ENERPAC®

POWERFUL SOLUTIONS. GLOBAL FORCE.

Instruction Sheet

SafeLink Pallet Monitoring System

L3080 Rev. D 06/14

1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

SAFETY FIRST

2.0 SAFETY ISSUES

Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Enerpac cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact Enerpac when in doubt as to the safety precautions and operations.

A **CAUTION** is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A **WARNING** indicates a potential danger that requires correct procedures or practices to avoid personal injury.

A **DANGER** is only used when your action or lack of action may cause serious injury or even death.

Failure to comply with the following hazard alert statements could cause equipment damage and/or personal injury:

WARNING: Make no modifications to any SafeLink component. Any modifications to the product not expressly approved by Enerpac could void the user's authority to operate the product. Contact Enerpac factory for more information.

WARNING: SafeLink products must only be serviced by a qualified electronic technician. For factory authorized repair service, contact the ENERPAC Authorized Service Center in your area.

WARNING: Never use any component of the SafeLink system as a sensing device for personal protection. Doing so could lead to serious injury or death. The SafeLink system does NOT include the self-checking redundant circuitry necessary to allow its use in personal safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

WARNING: Some SafeLink components are powered by a 3.6 volt lithium battery. As with all batteries, there is a fire, explosion, and severe burn hazard risk. Do not burn or expose the battery to high temperatures. Do not recharge, crush, disassemble, or expose the contents to water.

WARNING: All live supply circuits must be disconnected before wiring the machine control.

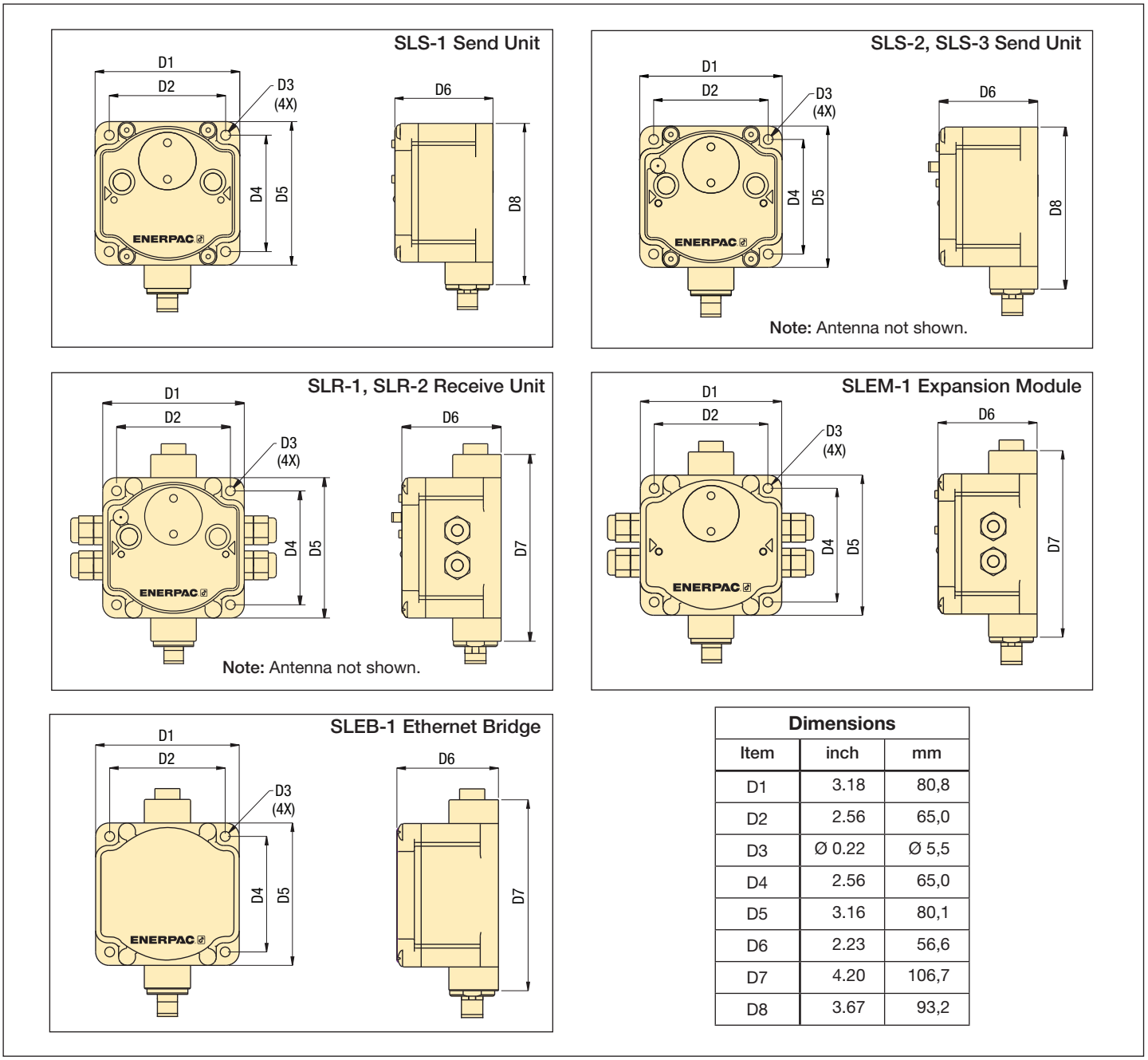
WARNING: To avoid personal injury, keep hands and feet away from fixture cylinder(s) and workpiece during operation.

Note: All specifications published in this document are subject to change. Enerpac reserves the right to modify the specifications of products without notice. Enerpac reserves the right to update or change documentation at any time.

3.0 SPECIFICATIONS

Table 1 - General Specifications		
IP Rating	Meets IEC IP67 Standards. Dust tight, immersion up to one meter.	**SEND UNIT INPUT CAPABILITIES:** SLS-1 & SLS-2: Monitors two inputs and contains a communications check channel (For use **only** with receive unit Model SLR-1). SLS-3: Monitors three inputs (For use **only** with receive unit Model SLR-2).
Radio Frequency	2.4 GHz, Global Standard	
Transmit Power	21 dBm conducted	
Input Power for Receive Unit (SLR-1, SLR-2)	+ 10 VDC to + 30 VDC Supplied by machine control.	
Battery for Send Unit (SLS-1, SLS-2, SLS-3)	3.6 Volt Lithium Battery, Size D (Xeno XL-205F or equivalent).	
Outputs	+ 24 VDC, NMOS Sinking	
FCC Rating	FCC part 15, Subpart C, 15.247	
Receive Unit Communication Protocols (SLR-1, SLR-2)	Modbus RTU RS485. Modbus TCP/IP or Ethernet IP when system is equipped with SLEB-1 Ethernet Bridge.	
Receive Unit Outputs (SLR-1, SLR-2)	24 VDC, Maximum of 6 per unit, NPN Sinking	

