CYPRESS
INTEGRATION SOLUTIONS

EXP-1000
Wiring Diagram

SPX Expansion interface module

CYPRESS
Suprex Expansion Module
EXP-1000 C
Suprex®

- 8 - 16 VDC
- Ground

Status LED

- 485 +
- 485 -
- + 5V out
- Prog res 2
- Prog res 1
- LED Out
- D1/Data out
- D0/Clk out

R4 N.O -
R4 COM -
R4 N.C -
R3 N.O -
R3 COM -
R3 N.C -
232 out -
232 in -
Ground -
Aux out -

CYPRESS
Suprex Expansion Module
EXP-1000 R
Suprex®

- 8 - 16 VDC
- Ground

Status LED

- 485 +
- 485 -
- + 5V out
- R 4 In
- R 3 In
- LED Out
- D1/Data in
- D0/Clk in

R2 N.O -
R2 COM -
R2 N.C -
R1 N.O -
R1 COM -
R1 N.C -
232 out -
232 in -
Ground -
Aux In -
-

The EXP-1000 provides additional Door/Panel interface points to most SIO and SPX products. The EXP-1000 uses a local RS-485 network through an SIO or SPX gateway device. Additional access points can be added as needed.

EXP-1000
Part 15 Class A

Electrical and Mechanical

Physical	Aluminum Enclosure 3.5" x 2.75" x .75"	
Temp	Storage(-55˚C to + 150˚C) Operating(-40˚C to +80˚C)	
Humidity	95% (non-condensing)	
Power	Input	Unreg Input 8 to 16 VDC* @ 200mA Max
	Output	+5VDC @100mA
Data I/O	Interface	Reader 0- 30VDC LED - 0 - 30VDC Analog 0 - 5 VDC

* See Rating Curve for Temperature and Power ratings
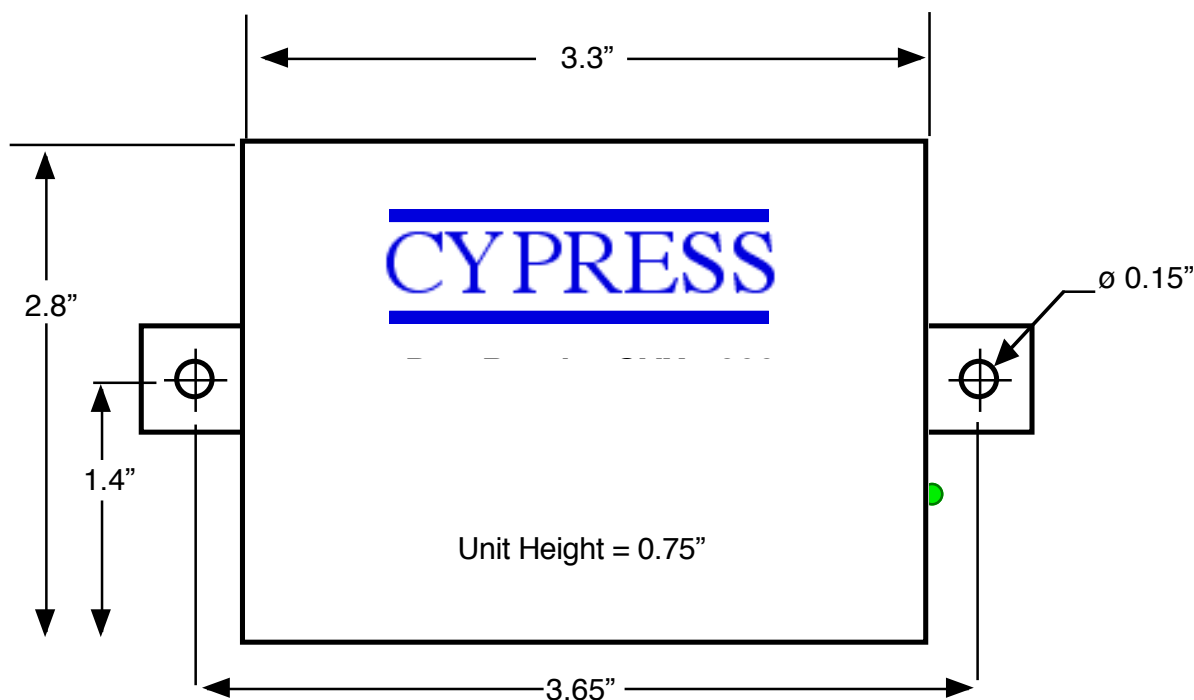
External Dimensions and Mounting Holes

FCC Part 15 COMPLIANCE

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received,
including interference that may cause undesired operation.

