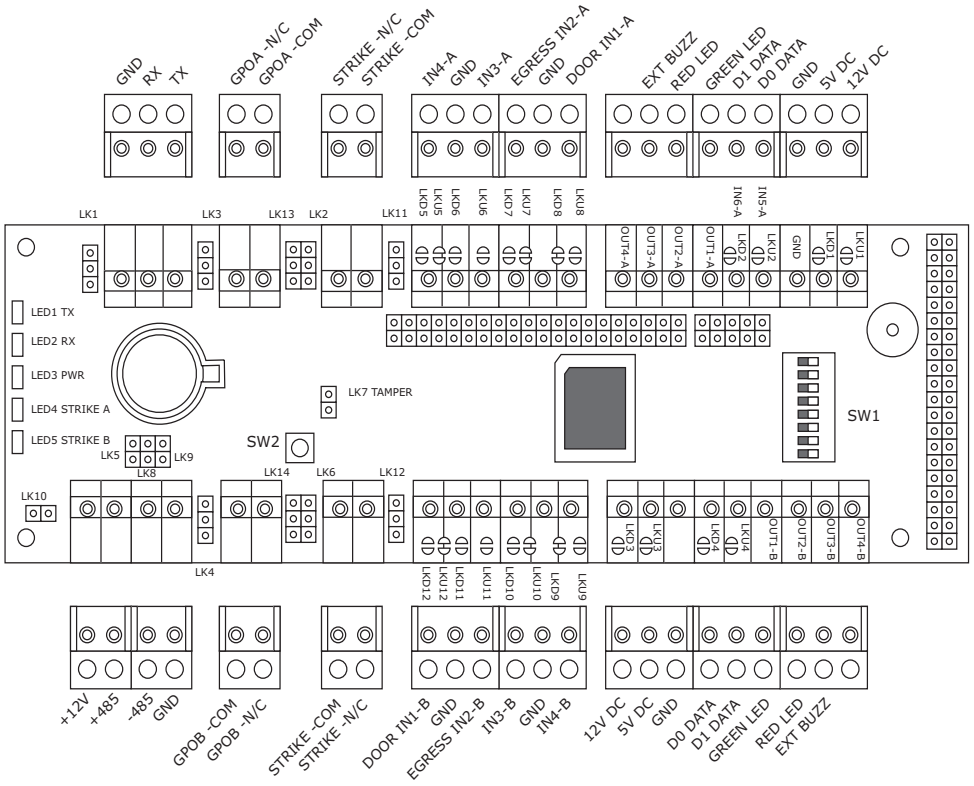
Dimensions		**165mm (6-2/5) x 55mm (2-1/8)**
Weight:		**136.1 grams (4.8 oz.)**
Environment		**0° - 70° C (32° - 158° F)**
Power		**Typically 66mA @ 12VDC with no devices attached**
Card Reader Interfaces		**2**
Alarm inputs		**Both interfaces have the following inputs:**
	1	**Door Contact input**
	2	**Egress input**
	3	**Strike Contact / Spare input 1**
	4	**Spare input 2**
	5	**D0 Data / Spare input 3**
	6	**D1 Clock / Spare Input 4**
Output points		**Both interfaces have the following outputs:**
	1	**Green "Accept" LED**
	2	**Red "Denied" LED**
	3	**Buzzer output (open collector)**
	4	**Spare output (open collector)**
	5	**Strike relay (1.0A @ 30VDC)**
	6	**Spare Relay output (1.0A @ 30VDC)**
Communication		**RS-232, RS-485**
LEDs		**TX, Rx, Power, Strike A, Strike B**
Battery		**CR2032 3VDC**
Other Features		**Reset Switch** **Tamper Switch** **Internal Buzzer** **External Buzzer Option** **Spare Outputs can be used as GPOs** **Option to mount PCB in a 2U Subrack with terminations on the backplane (specify when ordering)**

Pacom Two Door Controller 1067
Quick Install

SW2 - Address switch

Address	Switch 5 4 3 2 1
1	0 0 0 0 0
2	0 0 0 0 1
3	0 0 0 1 0
4	0 0 0 1 1
5	0 0 1 0 0
6	0 0 1 0 1
7	0 0 1 1 0
8	0 0 1 1 1
9	0 1 0 0 0
10	0 1 0 0 1
11	0 1 0 1 0
12	0 1 0 1 1
13	0 1 1 0 0
14	0 1 1 0 1
15	0 1 1 1 0
16	0 1 1 1 1
17	1 0 0 0 0
18	1 0 0 0 1
19	1 0 0 1 0
20	1 0 0 1 1
21	1 0 1 0 0
22	1 0 1 0 1
23	1 0 1 1 0
24	1 0 1 1 1
25	1 1 0 0 0
26	1 1 0 0 1
27	1 1 0 1 0
28	1 1 0 1 1
29	1 1 1 0 0
30	1 1 1 0 1
31	1 1 1 1 0
32	1 1 1 1 1

0=Off 1=On



Switches on SW2

6: ON - debounce count high
OFF - debounce count high
7: Not used-OFF at all times
8: On to reset the unit

LEDs

LD1 - RED - RS485 transmitting data
LD2 - GREEN - RS485 receiving data
LD3 - GREEN - Power supplied to the unit
LD4 - GREEN - Strike A active
LD5 - GREEN - Strike B active

Links

TTL from RS232 port — LNK1 — RS232 from RS232 port

RS485+ pull up — LNK5

Tamper connected — LNK7 — Tamper NOT connected

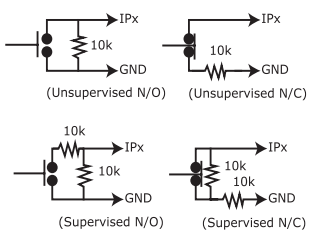
RS485 Not terminated — LNK8 — RS485 Terminated