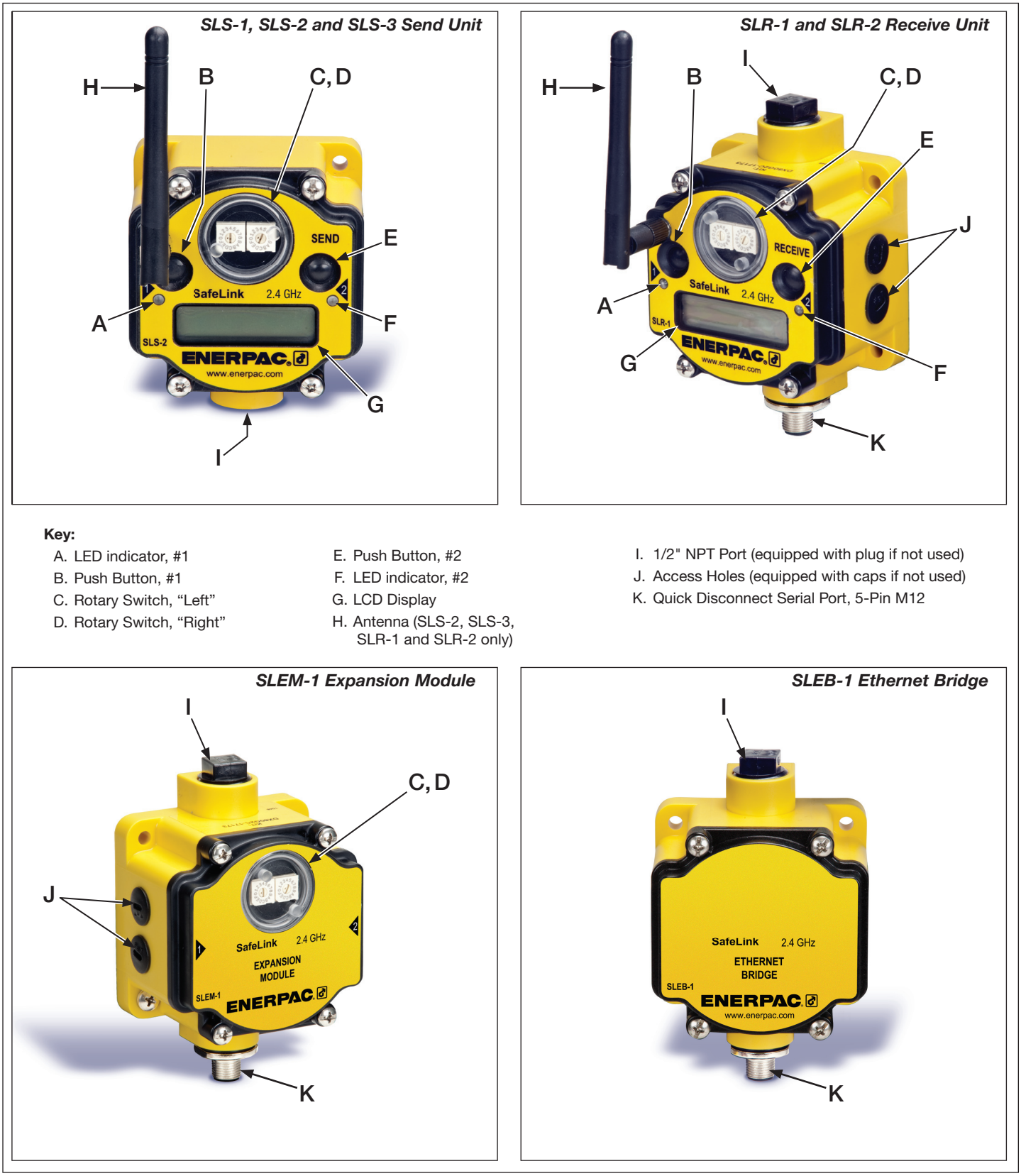
4.0 MOUNTING DIMENSIONS



Dimensions		
Item	inch	mm
D1	3.18	80,8
D2	2.56	65,0
D3	Ø 0.22	Ø 5,5
D4	2.56	65,0
D5	3.16	80,1
D6	2.23	56,6
D7	4.20	106,7
D8	3.67	93,2

Figure 1, Mounting Dimensions

5.0 MAJOR FEATURES AND COMPONENTS



Key:

A. LED indicator, #1
B. Push Button, #1
C. Rotary Switch, "Left"
D. Rotary Switch, "Right"
E. Push Button, #2
F. LED indicator, #2
G. LCD Display
H. Antenna (SLS-2, SLS-3, SLR-1 and SLR-2 only)
I. 1/2" NPT Port (equipped with plug if not used)
J. Access Holes (equipped with caps if not used)
K. Quick Disconnect Serial Port, 5-Pin M12

Figure 2, Major Features and Components

Note: The Enerpac SLCS-1 Power and Communication Splitter Cable (sold seperately - see Figure 17) is required for use with the SLEM-1 Expansion model or the SLEB-1 Ethernet Bridge.

Note: Housing color on current production models is black. Yellow housing shown in this manual is for illustrative purposes only, to help ensure that product features and details are clearly visible.

6.0 INSTALLATION

6.1 Overview

The SafeLink wireless pressure monitoring system continuously monitors the clamping pressure in a fixture during the machining process. It is designed to be interfaced to the machine control so the machine can be stopped immediately if clamping pressure is lost. If desired, the SafeLink system can also be used to monitor limit switch based position sensing on clamping cylinders.

The basic SafeLink system consists of a battery powered send unit (SLS-1, SLS-2 or SLS-3) mounted in or on the fixture, and a matching receive unit (SLR-1 or SLR-2) that is connected and interfaced to the machine control. Radio communication between the two units is 2.4 GHz.

Pressure switches (sold separately) are installed in each fixture circuit to be monitored. Loss of pressure in one or more of the switches is communicated from the send unit to the receive unit, resulting in a fault condition being triggered. The machine control will then initiate appropriate shut down of the machinery.

A special communication verifying feature in the receive unit periodically queries the send unit every few seconds, to ensure that it is responding. If there is no response, a fault condition will be triggered, and the machine control will initiate appropriate shut down of the machinery.

Up to 47 send units can be linked to one receive unit if Modbus TCP/IP or Ethernet IP communication protocol is used. These protocols require the use of the SafeLink SLEB-1 Ethernet Bridge.

IMPORTANT: Installation and setup instructions are contained in the following sections of this manual. These instructions are intended only for use by experienced installation technicians with appropriate skills and training. If custom installation services are required, contact Enerpac for additional information.

6.2 Installing the SLR-1 or SLR-2 Receive Unit

The SLR-1 or SLR-2 receive unit should be mounted on an external surface on the machine control enclosure, or inside of the control enclosure on a DIN Rail using the Enerpac SLDB-1 DIN rail mounting bracket (optional accessory). See Figure 3.

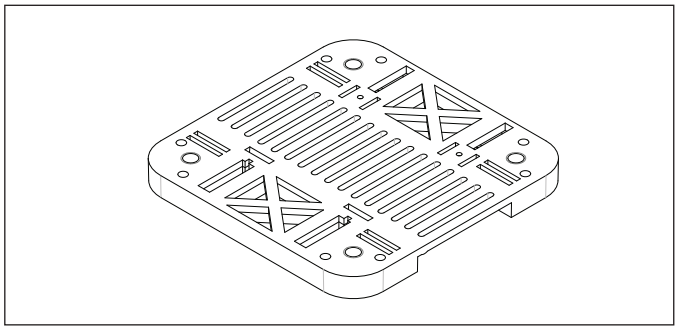


Figure 3, SLDB-1 DIN Rail Mounting Bracket (optional)

The SLR-1 and SLR-2 receive units require a connection to a 24 VDC power supply. A connection of the output from the SLR-1 or SLR-2 into the machine control is also required.

Note: The SLR receive units communicate to the machine control via either a 24 VDC output or via Modbus RTU RS485 protocol. If Modbus TCP/IP or Ethernet IP protocols are used, the optional SLEB-1 Ethernet Bridge is required. See sections 9 and 10 of this manual for additional information.

Both models contain an external antenna jack and separate antenna. The antenna can be cabled if the control enclosure has a cover. Use the Enerpac SLS-2AC cable (optional accessory) to connect either SLR receive unit to an externally mounted antenna.

6.3 Installing the SLS-1 Send Unit on a Fixture

The SLS-1 send unit must be mounted externally on the fixture in a location that does not expose the unit to excessive coolant flow or flying chips.

It must be positioned so that the internal antenna can transmit freely without interference. Use the four 5 mm mounting holes on the base to securely mount the unit.

The SLS-1 is IEC rated at IP67, protected from dust and immersion to 1 meter.

6.4 Installing the SLS-2 or SLS-3 Send Unit on a Fixture

The SLS-2 and SLS-3 send units are intended to be mounted inside of a fixture (such as a four-sided tombstone) in a location that does not expose the unit to excessive coolant flow or flying chips. The SLS-2 and SLS-3 are IEC rated at IP67, protected from dust and immersion to 1 meter. Use the four 5 mm mounting holes on the base to securely mount the unit.

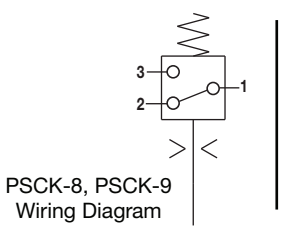
Both models contain an external antenna jack and separate antenna. The antenna can be cabled if the fixture has a cover. Use the Enerpac SLS-2AC cable (optional accessory) to connect either SLS send unit to an externally mounted antenna.

7.0 WIRING AND CONNECTIONS

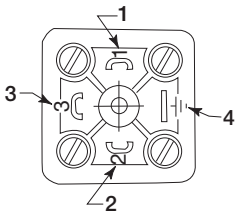
7.1 Pressure Switch Installation and Wiring

All pressure switches should be located in a protected area, where they are not exposed to excessive coolant flow or flying chips. Wire each switch *normally open*, so that the circuit in the pressure switch will close when the pressure setting is reached, but will go open if the system pressure has decreased below acceptable limits.

The use of an Enerpac PSCK-8 or PSCK-9 pressure switch (optional accessory) is recommended. Connect wires to terminals 1 and 3, so that the switch is wired *normally open*. See Figure 4 for switch wiring details. Refer to Enerpac instruction sheet L2391 for additional information regarding PSCK pressure switch installation.