EXP-1000 Operation Compatibility

EXP-1000 Compatibility with Cypress Suprex Systems

The EXP-1000 modules are designed to provide additional reader interface channels to some systems utilizing Cypress Suprex devices. Not all Cypress Suprex systems support the use of the EXP-1000 modules.

The EXP-1000 is a product enhancement that has been added to the Suprex product line.
EXP-1000 modules may not be compatible with Suprex products that were purchased prior to May of 2010.

The following listing indicates which systems support the addition of EXP-1000 modules.

The EXP-1000 is compatible with current versions of the following Cypress Products:

SPX-7400 Fiber Optic Suprex

SPX-7200 Lan Network Suprex

SPX-5601 RF Suprex

SPX-5621 RF Suprex

SIO-7300 Lan Network Access Control Module

WMR-7211 Handheld Reader System Base Unit
(WMR-7211 requires Factory Configuration for EXP-1000 use)

Products not specifically listed are not compatible with the EXP-1000 module.

EXP-1000 Operation

The EXP-1000 can be utilized to expand the interface capability of an SIO-7300 system or operated as an additional door and panel interface pair (Remote and Central) with an existing Suprex® SPX-7400, SPX-5600, or SPX-7200 system. Each EXP-1000 can be set to a unique address (1 through 15, see DIP switch chart). EXP Units used with a Cypress Suprex Gateway device will be set to the same address on both the Central and Remote sides of the system.

SIO Systems:
The Host Computer can communicate to the EXP-1000 units directly by sending the packet data as an RS-485 Serial Stream, or RS-232 connection. Either the RS-232 or RS-485 EXP-1000 ports can be used for packet communication. Only one port (RS-485 OR RS-232) should be used at any one time.
Serial data is specified as 9600 Baud, 8 data bit, 1 stop bit.

If using the EXP-1000 as an expansion unit with the SIO-7300, the it is only necessary to connect an RS-485 connection between the SIO-7300 and the EXP-1000.   Packet data sent to the SIO-7300 over the TCP/IP link will be routed to the EXP-1000 units over the RS-485 network. The host computer DEVICE packet address and the DIP switch address setting of the EXP-1000 determine which unit receives the packet.

Packet Protocol:
The EXP-1000 utilizes the same protocol and I/O map as the SIO-7300. Refer to the SIO-7300 users manual for detailed protocol information.

Connecting EXP-1000 units
The EXP-1000 units are connected in a multi-drop configuration to the SIO-7300. Up to 15 EXP-1000 devices can be connected to the SIO-7300. See diagram below for example connection.

SPX Systems:
The EXP-1000 can also be used with Suprex Gateway devices (SPX-7400, SPX-5600 (RF), SPX-7200) to add Central and Remote pairs.

EXP-1000 Setup:

The EXP-1000 must be initialized for use with either the SIO or SPX system. The DIP switch must be set to determine whether the EXP-1000 will operate as a Wiegand Receiver (Remote) or Wiegand Transmitter (Central).

Initialization of the EXP-1000:

1. Power off, Set DIP Switch #1 ON, All other DIP switches off

   Set DIP Switch #3 OFF if using EXP-1000 with Suprex systems
   Set DIP Switch #3 ON if using with SIO systems.

