

## INSTALLATION AND OPERATION MANUAL

# EXP100

### EXPANSION MODULE FOR USE WITH FDW1000 WIEGAND MODULE

When used with the FDW1000 series of fiber optic Wiegand extender modules, the ComNet™ EXP100 Expansion Module enables additional Wiegand control panels, readers, and associated door/gate hardware to be added to the network. The 2-wire RS-485 data interface between the expansion modules provides a secure and completely supervised connection, with excellent immunity to electrical noise and interference. Up to 8 EXP100s can be used in a drop-and-repeat/daisy-chain topology, and each EXP100 may be set to a unique address (1 thru 15) via DIP-switch selection.

An auxiliary I/O (input/output) interface is available for ascertaining door, gate, and control panel status and signaling, and a relay interface provides the door strike or gate activation functions. See **Figures 10** and **11** beginning on **Page 5** for a guide to the I/Os and Relay Controls.

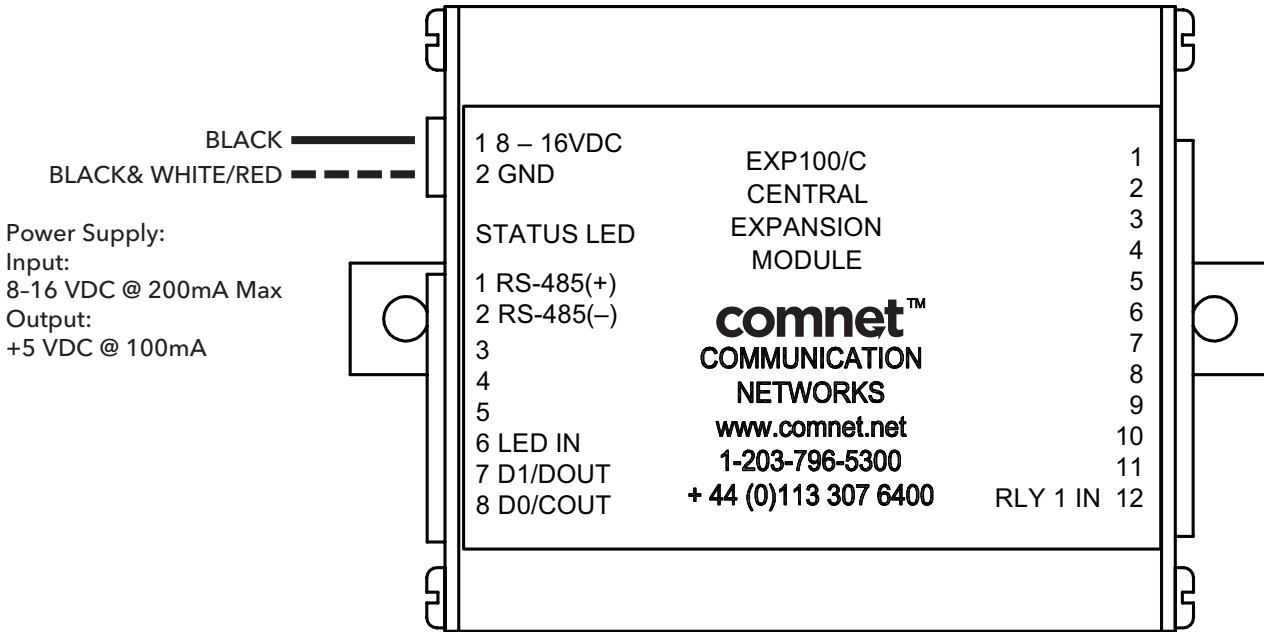
The EXP100 is supplied as a remote unit for door or gate locations or a central unit for control panel installation. See **Figures 3** through **5** on **Page 3** for Central and Remote Dip Switch Settings.

These extenders are designed for long-term, reliable operation in harsh industrial environments, and a fault-specific LED indicator is provided for rapidly ascertaining the operating status of the extender and the link. See **Figure 17** on **Page 12** for an explanation of LED indicators.