PSCK-8, PSCK-9
Wiring Diagram



DIN Style connector plug
(with protective cover removed)

Function	Terminal
Common	1
Normally Closed	2
Normally Open	3
Ground (not used)	4

Figure 4, Pressure Switch Connections (typical)

7.2 Wiring Pressure Switch to the Send Unit (SLS-1, SLS-2 or SLS-3)

Connect the pressure switch to the SLS send unit as described in the following procedure:

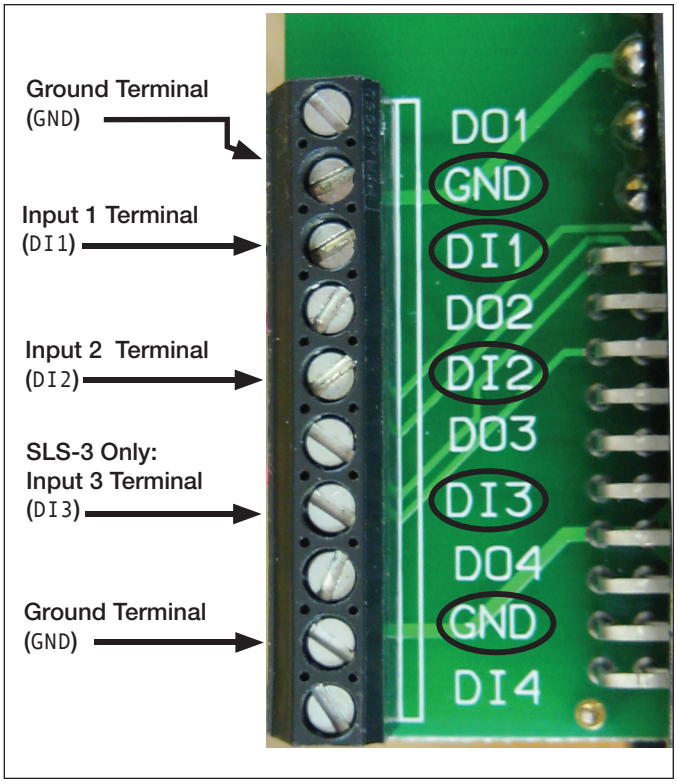


Figure 5, Send Unit Terminal Block (SLS-1, SLS-2, SLS-3)

Table 2 - SLS-1, SLS-2 and SLS-3 Wiring information		
Input Function	SEND UNIT Input Connection Terminal	SEND UNIT Ground Terminal
Input #1	DI1	GND
Input #2	DI2	GND
Input #3 (SLS-3 only)	DI3	GND

Remove the four screws that secure the face plate of the SLS send unit. Locate the terminal strip inside the housing. See Figure 5.

Wire the leads from the pressure switch to the DI1 and ground terminals per Table 2. Note that the strip contains two ground (GND) connections. Use whichever one is most convenient. If more than one pressure switch is used, be sure to connect them in series.

A position sensing limit switch (if used) can be connected to terminal DI2. Or, if desired, this terminal can instead be used to connect one or more additional pressure switches.

IMPORTANT: Use only limit type position switches. Proximity type switches are not compatible with the SafeLink system.

Note: For SLS-1 and SLS-2, communication input terminal DI3 is assigned to a circuit that periodically checks for proper operation of the sending unit during SafeLink operation. For SLS-1 and SLS-2, DO NOT make any connections to terminal DI3.

Terminals DO1, DO2, DO3, DO4 and DI4 are NOT USED.

7.3 Connecting the 24 VDC Outputs of Receive Unit SLR-1 or SLR-2 to the Machine Control

Note: This section covers typical connections using the standard 24 VDC I/O machine interface. If using Modbus RTU, Modbus TCP/IP or Ethernet IP, please refer to sections 9 and 10 of this manual.

Remove the four screws that secure the face plate of the SLR-1 or SLR-2 receive unit. Locate the receive unit terminal block. See Figure 6.

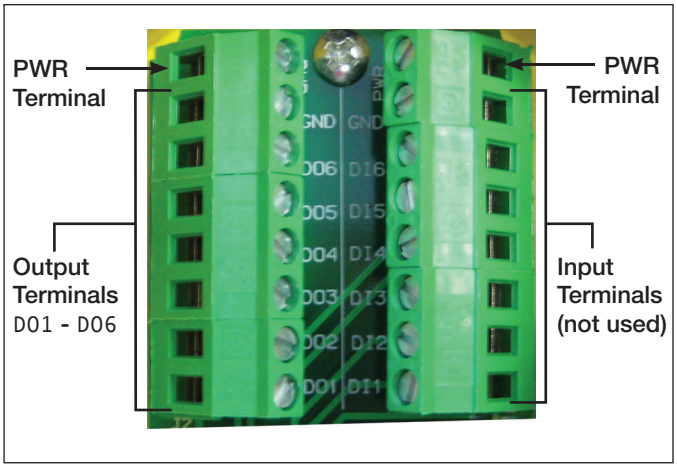


Figure 6, Receive Unit Terminal Block (SLR-1, SLR-2)

Wire the output terminals of the SLR-1 or SLR-2 to the machine control input terminals. Refer to Table 3 for SLR terminal block connection information.

Note: Two + 24 VDC power terminals (PWR) are available at the top of the terminal block. The DO-x outputs of the SLR receive unit are pre-paired to the DI-x inputs of the SLS send unit.

Table 3 - SLR-1 and SLR-2 Wiring information			
Send Unit ID and Input (SLS-1, SLS-2, SLS-3)		Receive Unit Terminals (SLR-1, SLR-2) See Figure 6	
ID #	Input #	Output (-24 VDC)	Power (+24 VDC)
01	DI1	DO1	PWR
01	DI2	DO2	PWR
01	DI3*	DO3**	PWR
02	DI1	DO4	PWR
02	DI2	DO5	PWR
02	DI3*	DO6**	PWR

* SLS-3 only. ** SLR-2 only.

8.0 SETUP

8.1 Selecting the Send Unit ID

Open clear round cover on SLS-1, SLS-2 or SLS-3.

Using the rotary switches, set the send unit ID. Start with “01” for the first send unit in your network. The second send unit would be “02”. See Figure 7.

Note: The maximum number of send units that can be paired with a receive unit will vary, depending on the communication protocol being used. Refer to Section 9 of this manual for additional information.

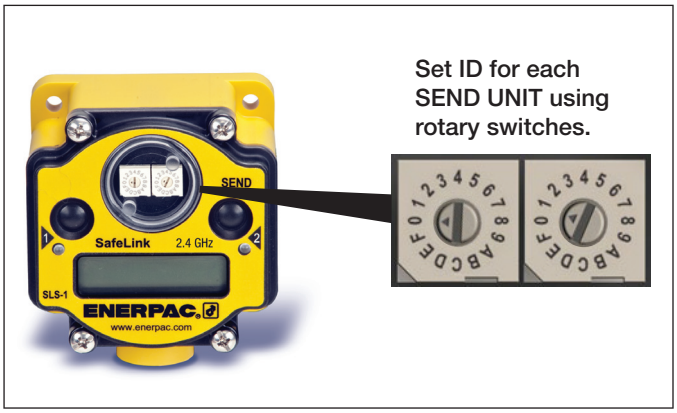


Figure 7, Setting ID Number of SLS Send Unit

Note: The rotary switches on the SLR receive unit are used only to select the desired SLS send unit to be viewed on the receive unit LCD display. They DO NOT determine the send unit ID. Refer to Section 8.4 for additional information.

8.2 Turning Send Unit Power ON

Press and hold Button #1 on SLS send unit for 3-4 seconds

The display window will scroll though the status of each possible I/O. LED #2 will flash red. See Figure 8.

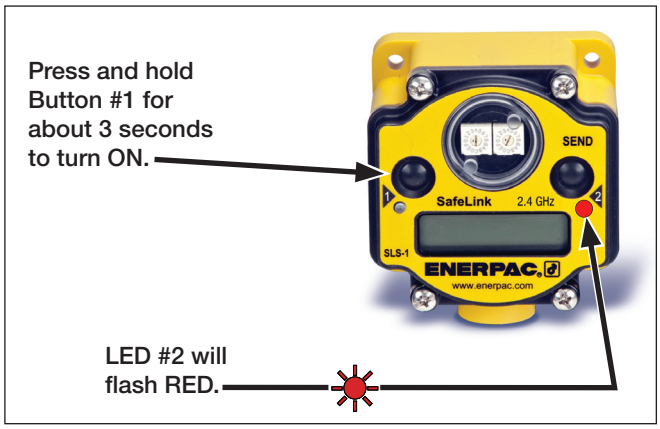


Figure 8, Turning Power ON - SLS Send Unit

8.3 Binding Send Unit to Receive Unit

Press Button #2 on the SLS send unit three times. The display will show “NETWORK BINDING”. See Figure 9.