RS485- pull down — LNK9

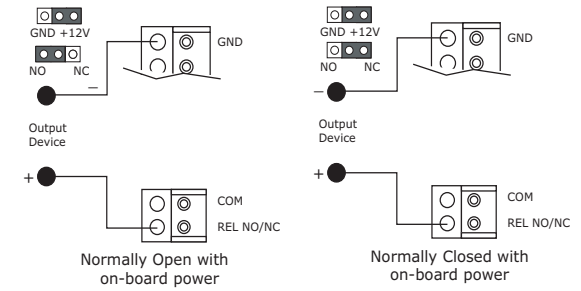
Unit disconnects if RS485 line unstable (reconnects every 30 sec) — LNK10 — Unit stays connected

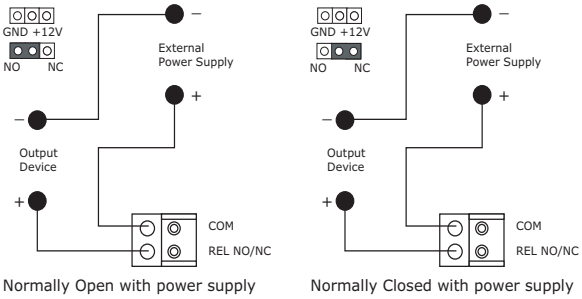
LNK2 - Door Strike A Relay (NO or NC)
LNK3 - GPO A Relay (NO or NC)
LNK4 - GPO B Relay (NO or NC)
LNK6 - Door Strike B Relay (NO or NC)
LNK11 - Door Strike A Relay Common Contact (GND or +12V)
LNK12 - Door Strike B Relay Common Contact (GND or +12V)
LNK13 - GPO A Relay Common Contact (GND or +12V)
LNK14 - GPO B Relay Common Contact (GND or +12V)

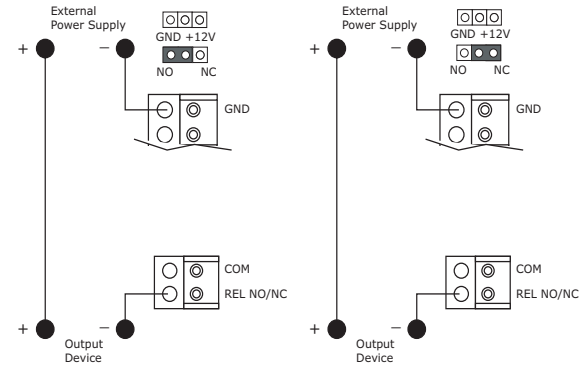
Input Wiring



Relay Output Wiring







Pacom Intelligent End Of Line Card 1068

In This Chapter **20**

- Installation Guidelines
- Connection to a 1065 16 I/O via 1057-203
- Inovonics Wiring

The Pacom 1068 is an Intelligent End Of Line Card that increases the security of remote alarm input devices such as PIRs, door contacts or seismic detectors. It is small enough to be housed inside the casing of most devices and has 2 inputs to allow the monitoring of the device contacts and an additional tamper switch.

The 1068 replaces the standard resistance monitored line to the controller with an RS485 data link which can be encrypted if required. The 1068 is constantly polled by the controller and if a valid response is not received the controller it then sends an alarm to the monitoring system. By connecting sensor devices to the security system in this way the possibility of a device being tampered with or substituted without detection is virtually eliminated.

The 1068 is equipped with a an output relay which can be used to activate an LED, a self test buzzer for a seismic detector or a variety of other purposes as required.

The 1068 can be connected to the system directly to the RS485 line of the controller or through a Pacom 1065 I/0 device via a Pacom 1057-203 RS485 Star Coupler Mezzanine Card.

All devices on a device line require their unique address. If the 1068s are connected to controller's device line each 1068 requires a separate entry. Whereas any 1068s connected (maximum 16) to a 1065 16 I/O are incorporated into a single entry.

This chapter is written for 1068 revision 02.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

- FCC Part 15 Class A
- EN55022 Class A
- EN50130-4
- AS/NZS 3548 Class A

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This Device Must Not Cause Harmful Interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

UL Compliance Considerations for USA and Canada

- The Pacom 1068 is intended for use in a dedicated system.
- The Pacom 1068 inputs and outputs must be installed in the same room as the 1068 PCB.

Specification Limitations

- The 1068 and peripheral devices described in this manual have many features that were not verified during UL testing and several specifications that exceed testing requirements. During UL compliance submissions the 1068 and peripheral device features and specifications were tested within the following limitations and conditions:
- The unit was tested with an input voltage in the range of 12-15 VDC
- The 1068 was tested to 50° C and 85% +/- 5% R.H.
- Typical power consumption is 57 mA at 12-15V DC.

Cabling Requirements

- Input and output wiring cannot exceed 20 feet (RS485 excluded. RS485 connections have transorbs).
- A small section of paint must be removed from the underside of the metal lid where the four mounting posts touch the lid.
- A Ferrite with 1 turn must be positioned around all unshielded cabling connected to 1068 terminals J3 and positioned 2cm from the 1068. (Ferrite Details: Fair-Rite #0444164281, or similar. 260. impedance @ 100MHz).