Packaged in a rugged aluminum housing, the EXP100 is designed for shelf or surface mounting. See **Figure A** on **Page 12** for mounting instructions.

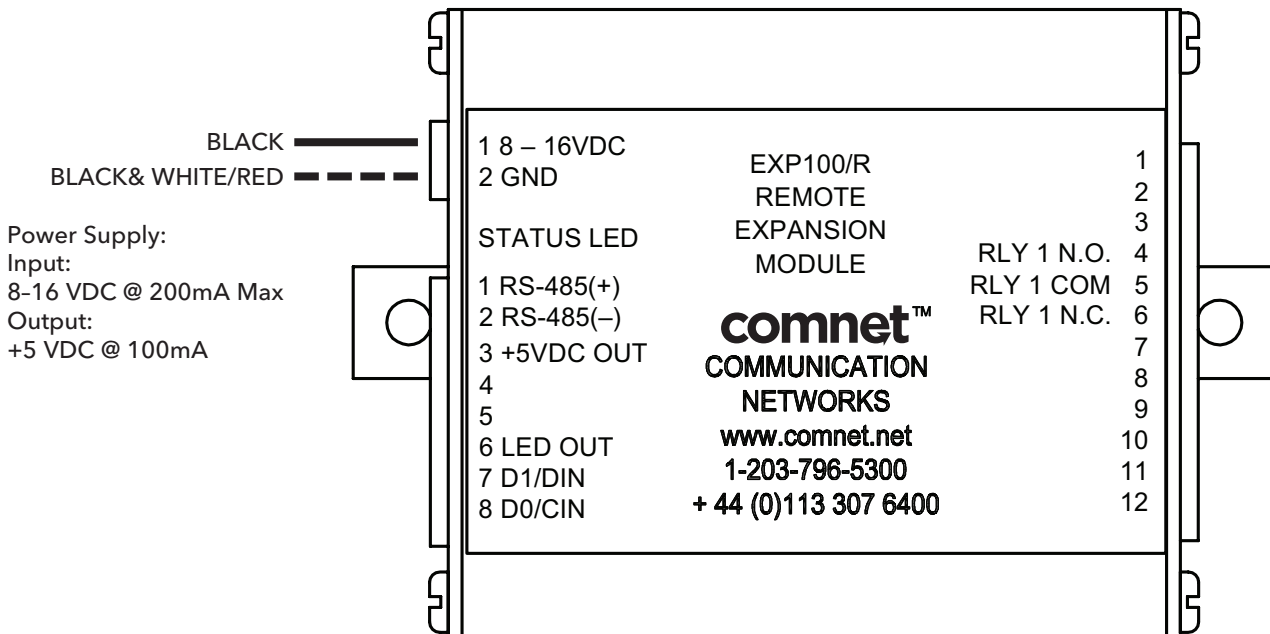
See **Figures 1 - 17** for complete installation details.

FIGURE 1 - EXP100/C CENTRAL DATA EXTENDER



Power Connections		Relay Connections	
1 - 8 - 16VDC	Power IN (+)	1	N.O. Contact
2 - GND	Power IN (-)	2	Common
		3	N.C. Contact
		4	N.O. Contact
Data Connections		5	Common
1 RS-485(+)	RS-485 Input	6	N.C. Contact
2 RS-485(-)	RS-485 Input	7	RS232 Serial Data OUT
3	+5 VDC OUT - 5V Power Out	8	RS232 Serial Data IN
4	Analog Input #2	9	Wiegand/RS232 Ground
5	Analog Input #1	10	Auxiliary Digital Output
6	LED Signal Input/Output	11	Digital Input
7 D1/DOUT	Wiegand Data 1 Output	RLY 1 IN 12	Digital Input
8 D0/COUT	Wiegand Data 0 Output		

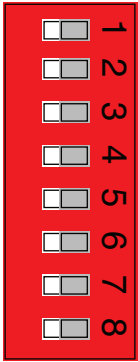
FIGURE 2 - EXP100/R REMOTE DATA EXTENDER