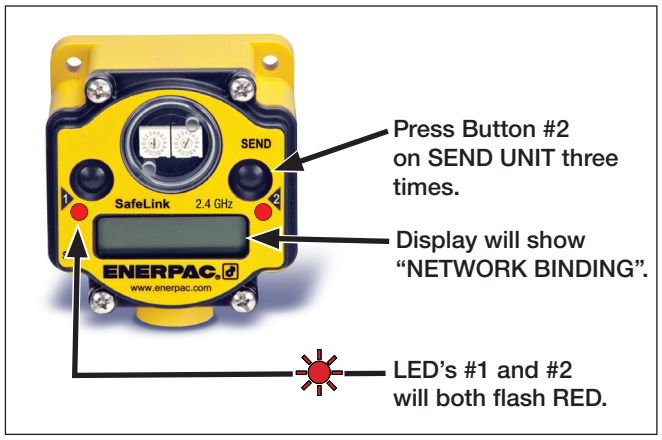


Figure 9, Network Binding - SLS Send Unit

Press Button #2 on the SLR receive unit three times. Check that display shows “BINDING”. This indicates that the radios in the SLS and the SLR units are seeking each other. See Figure 10.

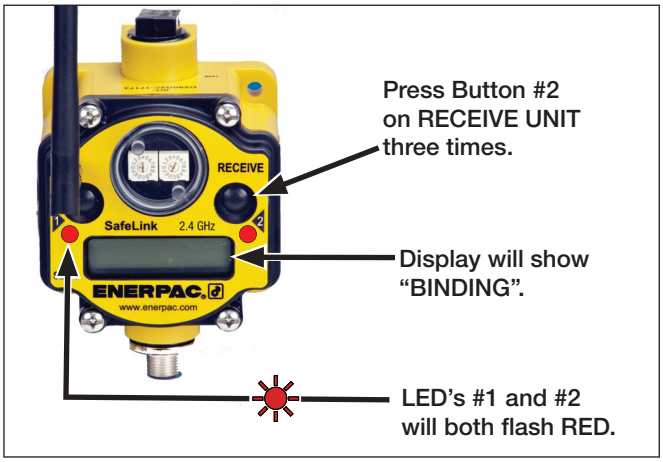


Figure 10, Network Binding - SLR Receive Unit

After binding occurs, the SLS send unit will flash BOUND several times and will then begin scrolling. However, it will remain in a standby mode until the SLR receive unit is returned to the RUN mode.

Until the SLR receive unit is returned to the RUN mode, LED #2 on the SLS send unit will continue to flash red. Both LED #1 and #2 on the receive unit will continue to flash alternately.

Note: At this time, repeat the binding procedure for any other SLS send units in the network (if present).

After all SLS send units in the network have been bound, press button #2 on the SLR receive unit once. The SLR receive unit will exit BINDING mode and return to RUN mode. Communication between the SLR receive unit and the SLS send unit(s) is now enabled.

Note: After the SLR receive unit is placed in the RUN mode, approximately 10-15 seconds will be required for the SLR receive unit to begin communicating with the SLS send unit(s).

When the units begin communicating, LED #2 on the SLS send unit will shut off and LED #1 will begin flashing green, indicating that communication is in progress. See Figure 11.

On the SLR receive unit, LED #1 will change from flashing red to a steady green. LED #2 will turn off. The display will then scroll through an I/O status check. It will show “RUN”, the Network ID (NID) of the system network and the status of each input (ON or OFF). See Figure 13.

Note: Press Button #2 twice on either unit to stop the scrolling display.

Figure 11, Starting Communication - SLR Receive Unit

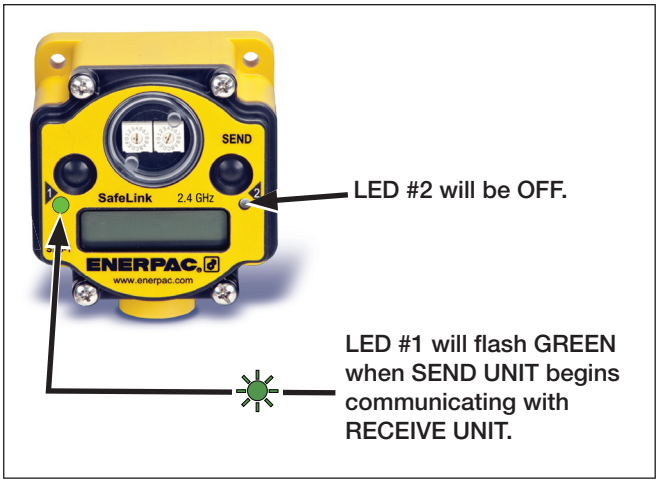


Figure 12, Communication In Progress - SLS Send Unit

Figure 13, RUN Mode - SLR Receive Unit

8.4 Checking Signal Strength

The SLR-1 or SLR-2 can be used to measure the strength of the wireless signal between each SLS send unit and the SLR receive unit. Measure signal strength as described in the following steps:

1. On the SLR receive unit, Set the rotary switches to the ID number of the desired send unit to be viewed. See Figure 14.

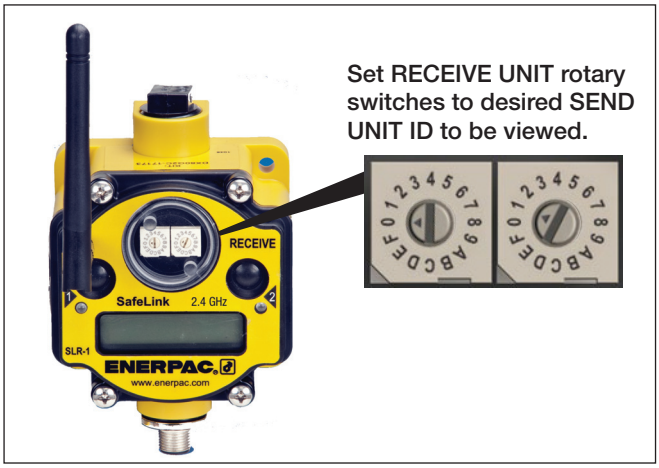


Figure 14, Selecting Send Unit to be Viewed by SLR Receive Unit

2. Press button #1 to scroll to “#SITE”.
3. Press button #2 to start SLR viewing mode. “NOD x” will appear on the display (x = ID number of the SLS send unit to be viewed by the SLR-1 receive unit). See Figure 15.
4. Press button #2 again to start the survey of the signal strength between the SLS send unit and the SLR receive unit.

   G = Good Signal Strength

   Y = Medium Signal Strength

   R = Low Signal Strength

   M = Missed Signals

   Note: The number (1-100) following the G, Y, R or M indicates how many signal checks out of 100 are G, Y, R or M.
5. Press button #2 twice to return to “NOD x”.
6. Press button #2 twice to set to “#SITE”.
7. Press button #1 to scroll to “RUN”.
8. The display will scroll through the status of the SLS send unit selected by the rotary switches on the SLR receive unit.

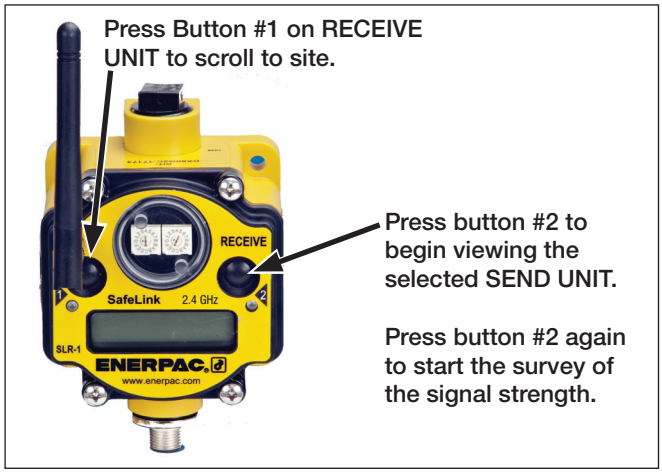


Figure 15, Checking Signal Strength - SLR Receive Unit

8.5 LED Status Indicator Lights

During operation of the system, the LED lights provide a quick visual indication of the status of the send units and the receive unit.

See Tables 4 and 5.