20.1.Installation Guidelines

1. The 1068 was designed to be small enough to fit inside the enclosure of existing third party sensors (PIRs, Seismic Detectors, etc.). Assess the suitability of the enclosures to house the 1068 prior to installation.
2. Set the device address. Use the address links (LK2).
3. Wire inputs as required. Note that the inputs share a common earth on the unit and must connect with 10kΩ line resistor.
4. Wire outputs as required.
5. Connect the RS485 device line.

   If the unit is connecting on the RS485 device line, determine whether the unit will be the first or last device on the device line and accordingly not/solder the LK1.

   If the unit is on a 1065 via a 1057-203 (star coupler mezzanine card), then determine the 1068's position on the star branch. If it is the first or last device on the branch, terminate by soldering the LK1.

Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line. *For instructions, refer Hardware Configuration manual.*

20.2.Connection to a 1065 16 I/O via 1057-203

NOTE The following configuration has not been verified by UL.

The 1065 I/O can use the 1057-203 (star coupler mezzanine card) to connect to 1068 cards. The following considerations apply:

- Only a 1068 can be wired to a 1065 I/O using the 1057-203.
- The 1068s are wired using a combination of daisy chain and star type connection to a maximum of 16 x 1068 devices.
- Only 1 1057-203 can be used and it must be installed in Mezz Slot 1 (Mezz Slot 2 cannot be used).
- Each 1068 must have a unique device address.
- The sequence of the 1068 device addresses determines the sequence of the input and output numbers in GMS. For example; on the 1068s with addresses 1,2 and 3 the inputs would be numbered 1 through 6 respectively.
- The devices on the end of each loop must have Solder Link 1 Shorted.
- If the onboard inputs and outputs are not completely used, the unused points should be the lowest point numbers. For example; if only 6 of the onboard inputs are used they should be connected sequentially from inputs 11 to 16. If devices are not connected in this way additional device entries will be required to configure each group of sequentially numbered points. For example if the same 6 input devices were connected to onboard inputs 1-3, and 6-8, three device entries would be required. 1 for each group of three inputs plus 1 for the inputs on the 1068s.

20.3.Inovonics Wiring

Inovonics FA400 Wireless receiver can be connected to a Pacom controller through a 1068. Connect wiring to LNK2.

For more information regarding Inovonics, please refer to the *Inovonics Installation Guide*.

Technical Specification

Table 1:

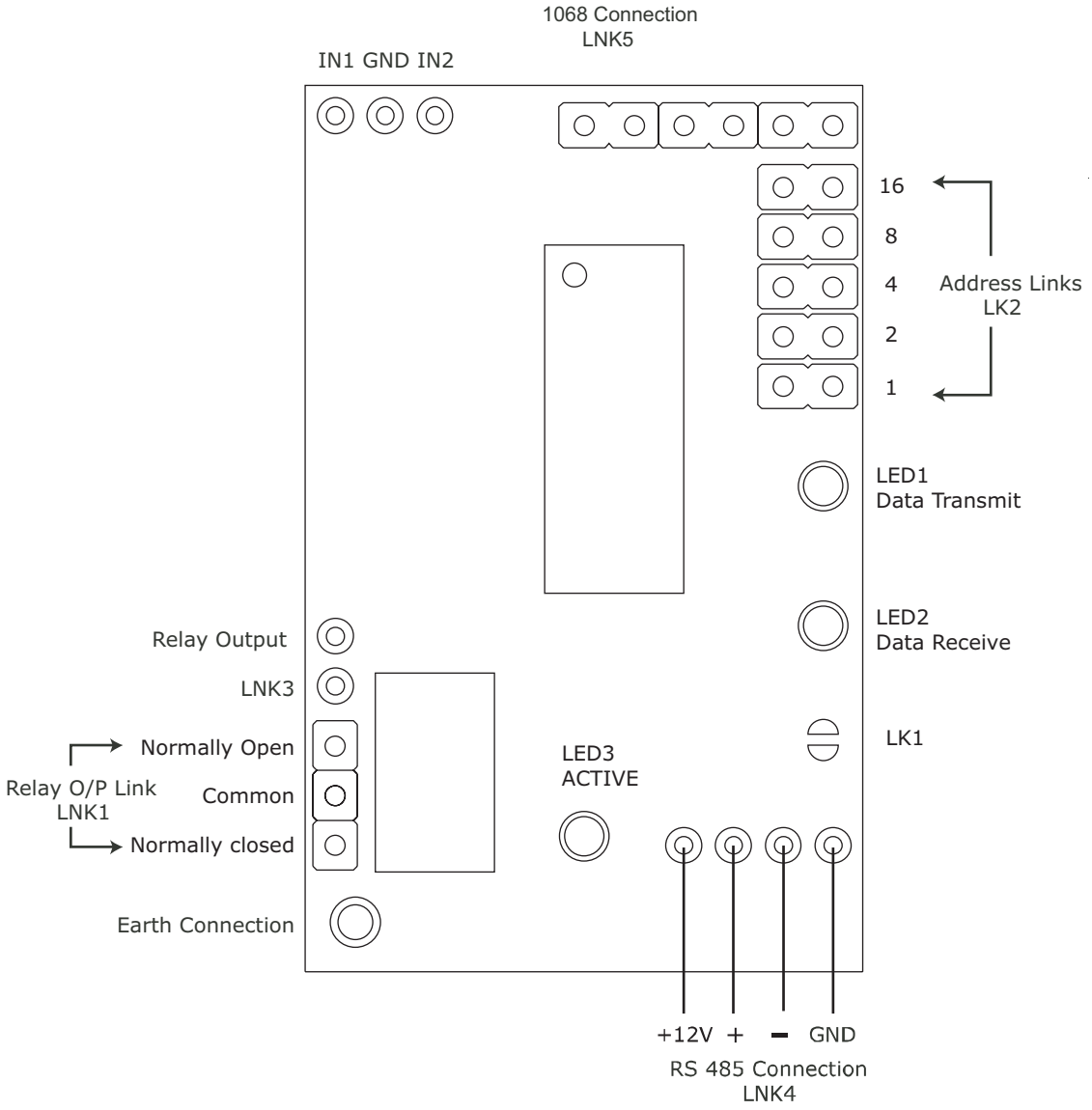
Enclosure	**Housed inside existing equipment**
PCB Dimensions	**44 mm (1.7") x 28 mm (1.1")**
Environment	**0° - 70° C (32° - 158° F)**
Power	**12 VDC @ 40 mA (can be supplied from RS485 loop)**
Alarm inputs	**2 x 10kΩ end of line monitored** **Both inputs can be configured as analogue inputs**
Output points	**1 x normally open or normally closed, dry contact relay. 2 A @ 60 VDC**
Communication	**RS-485**