2. Apply power to the EXP-1000.
   The LED should illuminate with a solid Green indication.

3. Remove power and turn off all DIP Switches.

4. The unit is now initialized for usage with the appropriate system. Proceed to the following pages to set
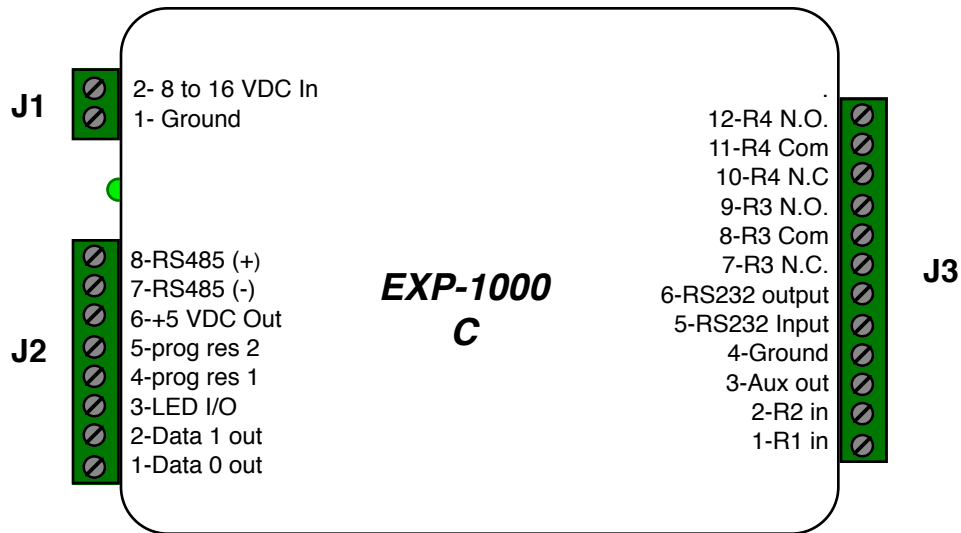   DIP switches for address and Wiegand direction.

Setting EXP-1000 Addresses:

When using the EXP-1000 units with a Suprex gateway system, the Addresses must be set consecutively from 1 to the maximum address to be used with the system. Most Suprex gateway systems will support a maximum of 8 devices (refer to Gateway manual)

Example: An SPX-7400 system is to be setup with 4 pairs of EXP-1000 units.
The Addresses should be set: 1, 2, 3, 4 for the 4 pairs that will be used with the system and not 2,3,4,5 or 4,6,7,8 etc.

EXP-1000 C Electrical Connections

J1
2- 8 to 16 VDC In
1- Ground

J2
8-RS485 (+)
7-RS485 (-)
6-+5 VDC Out
5-prog res 2
4-prog res 1
3-LED I/O
2-Data 1 out
1-Data 0 out

EXP-1000 C

12-R4 N.O.
11-R4 Com
10-R4 N.C
9-R3 N.O.
8-R3 Com
7-R3 N.C.
6-RS232 output
5-RS232 Input
4-Ground
3-Aux out
2-R2 in
1-R1 in

J3

J1 Connections

| 2 - 8 to 16 VDC | Power IN (+) |
| 1 - Ground | Power IN (-) |

J2 Connections

8 - RS485 (+)	RS-485 Input
7 - RS485 (-)	RS-485 Input
6 - +5 VDC OUT	5 Volt Power out
5 - Analog 2	Analog Input #2
4 - Analog 1	Analog Input #1
3 - LED I/O	LED Signal Input/Output
2 - Data 1 Out	Wiegand Data 1 Output
1 - Data 0 Out	Wiegand Data 0 Output

J3 Connections

12 - Relay #4	N.O. Contact
11 - Relay #4	Common
10 - Relay #4	N.C. Contact
9 - Relay #3	N.O. Contact
8 - Relay #3	Common
7 - Relay #3	N.C. Contact
6 - RS232 Output	Serial Data OUT
5 - RS232 Input	Serial Data IN
4 - Ground	Wiegand/RS232 Ground
3 - Aux	Digital Output
2 - Relay # 2	Digital Input
1 - Relay # 1	Digital Input
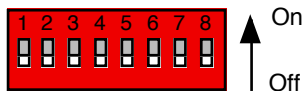
1 2 3 4 5 6 7 8   ↑ On
                   ↓ Off