Table 4 - SLR-1 and SLR-2 Receive Unit Status Indicators

STATUS	LED 1	LED 2
Power ON	Green	OFF
Modbus Communication Active	OFF	Yellow Flash
Modbus Communication Error	OFF	Red Flash (1 every 3 seconds)
System Error	Red Flash	Red Flash

Table 5 - SLS-1, SLS-2 & SLS-3 Send Unit Status Indicators

STATUS	LED 1	LED 2
RF Link OK	Green Flash (1 per second)	OFF
RF Link Error	OFF	Red Flash (1 per second)
System Error	Red Flash	Red Flash (1 per second)

8.6 Removing an SLS Send Unit from the Network

Before taking a fixture out of service or moving it to another system, the fixture's SLS send unit must be removed from the network.

Use the following procedure to unbind an SLS-1, SLS-2 or SLS-3 send unit from an SLR-1 or SLR-2 receive unit:

Note: Refer to Section 5.0 for button locations.

1. On the SLS send unit, press and hold button #1 for 3 to 4 seconds. This will turn-off the send unit.
2. On the SLR receive unit:
   - Check that the display shows "ERROR".
   - Press button #2 once.
     Check that the display shows "NOD x"

   Note: "x" is the ID number (node) of the SLS send unit that was turned-off in step 1.

   - Press button #2 again.
     Check that the display shows "EC 53".
   - Press button #1.
     Check that the display shows "CLEAR".
   - Press button #2 to accept the changes.
     Check that the display shows "ERASED".

The SLS send unit should now be unbound from the SLR receive unit. It will no longer be included in the network.

9.0 SETTING UP EXPANDED SYSTEMS

Refer to Table 6 for an overview of SafeLink expansion possibilities.

If only one or two additional SLS send units are required, the SLEM-1 Expansion Unit can be used. For systems requiring greater numbers of additional SLS send units (such as a pallet pool system) the interface to the machine control can be achieved using either the standard 5-Pin serial port connection located on the SLR receive unit or by using the SLEB-1 Ethernet Bridge. The SLEB-1 allows the SafeLink system to be connected to an Ethernet network.

9.1 Using the SLEM-1 Expansion Module

For systems with up to 4 fixtures, where 24 VDC output is the desired interface to the machine control, the SLEM-1 Expansion Module (optional accessory) provides additional expansion capabilities. The SLEM-1 allows up to two additional SLS send units to be added to the SafeLink system.

The output terminal block of the SLEM-1 is the same as that used on the SLR receive unit. See Figure 6 for wiring instructions.

9.2 Setting up a Modbus Based System

For machine controls that use Modbus RTU or TCP protocols, the SLR-1 and SLR-2 receive units provide a built in Modbus system.

The Modbus Serial Line RTU protocol is a master-slave protocol typically used for industrial applications. It is an open standard implementation of Modbus based on Internet protocols. Modbus TCP/IP is similar to Modbus RTU but transmits information within TCP/IP data packets.

Table 6 - Expanded System Data and Recommendations

Number of fixtures:	SafeLink send unit model number:	Number of outputs available from each send unit:	Recommended connection to machine control:	Output protocol:	Number of outputs to machine control:
1	SLS-1, SLS-2 or SLS-3	3	SLR-1 or SLR-2	24 VDC	6
2	SLS-1, SLS-2 or SLS-3	3	SLR-1 or SLR-2	24 VDC	6
3 to 4	SLS-1, SLS-2 or SLS-3	3	SLR-1 or SLR-2 with SLEM-1	24 VDC	12
5 or more	SLS-1, SLS-2 or SLS-3	3	Modbus from SLR-1 or SLR-2	Modbus	47
	SLS-1, SLS-2 or SLS-3	3	SLR-1 or SLR-2 with SLEB-1	Ethernet	47

Table 7 - Modbus Holding Registers

I/O Port	Receive #1	Send #1	Send #2	Send #3	Send #4	Send #5	Send #6	Send #7	Send #8
1		17	33	49	65	81	97	113	129
2		18	34	50	66	82	98	114	130
3		19	35	51	67	83	99	115	131
8		24	40	56	72	88	104	120	136
9	9								
10	10								
11	11								
12	12								
13	13								
14	14								

Modbus RTU is the native protocol for the SafeLink system. All wireless devices are organized with a two-byte register for each I/O point. Sixteen registers are allocated for each device, typically eight registers for inputs and eight registers for outputs. For Modbus, these registers are addressed consecutively beginning with the Receive (SLR-1 or SLR-2) then Send 1 (SLS-1, SLS-2 or SLS-3) through Send (N) (SLS-1, SLS-2 or SLS-3).

Go to www.modbus.org for additional information regarding Modbus.

9.3 Holding Registers

Refer to Table 7 for additional information.

There are 16 Modbus holding registers for each SafeLink device. A holding register is the location in the internal memory of a PLC for a particular input. For example, in Table 7, I/O port 1 for Send #1 is register 17. This may correspond to a pressure switch used on I/O port 1 in Send #1. Calculate the holding register number for each device using the following equation:

Register number = 40,000 + (I/O # + (Send # x 16))

9.4 Modbus Connection to Controller

The Modbus output from the SLR-1 or SLR-2 receive unit is through the 5 pin European style serial connector located at the bottom of the housing. See Figure 16 for wiring information.

A power and communication cable is supplied with the SLR-1 or SLR-2 receive unit. Additional components not included with the SafeLink system may be required to interface with various controllers. See your machine supplier for information on required adaptors and other items that may be needed for your installation.

Wire No	Wire Color	Description
1	Brown	10 to 30 VDC
2	White	RS485 / D1 / B / +
3	Blue	DC Common (Ground)
4	Black	RS485 / D0 / A /-
5	Gray	Communications Ground

CAUTION: DO NOT connect DC Power to pins #2 (white wire) #4 (black wire) or #5 (gray wire). Doing so will cause permanent damage to the SLR receive unit. Such damage is not covered under warranty.

Figure 16, 5-Pin Serial Port Connector (SLR-1 or SLR-2)

9.5 Setting up Ethernet IP Communication

Ethernet setup is the same as for a Modbus based system. Refer to Table 7 to determine the register assignments.

The default IP address for the SLEB-1 Ethernet Bridge is IP 192.168.0.1.

Contact Enerpac for additional information if you wish to reassign the SLEB-1 to a different IP address.

9.6 SLCS-1 Power and Communication Splitter Cable

The Enerpac SLCS-1 (optional accessory) is used to connect the SLEB-1 Ethernet Bridge and the SLR-1 or SLR-2 receive unit to the machine controller and Ethernet network. See Figure 17.

Figure 17, SLCS-1

The SLCS-1 is also required when using an SLEM-1 Expansion Module with a standard 24 VDC I/O machine interface.

Refer to Figures 19 through 25 in Section 10.0 for typical hookups using the SLCS-1.

10.0 TYPICAL SYSTEM LAYOUTS

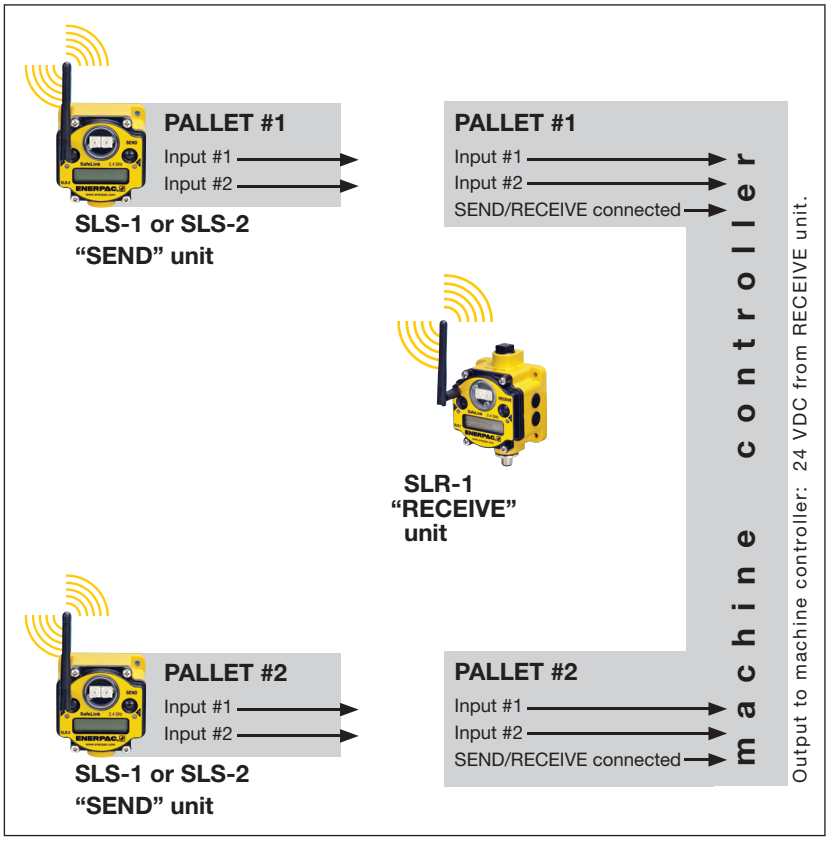


Figure 18, Basic System with I/O Machine Interface (SLS-1 or SLS-2 with SLR-1)