Power Connections		Relay Connections	
1 - 8 - 16VDC	Power IN (+)	1	N.O. Contact
2 - GND	Power IN (-)	2	Common
		3	N.C. Contact
Data Connections		RLY 1 N.O. 4	N.O. Contact
1 RS-485(+)	RS-485 Input	RLY 1 COM 5	Common
2 RS-485(-)	RS-485 Input	RLY 1 N.C. 6	N.C. Contact
3 +5 VDC OUT	5V Power Out	7	RS232 Serial Data OUT
4	Analog Input #4	8	RS232 Serial Data IN
5	Analog Input #3	9	Wiegand/RS232 Ground
6 LED OUT	LED Signal Output	10	Auxiliary Digital Input
7 D1/DIN	Wiegand Data 1 Input	11	Not Used
8 D0/CIN	Wiegand Data 0 Input	12	Not Used

**FIGURE 3 - EXP-100/C DIP SWITCH ADDRESS SETTINGS**

Dip Switch is located beneath the casing of each unit.



→ ON

1. Initialize the EXP100 following these steps:
2. With the power off, set DIP switch #1 to ON, all other DIP switches to OFF.
3. Apply power to the EXP100. The STATUS LED should illuminate solid green.
4. Remove power and set all DIP switches to OFF.
5. Proceed with the following table to set DIP switches for address and Wiegand direction.

Address	Switch							
	1	2	3	4	5	6	7	8
1	○	●	○	○	○	○	○	●
2	○	●	○	○	○	○	●	○
3	○	●	○	○	○	○	●	●
4	○	●	○	○	○	●	○	○
5	○	●	○	○	○	●	○	●
6	○	●	○	○	○	●	●	○
7	○	●	○	○	○	●	●	●
8	○	●	○	○	●	○	○	○
9	○	●	○	○	●	○	○	●
10	○	●	○	○	●	○	●	○
11	○	●	○	○	●	○	●	●
12	○	●	○	○	●	●	○	○
13	○	●	○	○	●	●	○	●
14	○	●	○	○	●	●	●	○
15	○	●	○	●	●	●	●	●
16	○	●	○	●	○	○	○	○

● = ON  
○ = OFF

Each EXP100 can be set to a unique address, 1 through 15.

When using the EXP100 units with a ComNet gateway system, the addresses **must** be set consecutively from 1 to the maximum address.

Most ComNet gateway systems will support a maximum of eight (8) devices (refer to the ComNet FDW100(M,S) Instruction Manual).

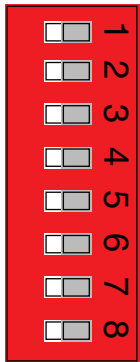
Example:  
In a FDW1000 system set up with four (4) pairs of EXP100 units, the addresses should be set: 1, 2, 3, 4 for the four pairs that will be used (not 2, 3, 4, 5 or 4, 6, 7, 8, etc.)

Note: To operate as a Wiegand Transmitter ("Central") unit, DIP switch #2 must be ON.

In a ComNet FDW1000 gateway system, Dip switch #3 must be OFF.

**FIGURE 4 - EXP-100/R DIP SWITCH ADDRESS SETTINGS**

Dip Switch is located beneath the casing of each unit.



→ ON

1. Initialize the EXP100 following these steps:
2. With the power off, set DIP switch #1 to ON, all other DIP switches to OFF.
3. Apply power to the EXP100. The STATUS LED should illuminate solid green.
4. Remove power and set all DIP switches to OFF.
5. Proceed with the following table to set DIP switches for address and Wiegand direction.