Pacom Intelligent End of Line 1068
Quick Install

LK2 - Address link

Address	Pins 16	8	4	2	1
1	0	0	0	0	0
2	0	0	0	0	1
3	0	0	0	1	0
4	0	0	0	1	1
5	0	0	1	0	0
6	0	0	1	0	1
7	0	0	1	1	0
8	0	0	1	1	1
9	0	1	0	0	0
10	0	1	0	0	1
11	0	1	0	1	0
12	0	1	0	1	1
13	0	1	1	0	0
14	0	1	1	0	1
15	0	1	1	1	0
16	0	1	1	1	1
17	1	0	0	0	0
18	1	0	0	0	1
19	1	0	0	1	0
20	1	0	0	1	1
21	1	0	1	0	0
22	1	0	1	0	1
23	1	0	1	1	0
24	1	0	1	1	1
25	1	1	0	0	0
26	1	1	0	0	1
27	1	1	0	1	0
28	1	1	0	1	1
29	1	1	1	0	0
30	1	1	1	0	1
31	1	1	1	1	0
32	1	1	1	1	1

0=Open 1=Short



Links

RS485 Terminated — LK1 — RS485 Not Terminated

Relay as Normally open — LNK3 (NO / NC) — Relay as Normally closed

Standard inputs — LNK5 (INV / INP) — Inputs on Inovonics receiver

Pacom Two Door Controller 1076

In This Chapter 22

- Installation Guidelines
- Third-Party Connections
- In/Out Reader Wiring

The Pacom 1076 intelligent two door controller acts as the local interface for a variety of card reader devices. It can support up to two card readers and their ancillary devices, such as accept and denied LEDs, buzzers, door shunt, strike and egress signals.

It also has 4 spare outputs (2 relay and 2 open collector) that can be configured as General Purpose Outputs (GPOs). GPOs are used in the alarm configuration and can be activated by any input or trigger in the system.

The two reader interfaces on the 1076 operate independently, i.e. two readers connected to the same 1076 do not have to be the same type.

Most Wiegand and Magstripe readers are supported by the 1076. The 1076 also supports the following readers: HID/ Sensor insertion card reader, HID Proximity reader with or without a pinpad, HID Key reader, Magstripe track 2 reader with or without the Mosler interface card (8117500A), Magstripe track 2 reader with a Wiegand output interface, and BCD pinpad.

This chapter is written for 1076 revision 01.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

Radiation:

- AS/NZS CISPR22:2006 Class A
- EN55022:2006 Class A
- FCC Title 47 Part 15 subpart B Class A

Immunity:

- EN50130-4:1995 including amendments 1 and 2
- EN61000-3-2:2006
- EN61000-3-3:1995 including amendments 1 and 2

Safety:

- EN60950 -1:2001
  - AS/NZS 60950.1:2003 INCL. AMDT. 1

22.1.Installation Guidelines

1. If using the stand-alone 1076, screw the 5 metal standoffs to the enclosure. Use M3 size screws to screw the unit in place in the standoffs.

   If the 1076 plugs into a back plane, do the following steps first and then slide it into the plane while ensuring the pins on the unit match up to plug on plane.
2. Set the device address using the address switch (SW2).
3. For protection against voltage surges, connect earth ground to terminal J1 earth pin.
4. Wire tamper to LK5 or J1. The tamper is not EOL monitored.
5. Wire inputs and outputs as required.
6. Connect the RS485 device line. If the 1076 is the last device on the device line, ensure that LNK8 is in.

Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line. *For instructions, refer Field Controller Configuration Guide.*

If replacing an existing 1067 in an installation with a 1076, the following additional features will be available 1076:

- Extra mounting hole in the centre for stable installation.
- Software downloads while the 1076 is online.
- Communicates battery low alarms.
- LEDs are in new position but light indicators have remained same.
- Reset switch at accessible location (for installation on a back plane).
- A real time clock chip stores its time stamp for valid card access transactions (up to 1000 transactions) while offline.
- Uses a 485 driver chip that can be easily replaced.
- Onboard Buzzer enabled/disabled by link position (LNK7).

22.2.Third-Party Connections

22.2.1. Connecting to Magstripe Track 2

Table 1:

Reader A		Reader B		Magstripe Track 1/2/3
J5	**J6**	**J12**	**J6**	
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	+5VDC/+12VDC (Power supply)
Pin 4	Pin 17	Pin 4	Pin 18	Data Signal
Pin 5	Pin 19	Pin 5	Pin 20	Clock Signal
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground

Solder links: Default configuration, all LKU Short, all LKD open.