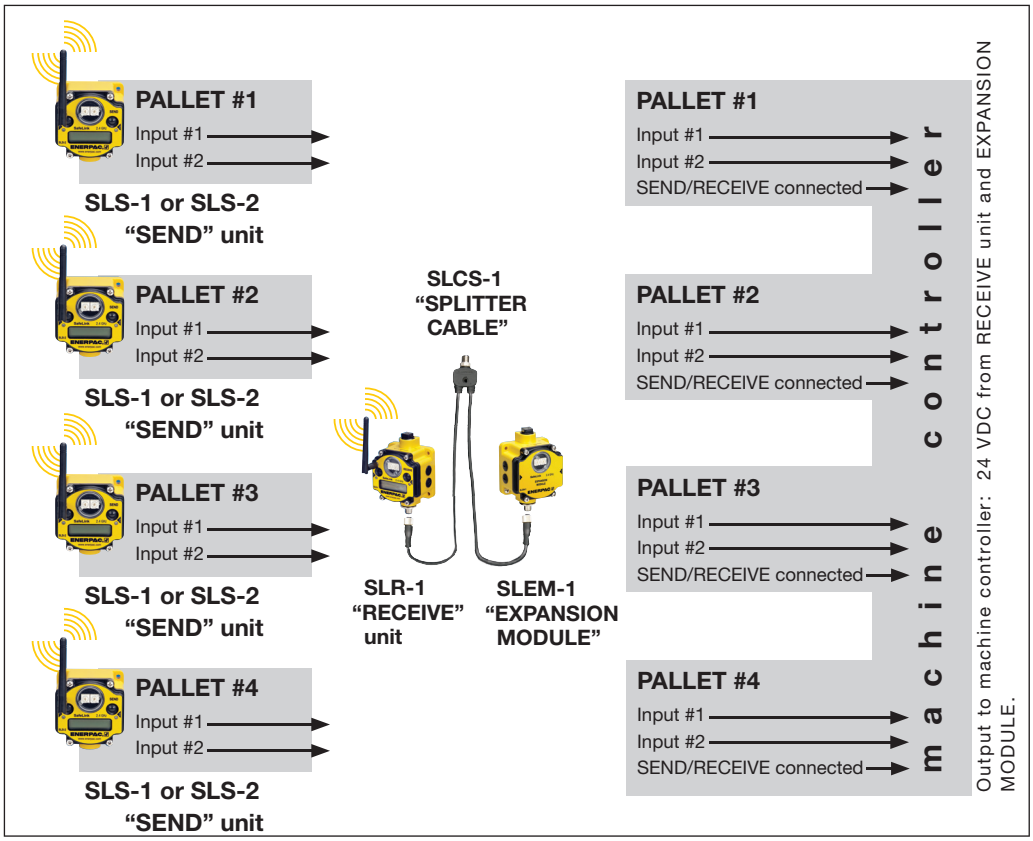


Figure 19, Larger System with I/O Machine Interface (SLS-1 or SLS-2 with SLR-1)

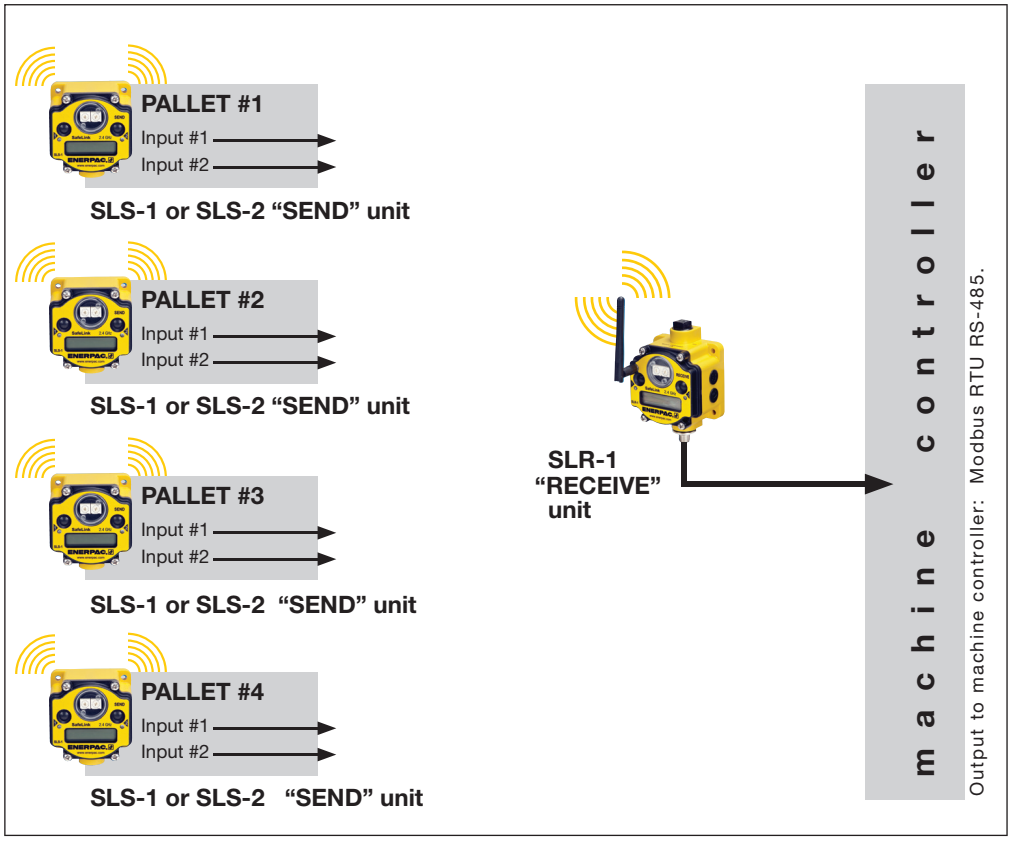


Figure 20, Larger System with Modbus RTU Machine Interface (SLS-1 or SLS-2 with SLR-1)

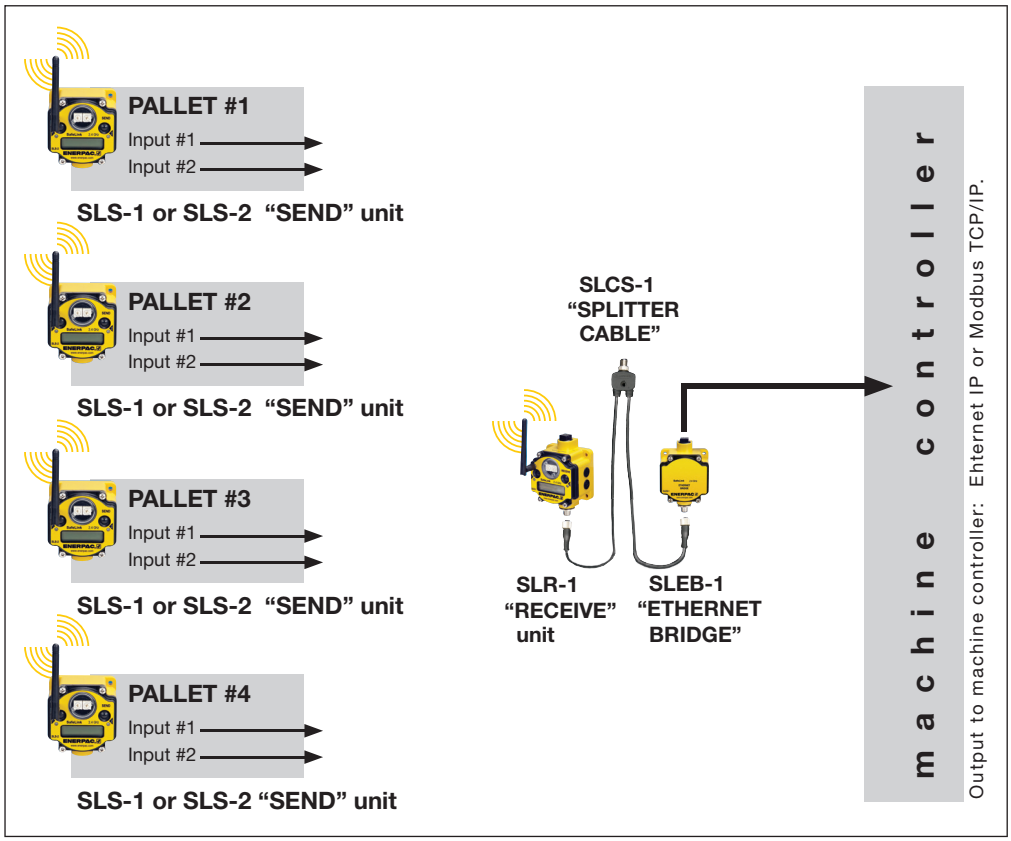


Figure 21, Larger System with Ethernet IP Machine Interface (SLS-1 or SLS-2 with SLR-1)