Address	Switch							
	1	2	3	4	5	6	7	8
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2	○	○	○	○	○	○	●	○
3	○	○	○	○	○	○	●	●
4	○	○	○	○	○	●	○	○
5	○	○	○	○	○	●	○	●
6	○	○	○	○	○	●	●	○
7	○	○	○	○	○	●	●	●
8	○	○	○	○	●	○	○	○
9	○	○	○	○	●	○	○	●
10	○	○	○	○	●	○	●	○
11	○	○	○	○	●	○	●	●
12	○	○	○	○	●	●	○	○
13	○	○	○	○	●	●	○	●
14	○	○	○	○	●	●	●	○
15	○	○	○	●	●	●	●	●
16	○	○	○	●	○	○	○	○

● = ON  
○ = OFF

Each EXP100 can be set to a unique address, 1 through 15.

When using the EXP100 units with a ComNet gateway system, the addresses **must** be set consecutively from 1 to the maximum address.

Most ComNet gateway systems will support a maximum of eight (8) devices (refer to the ComNet FDW100(M,S) Instruction Manual).

Example:  
In a FDW1000 system set up with four (4) pairs of EXP100 units, the addresses should be set: 1, 2, 3, 4 for the four pairs that will be used (not 2, 3, 4, 5 or 4, 6, 7, 8, etc.)

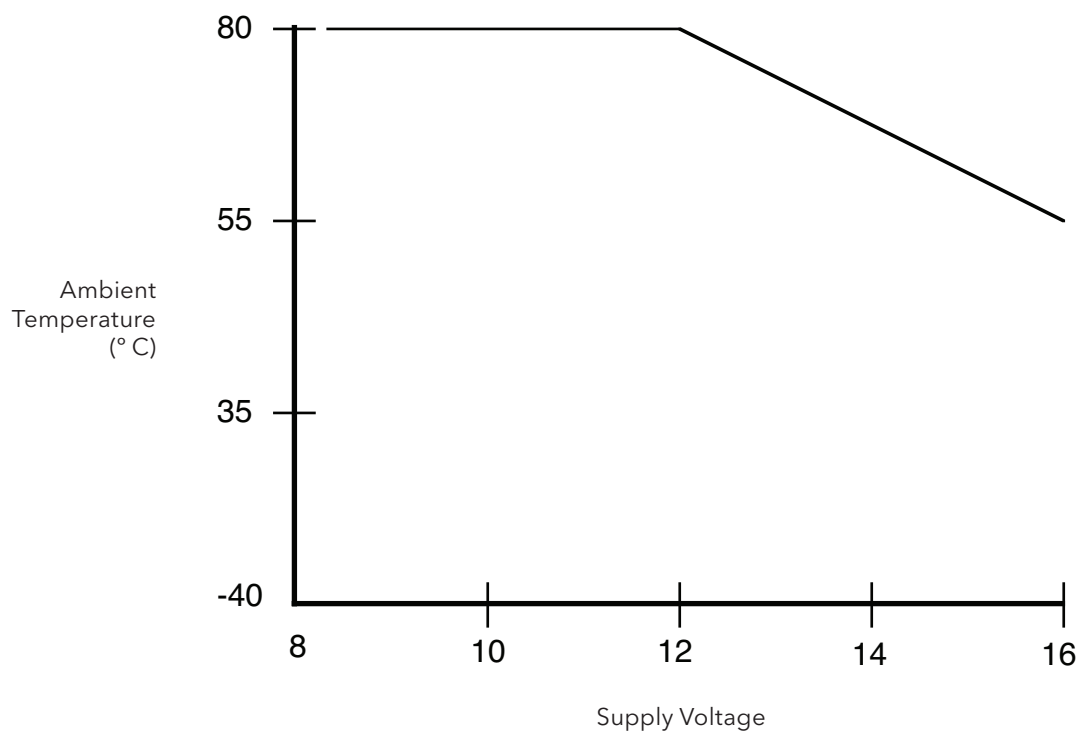
Note: To operate as a Wiegand Receiver ("Remote") unit, DIP switch #2 must be OFF.

In a ComNet FDW1000 gateway system, Dip switch #3 must be OFF.