Magstripe Track 2 I/O Connections

Table 2:

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door contact input (10Ω terminated)
Pin 2	37, 38, 39 or 40	Pin 2	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress input (10Ω terminated)

22.2.2. Connection via Mosler interface board (8117500A)

Table 3:

Reader A		Reader B		Mosler interface board (8117500A)
J5	**J6**	**J12**	**J6**	
Pin 1	33, 34, 35 or 36	Pin 1	33, 34, 35 or 36	12VDC (Power supply) (TB2-5)
Pin 4	Pin 17	Pin 4	Pin 18	Data Signal (TB2-2)
Pin 5	Pin 19	Pin 5	Pin 20	Clock Signal (TB2-1)
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground (TB2-6)

Solder links: Default configuration, all LKU Short, all LKD open.

Magstripe Track Ancillary Device Connection

Table 4:

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-) (TB2-8)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-) (TB2-7)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door Contact
Pin 2	37, 38, 39 or 40	Pin 2	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress

22.2.3. Connecting to Wiegand Reader

Table 5:

Reader A		Reader B		Wiegand Reader
J5	**J6**	**J12**	**J6**	
Pin 2	Pin 31 or 32	Pin 2	Pin 31 or 32	5VDC (Power supply)
Pin 1	33, 34, 35 or 36	Pin 1	33, 34, 35 or 36	12VDC (Power supply)
Pin 4	Pin 17	Pin 4	Pin 18	D0 Signal
Pin 5	Pin 19	Pin 5	Pin 20	D1 Signal
Pin 3	37, 38, 39 or 40	Pin 3	37, 38, 39 or 40	Ground (TB2-6)

Solder links: Default configuration, all LKU Short, all LKD open.

NOTE Wiegand readers could require +5VDC or +12VDC for correct operation. Consult the appropriate Wiegand card reader installation manual.

Wiegand Reader Ancillary Device Connection

Table 6:

Reader A		Reader B		Input/Output Connections
J5	**J6**	**J12**	**J6**	May not apply to some readers for correct LED operation.
Pin 6	Pin 21	Pin 6	Pin 22	Accept LED Cathode (-)
Pin 7	Pin 23	Pin 7	Pin 24	Denied LED Cathode (-)
J3	**J6**	**J11**	**J6**	
Pin 1	Pin 9	Pin 1	Pin 10	Strike Relay Common
Pin 2	Pin 11	Pin 2	Pin 12	Strike Relay Normally Open/ Close
J4	**J6**	**J9**	**J6**	
Pin 1	Pin 1	Pin 1	Pin 2	Door contact input (10Ω terminated)
Pin 2	37, 38, 39 or 40	Pin 5	37, 38, 39 or 40	Ground
Pin 3	Pin 3	Pin 3	Pin 4	Egress input (10Ω terminated)

22.3.In/Out Reader Wiring

In/Out readers are used to keep track of the number and or the location of personnel within a site. The hardware is installed so that a card reader and/or keypad is positioned on either side of doors in sensitive areas.

For readers to work together on a single door they are required to be set up in a master-slave arrangement so that the two normally independent interfaces of the 1076 can operate together. The door strike and door contacts are connected to the master interface and the master will activate the door strike on a valid card read from itself or the slave.

When connecting card readers for in/out operation to the 1076 the following configuration requirements must be considered:

- The card readers used for Master and Slave on a single door must have consecutive reader numbers but do not necessarily have to be connected to the same 1076. However this is usually the most simple and logical wiring option.
- Either interface can be Master or Slave.
- Area 1 is reserved for outside or a public area. Time In Attendance (TIA) entries are not generated for area 1.
- GMS requires information regarding the **Area No.** (Area where the reader is) and the **Area No. Entering** (Area that the door leads to) these fields in GMS must be configured correctly for both readers. When Installing several In/Out readers in a site, it is recommended that a simple drawing be created with the positions of the readers and the area numbers. this greatly simplifies the entry of these parameters.
- Although the Door is controlled by the master the Shunt and strike times from the slave are used when the slave reader is used to access the door.
- The in/out transaction is not validated until the door is opened and then closed to signify that the card holder has proceeded through the door. If the door contacts are not monitored then the Shunt Time in GMS on both readers must be set to 0.

Technical Specification

Table 7:

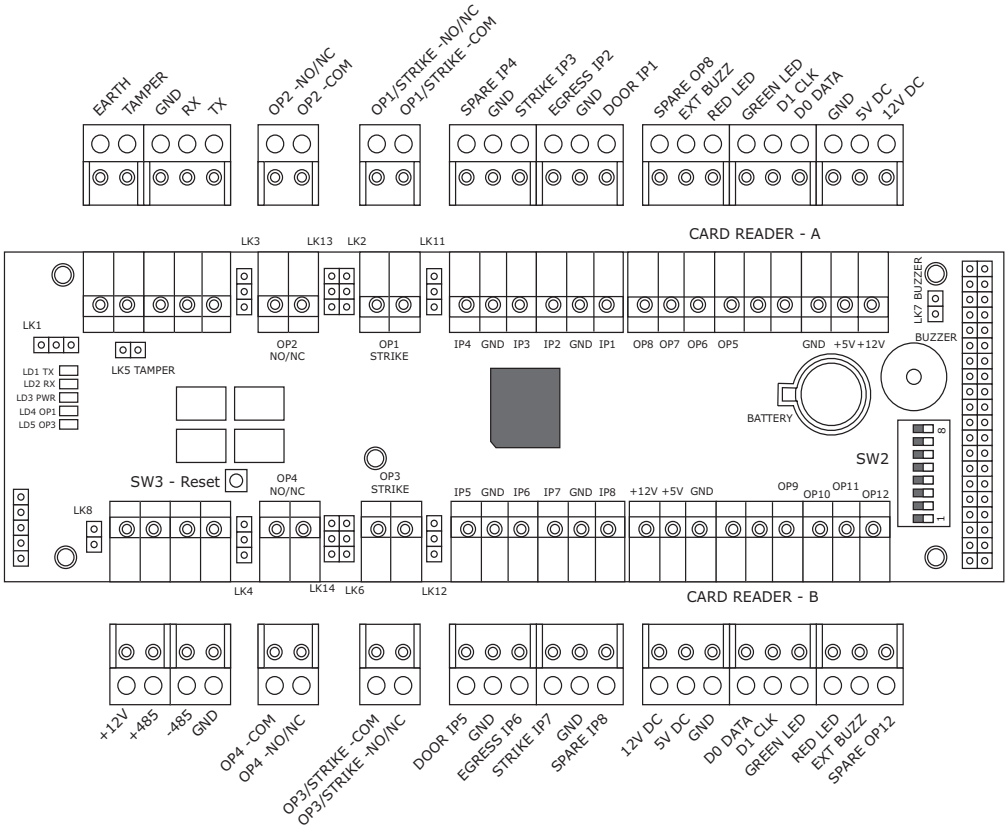
Dimensions		**174mm (6-2/5) x 55mm (2-1/8)**
Weight:		**118 grams (4.16 oz.)**
Environment		**-10° - 55° C (14° - 131° F)**
Power		**Typically 100mA @ 12VDC with no devices attached**
Card Reader Interfaces		**2**
Alarm inputs		**Both interfaces have the following inputs:**
	1	**Door Contact input**
	2	**Egress input**
	3	**Strike Contact / Spare input 1**
	4	**Spare input 2**
	5	**D0 Data**
	6	**D1 Clock**
Output points		**Both interfaces have the following outputs:**
	1	**Green "Accept" LED**
	2	**Red "Denied" LED**
	3	**Buzzer output (open collector)**
	4	**Spare output (open collector)**
	5	**Strike relay (1.0A @ 30VDC)**
	6	**Spare Relay output (1.0A @ 30VDC)**
Communication		**RS-232, RS-485**
LEDs		**TX, Rx, Power, Strike A, Strike B**
Battery		**CR1620 3VDC**
Real Time Clock		**Used to store data while 1076 is powered down**
Other Features		**Reset Switch** **Tamper Switch** **Internal Buzzer** **External Buzzer Option** **Spare Outputs can be used as GPOs**

Pacom Two Door Controller 1076
Quick Install

SW2 - Address switch

Address	Switch
	5 4 3 2 1
1	0 0 0 0 0
2	0 0 0 0 1
3	0 0 0 1 0
4	0 0 0 1 1
5	0 0 1 0 0
6	0 0 1 0 1
7	0 0 1 1 0
8	0 0 1 1 1
9	0 1 0 0 0
10	0 1 0 0 1
11	0 1 0 1 0
12	0 1 0 1 1
13	0 1 1 0 0
14	0 1 1 0 1
15	0 1 1 1 0
16	0 1 1 1 1
17	1 0 0 0 0
18	1 0 0 0 1
19	1 0 0 1 0
20	1 0 0 1 1
21	1 0 1 0 0
22	1 0 1 0 1
23	1 0 1 1 0
24	1 0 1 1 1
25	1 1 0 0 0
26	1 1 0 0 1
27	1 1 0 1 0
28	1 1 0 1 1
29	1 1 1 0 0
30	1 1 1 0 1
31	1 1 1 1 0
32	1 1 1 1 1

0=Off 1=On



Switches on SW2

6: OFF - unused
7: OFF - Pacom use only
8: OFF - unused

LEDs

LD1- RED - RS485 transmitting data
LD2 - GREEN - RS485 receiving data
LD3- GREEN - Power supplied to the unit
LD4 - GREEN - Output 1 active
LD5 - GREEN - Output 3 active

Links

TTL from CN1 — LK1 — RS232 from CN1

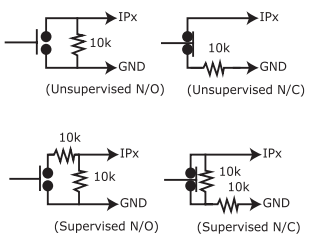
Tamper connected — LK5 — Tamper NOT connected