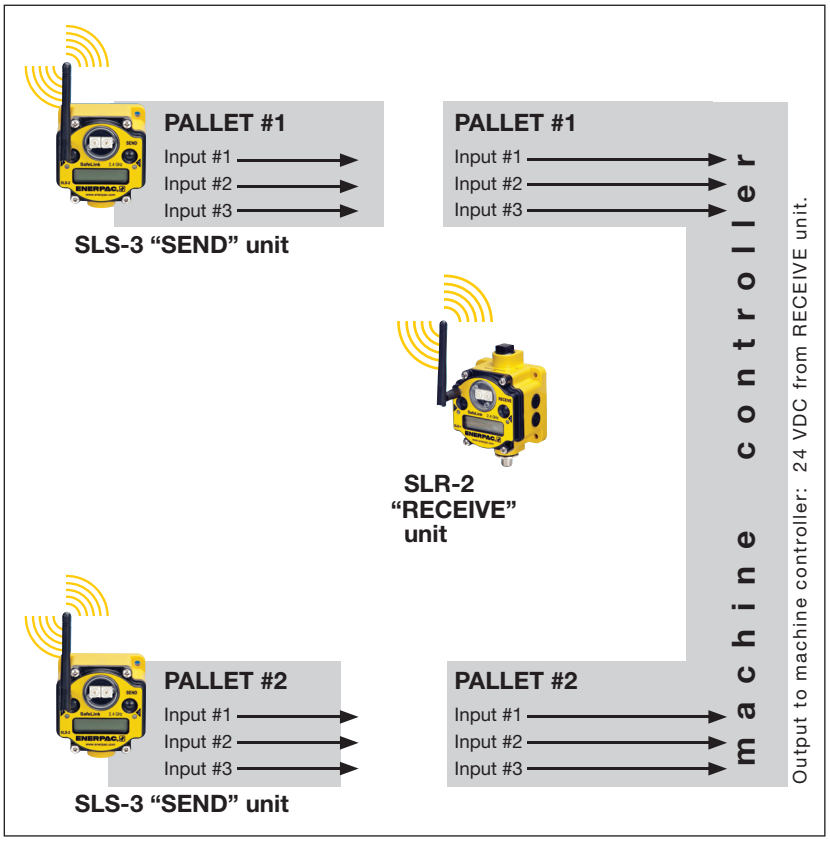


Figure 22, Basic System with I/O Machine Interface (SLS-3 with SLR-2)

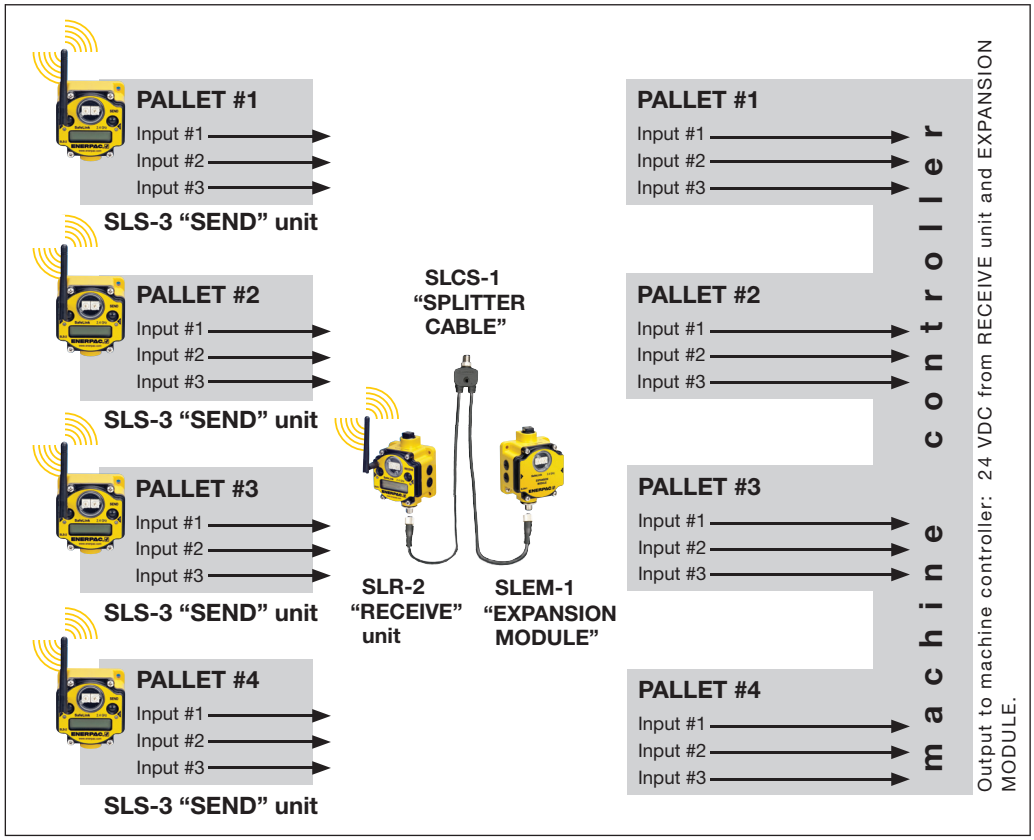


Figure 23, Larger System with I/O Machine Interface (SLS-3 with SLR-2)