Address settings for the EXP-1000

Cypress Suprex® systems will support different numbers of additional EXP-1000 units depending upon the model number. Refer to the specific documents for the SPX-7400, SPX-5600, or SPX-7200, SIO-7300 for maximum ratings.
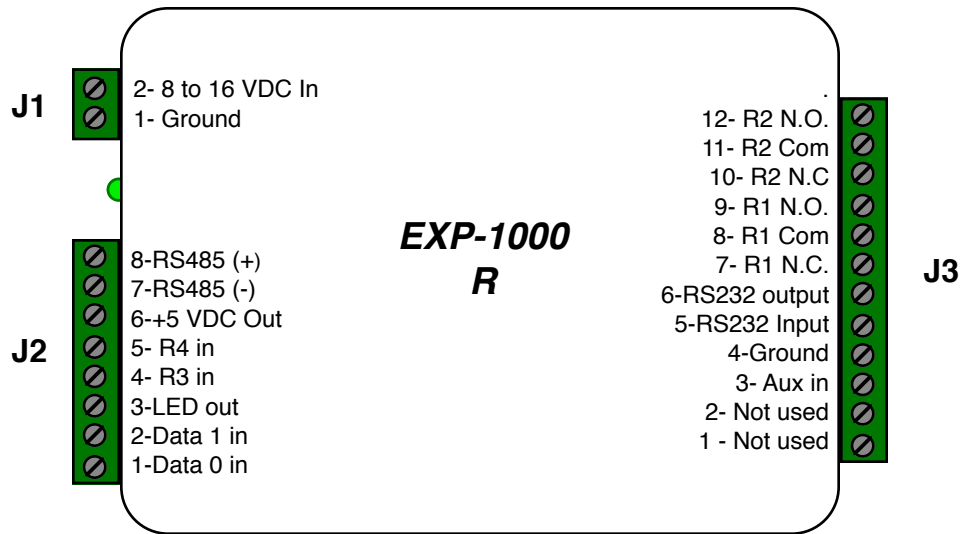
Note:

To operate as a "Central" unit, DIP Switch #2 must be on.

To operate as a Wiegand OUTPUT device for SIO products, DIP switch #2 must be on.

DIP Switch Address Settings

ADDRESS	SWITCH
	12345678
1	01000001
2	01000010
3	01000011
4	01000100
5	01000101
6	01000110
7	01000111
8	01001000
9	01001001
10	01001010
11	01001011
12	01001100
13	01001101
14	01001110
15	01001111
16	01010000

EXP-1000 R Electrical Connections

J1

2- 8 to 16 VDC In
1- Ground

12- R2 N.O.
11- R2 Com
10- R2 N.C
9- R1 N.O.
8- R1 Com
7- R1 N.C.
6-RS232 output
5-RS232 Input
4-Ground
3- Aux in
2- Not used
1 - Not used

J3

EXP-1000 R

J2

8-RS485 (+)
7-RS485 (-)
6-+5 VDC Out
5- R4 in
4- R3 in
3-LED out
2-Data 1 in
1-Data 0 in

J1 Connections

2 - 8 to 16 VDC	Power IN (+)
1 - Ground	Power IN (-)

J2 Connections

8 - RS485 (+)	RS-485 Input
7 - RS485 (-)	RS-485 Input
6 - +5 VDC OUT	5 Volt Power out
5 - Relay #4	Analog Input #4
4 - Relay # 3	Analog Input #3
3 - LED I/O	LED Signal Output
2 - Data 1 In	Wiegand Data 1 Input
1 - Data 0 In	Wiegand Data 0 Input

J3 Connections

12 - Relay #2	N.O. Contact
11 - Relay #2	Common
10 - Relay #2	N.C. Contact
9 - Relay #1	N.O. Contact
8 - Relay #1	Common
7 - Relay #1	N.C. Contact
6 - RS232 Output	Serial Data OUT
5 - RS232 Input	Serial Data IN
4 - Ground	Wiegand/RS232 Ground
3 - Aux in	Digital Input
2 -	Not used
1 -	Not used
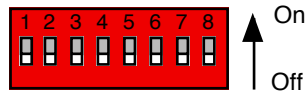
On