Onboard buzzer not used — LK7 — Onboard buzzer used

RS485 Not terminated — LK8 — RS485 Terminated

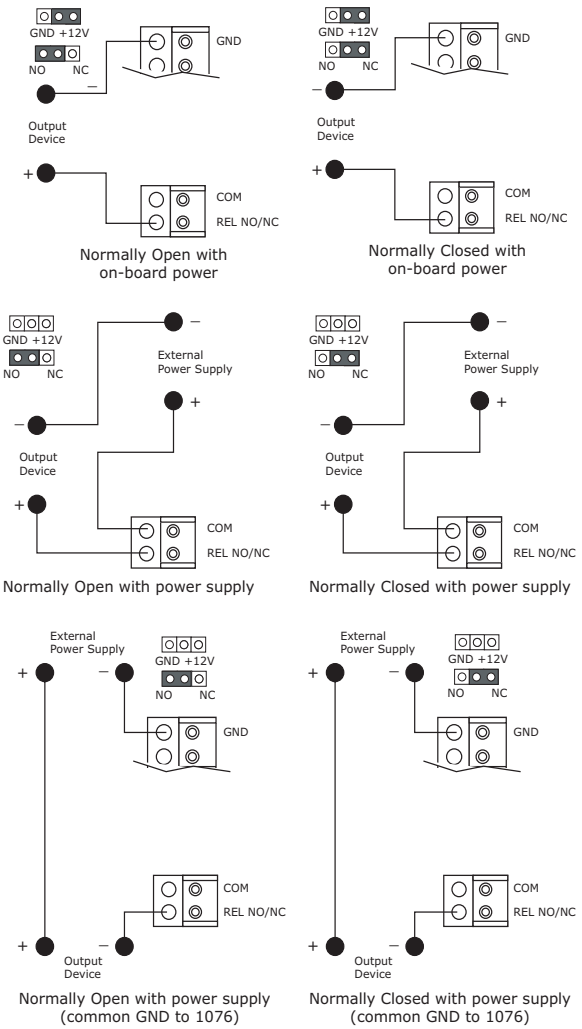
LK2 - OP1/Strike Relay (NO or NC)
LK3 - OP2 Relay (NO or NC)
LK4 - OP4 Relay (NO or NC)
LK6 - OP3/Strike Relay (NO or NC)
LK11 - OP1/Strike Relay Common Contact (GND or +12V)
LK12 - OP3/Strike Relay Common Contact (GND or +12V)
LK13 - OP2 Relay Common Contact (GND or +12V)
LK14 - OP4 Relay Common Contact (GND or +12V)

Input Wiring



NOTE: Please ensure the centre standoff is fitted.

Relay Output Wiring



Pacom I/O 1076

In This Chapter 24

The Pacom 1076 I/O is used to modularly expand the alarm input and output points of any Pacom controller. The 1076 I/O communicates via an RS-485 multi-drop device line to the controller.

It provides connection to 8 supervised alarm inputs (can also be configured as analogue inputs) and 4 relay controlled outputs.

This chapter is written for 1076 I/O revision 01.

Compliance and Accreditation

WARNING! This is a Class A Product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures

This product complies with the following Standards/Accreditations:

Radiation:

- AS/NZS CISPR22:2006 Class A
- EN55022:2006 Class A
- FCC Title 47 Part 15 subpart B Class A

Immunity:

- EN50130-4:1995 including amendments 1 and 2
- EN61000-3-2:2006
- EN61000-3-3:1995 including amendments 1 and 2

Safety:

- EN60950 -1:2001
- AS/NZS 60950.1:2003 INCL. AMDT. 1

24.1. Installation Guidelines

1. If using the stand-alone 1076, screw the 5 metal standoffs to the enclosure. Use M3 size screws to screw the unit in place in the standoffs.

   If the 1076 plugs into a back plane, do the following steps first and then slide it into the plane while ensuring the pins on the unit match up to plug on plane.
2. Set the device address using the address switch (SW2).
3. For protection against voltage surges, connect earth ground to terminal J1 earth pin.
4. Wire tamper to LK5 or J1. The tamper is not EOL monitored.
5. Wire inputs and outputs as required.
6. Connect the RS485 device line. If the 1076 is the last device on the device line, ensure that LNK8 is in.

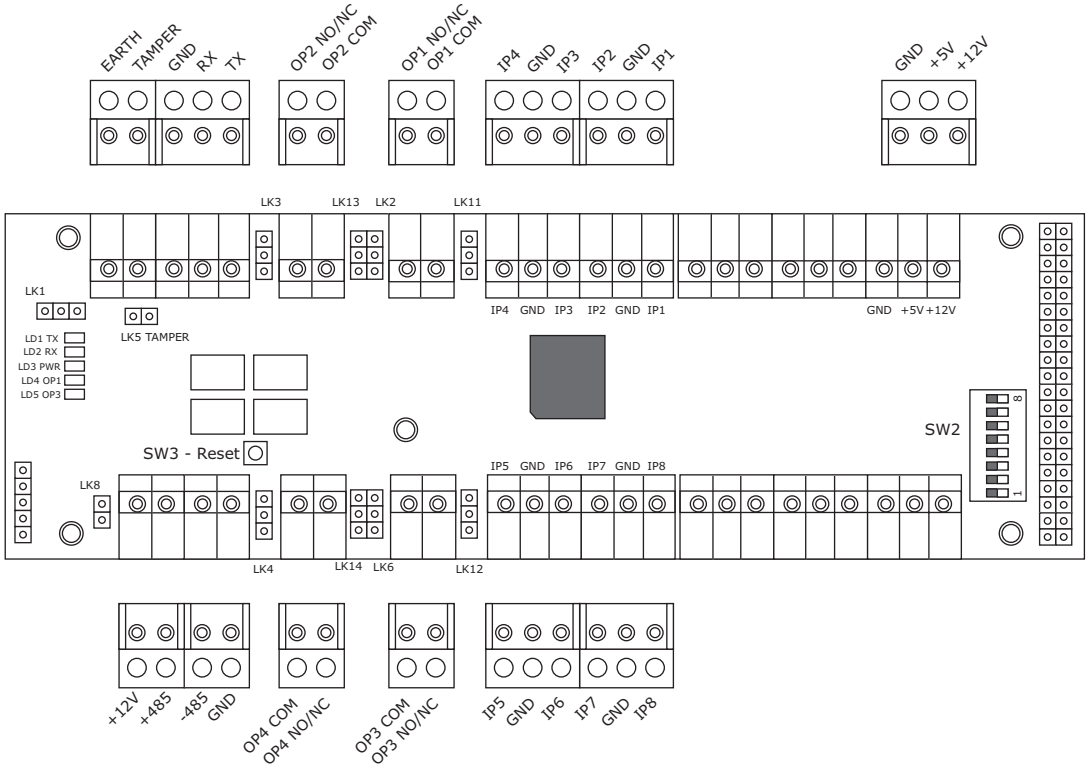
Use Pacom GMS software to configure the Pacom controller to recognize the unit on its device line. *For instructions, refer Field Controller Configuration Guide.*