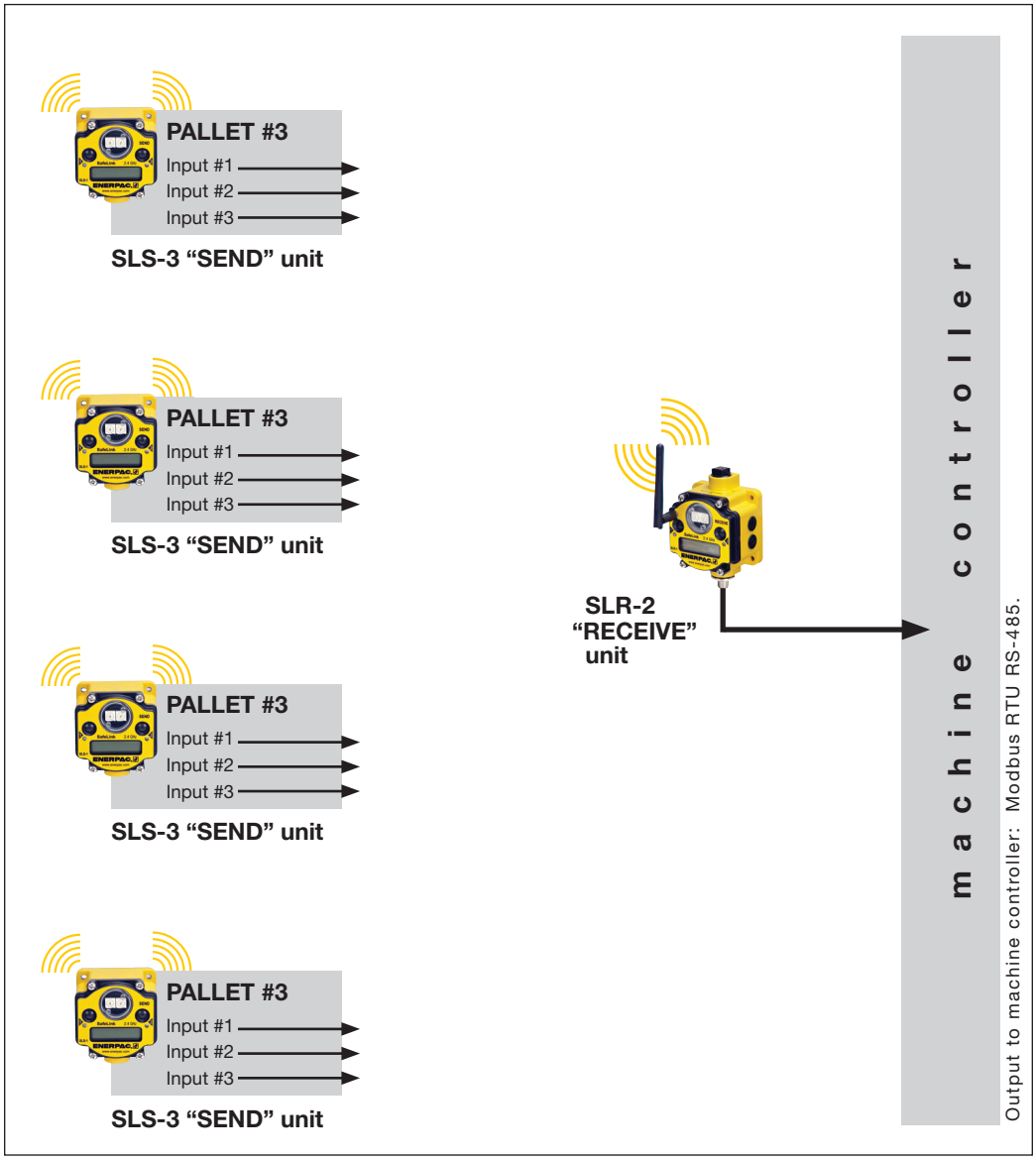


Figure 24, Larger System with Modbus RTU Machine Interface (SLS-3 with SLR-2)

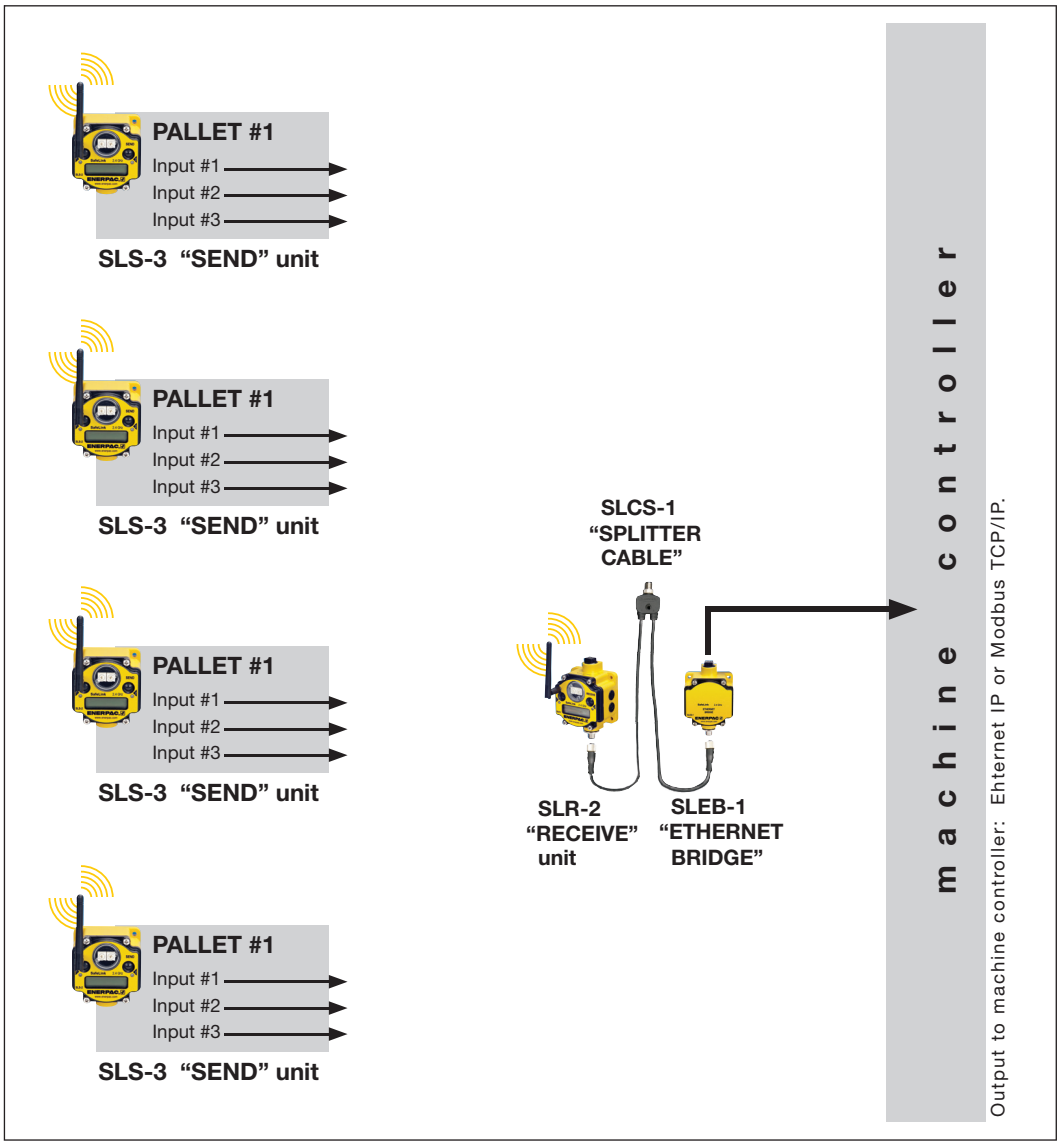


Figure 25, Larger System with Ethernet IP Machine Interface (SLS-3 with SLR-2)

11.0 MAINTENANCE

Follow these instructions to perform basic maintenance tasks.

11.1 Replacing The Main Body Gasket

Check the main body gasket every time the device is opened.

Replace the gasket when it is damaged, discolored, or showing signs of wear.

The gasket must be:

• Fully seated within its channel along the full length of the perimeter, and. . .

• Positioned straight within the channel with no twisting, stress, or stretching.

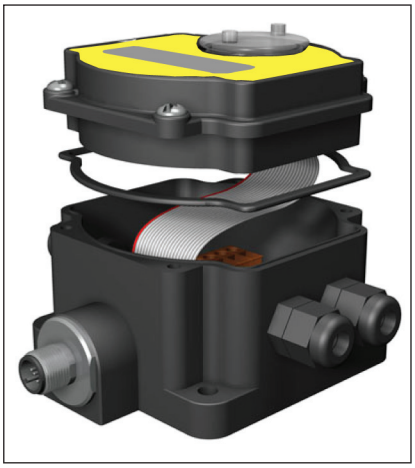


Figure 26, Main Body Gasket

Figure 28, Battery (SLS-1, SLS-2 and SLS-3 Only)

11.2 Replacing The Rotary Dial Cover

Check the o-ring on the rotary switch access cover whenever the access cover is removed. Replace the o-ring when it is damaged, discolored, or showing signs of wear.

The o-ring should be:

• Seated firmly against the threads without stretching to fit or without bulging loosely, and. . .

• Pushed against the flanged cover.

When removing or closing the rotary switch access cover, manually twist the cover into position.

Do not allow cross-threading between the cover and the device's face.

Figure 27, Rotary Switch Cover

Once the cover is in place and manually tightened, use a small screwdriver (no longer than 5 inches [127 mm] total length) as a lever to apply enough torque to bring the rotary switch access cover even with the cover surface.

11.3 Battery Replacement

To replace the lithium "D" cell battery in the SLS-1, SLS-2 or SLS-3 send unit, follow these steps:

1. Remove the four screws mounting the device face plate to the housing and remove the face plate.
2. Remove the discharged battery and replace with a new battery. Use only a 3.6V lithium battery from Xeno, model number XL-205F.
3. Verify the battery's positive and negative terminals align to the positive and negative terminals of the battery holder mounted within the case. The negative end is toward the spring. **Caution:** There is a risk of explosion if the battery is replaced incorrectly.
4. After replacing the battery, allow up to 60 seconds for the device to power up.

When removing the battery, press the battery towards the negative terminal to compress the spring. Pry up on the battery's positive end to remove from the battery holder. Properly dispose of your used battery according to local regulations by taking it to a hazardous waste collection site, an e-waste disposal center, or other facility qualified to accept lithium batteries.

WARNING: As with all batteries, these is a fire, explosion, and severe burn hazard risk. Do not burn or expose the battery to high temperatures. Do not recharge, crush, disassemble, or expose the contents to water.

12.0 PRODUCT WARRANTY

SafeLink products are warranted by Enerpac to be free from defects in material and workmanship for 2 years following the date of shipment. Enerpac will repair or replace, free of charge, any SafeLink product which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the SafeLink product.

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