FIGURE 5 - LED INDICATORS

	EXP100/C	EXP100/R
<b>GRN FLASH</b>	Unit is operating correctly and there is a valid communication channel between the Central and Remote units.	
<b>RED</b>	N/A	Remote unit is not receiving communication from the Central unit.
<b>RED/GRN FLASH</b>	Central unit is not receiving communication from the Remote unit.	N/A
<b>OFF</b>	Unit Powered Down / Electrical Problem	

FIGURE 6 - TEMPERATURE RATING vs. VOLTAGE DERATING CURVE



The EXP100 should be operated with a filtered 12 VDC power supply. Any voltage between 8 and 16 Voltes can be utilized by following this curve. Voltage should not exceed 16 VDC under normal operating conditions.

FIGURE 7 - TYPICAL APPLICATION IN CONJUNCTION WITH FDW1000 GATEWAY SYSTEM

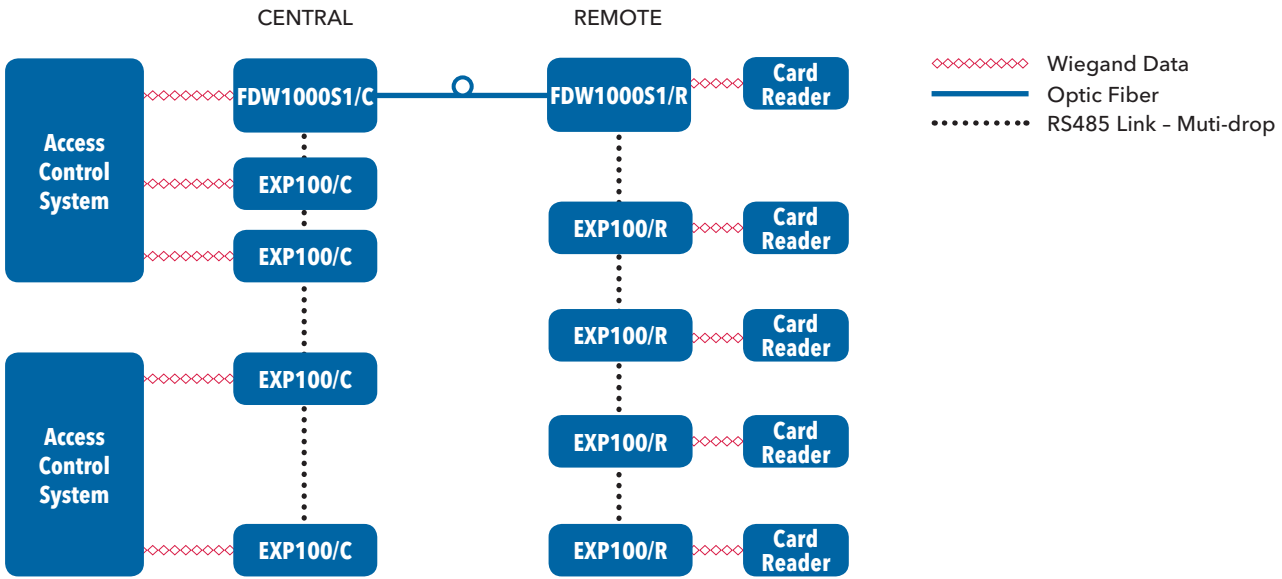


FIGURE 8 - EXP100 CENTRAL INTERFACE

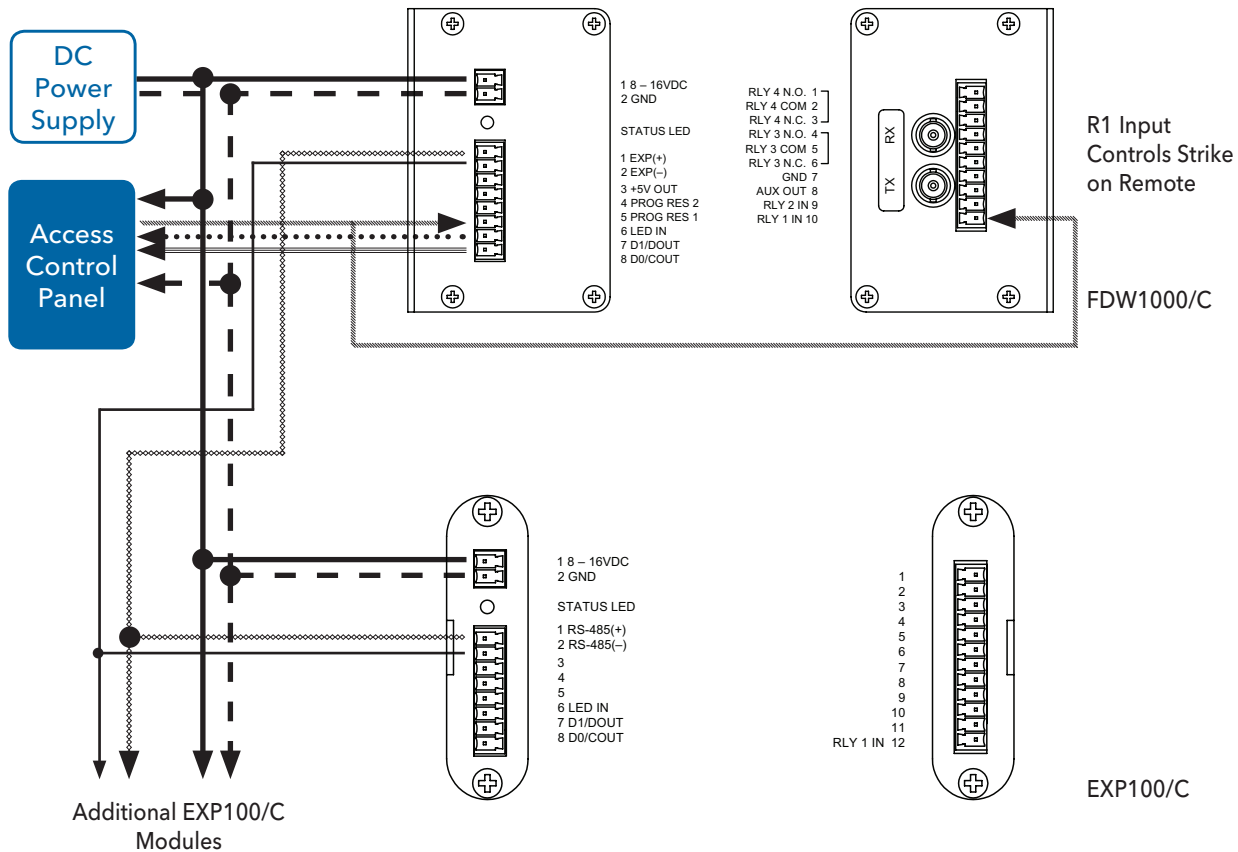
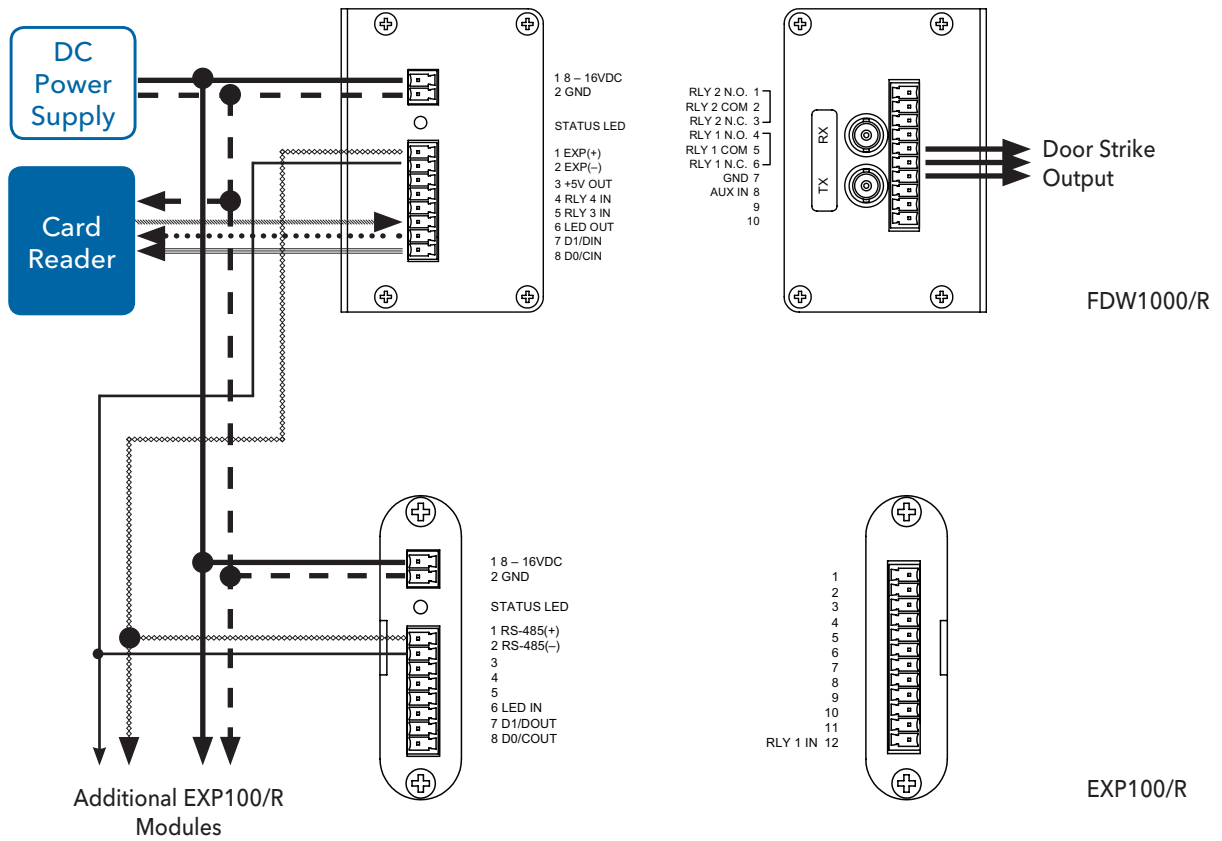