Off

Address settings for the EXP-1000

Cypress Suprex® systems will support different numbers of additional EXP-1000 units depending upon the model number. Refer to the specific documents for the SPX-7400, SPX-5600, or SPX-7200, SIO-7300 for maximum ratings.
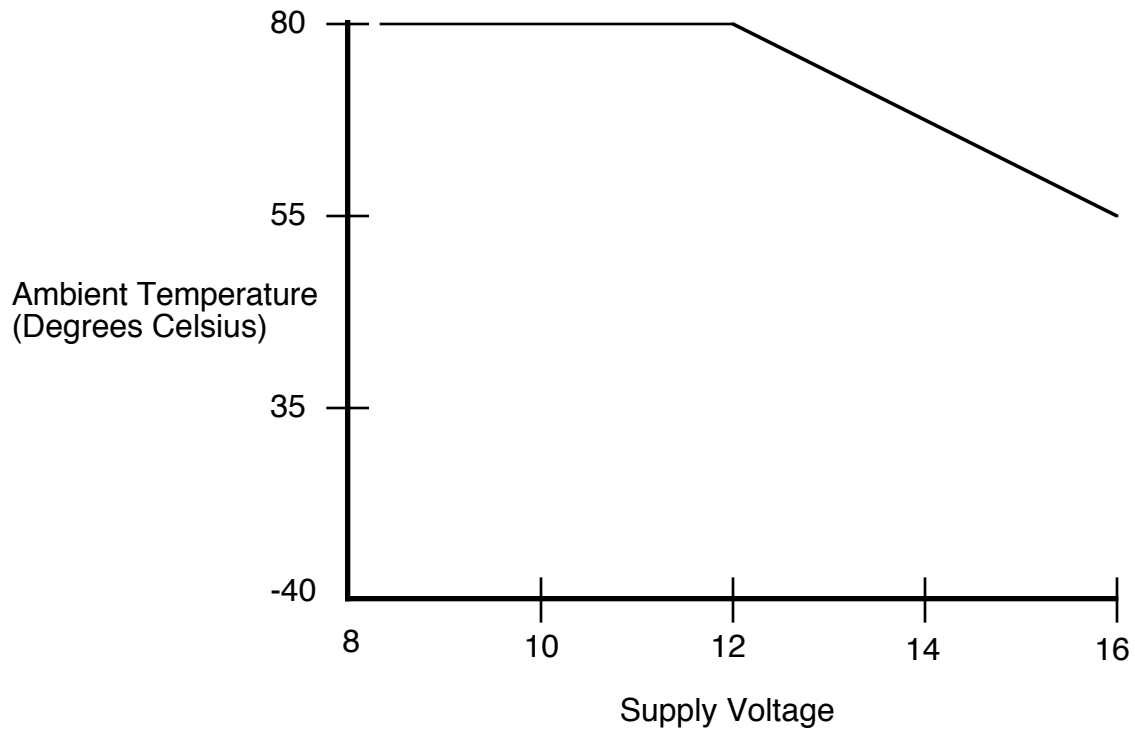
Note:
To operate as a "Remote" unit, DIP Switch #2 must be Off.

To operate as a Wiegand INPUT device for SIO products, DIP switch #2 must be off.

DIP Switch Address Settings

ADDRESS	SWITCH
	12345678
1	00000001
2	00000010
3	00000011
4	00000100
5	00000101
6	00000110
7	00000111
8	00001000
9	00001001
10	00001010
11	00001011
12	00001100
13	00001101
14	00001110
15	00001111
16	00010000

Electrical and Environmental Specifications

Ambient Temperature
(Degrees Celsius)

80

55

35

-40

8   10   12   14   16

Supply Voltage

Temperature/Voltage de-rating curve

The EXP-1000 units should be operated with a filtered 12 Volt nominal DC supply.
Any voltage between 8 and 16 volts can be utilized by following the temperature /voltage derating
curve.   Voltage should not exceed 16 VDC under normal operating conditions.

SIO or SPX to EXP-1000 Connections

CYPRESS

SIO / SPX

8- RS-485(+)
7- RS-485 (-)
6- +5VDC Out
5- Analog IN2
4- Analog IN1
3- LED I/O
2- D1 I/O
1- D0 I/O

CYPRESS

EXP-1000

8-RS485 (+)
7-RS485 (-)
6-+5 VDC Out
5-Analog 2
4-Analog 1
3-LED I/O
2-Data 1 I/O
1-Data 0 I/O

CYPRESS

EXP-1000

8-RS485 (+)
7-RS485 (-)
6-+5 VDC Out
5-Analog 2
4-Analog 1
3-LED I/O
2-Data 1 I/O
1-Data 0 I/O