Technical Specification

Table 1:

Dimensions	**174mm (6-2/5) x 55mm (2-1/8)**
Weight:	**118 grams (4.16 oz.)**
Environment	**-10° - 55° C (14° - 131° F)**
Power	**Typically 100mA @ 12VDC with no devices attached**
Alarm inputs	**8 EOL Monitored Inputs (all with analogue input cabability)**
Output points	**4 Relay outputs (1.0A @ 30VDC)**
Communication	**RS-232, RS-485**
LEDs	**TX, Rx, Power, Output 1, Output 2**
Other Features	**Reset switch** **Tamper wiring** **Remote firmware download**

Pacom I/O 1076
Quick Install



SW2 - Address switch

Address	Switch
	5 4 3 2 1
1	0 0 0 0 0
2	0 0 0 0 1
3	0 0 0 1 0
4	0 0 0 1 1
5	0 0 1 0 0
6	0 0 1 0 1
7	0 0 1 1 0
8	0 0 1 1 1
9	0 1 0 0 0
10	0 1 0 0 1
11	0 1 0 1 0
12	0 1 0 1 1
13	0 1 1 0 0
14	0 1 1 0 1
15	0 1 1 1 0
16	0 1 1 1 1
17	1 0 0 0 0
18	1 0 0 0 1
19	1 0 0 1 0
20	1 0 0 1 1
21	1 0 1 0 0
22	1 0 1 0 1
23	1 0 1 1 0
24	1 0 1 1 1
25	1 1 0 0 0
26	1 1 0 0 1
27	1 1 0 1 0
28	1 1 0 1 1
29	1 1 1 0 0
30	1 1 1 0 1
31	1 1 1 1 0
32	1 1 1 1 1

0=Off 1=On

Switches on SW2

6: OFF - unused
7: OFF - Pacom use only
8: OFF - unused

LEDs

LD1- RED - RS485 transmitting data
LD2 - GREEN - RS485 receiving data
LD3- GREEN - Power supplied to the unit
LD4 - GREEN - Output 1 active
LD5 - GREEN - Output 3 active

Links

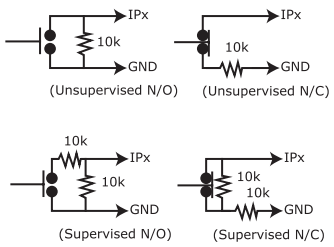
TTL from CN1 — LK1 — RS232 from CN1

Tamper connected — LK5 — Tamper NOT connected

RS485 Not terminated — LK8 — RS485 Terminated

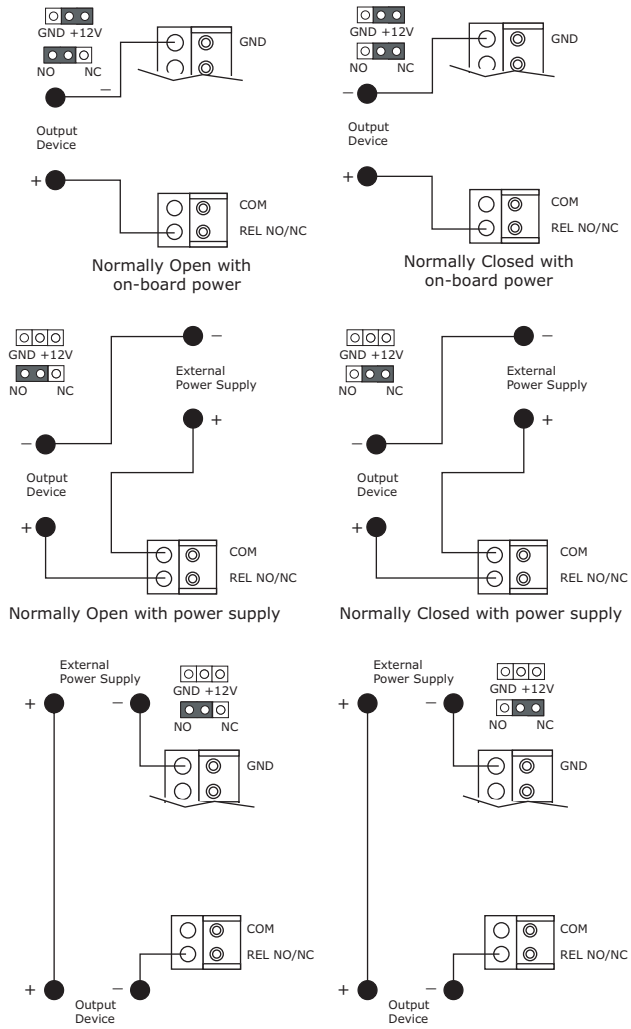
LK2 - OP1/Strike Relay (NO or NC)
LK3 - OP2 Relay (NO or NC)
LK4 - OP4 Relay (NO or NC)
LK6 - OP3/Strike Relay (NO or NC)
LK11 - OP1/Strike Relay Common Contact (GND or +12V)
LK12 - OP3/Strike Relay Common Contact (GND or +12V)
LK13 - OP2 Relay Common Contact (GND or +12V)
LK14 - OP4 Relay Common Contact (GND or +12V)

Input Wiring



NOTE: Please ensure the centre standoff is fitted.

Relay Output Wiring



800 050 010 June, 2008 Version 1.0