FIGURE 9 - FDW1000 TO EXP100 REMOTE INTERFACE







# MECHANICAL INSTALLATION INSTRUCTIONS

## INSTALLATION CONSIDERATIONS

This fiber-optic link is supplied as a Standalone module. Units should be installed in dry locations protected from extremes of temperature and humidity.

**CAUTION: Take care not to press on the LED.**

**WARNING:** Unit is to be used with a Listed Class 2 or LPS power supply.

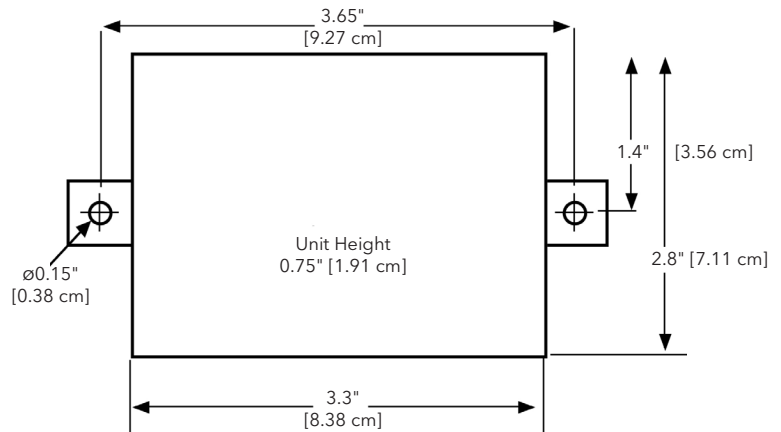
### IMPORTANT SAFEGUARDS:

**A) Elevated Operating Ambient** - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified by the manufacturer.

**B) Reduced Air Flow** - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

**FIGURE A**

*Dimensions are for a standard ComNet EXP100 module.*



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