

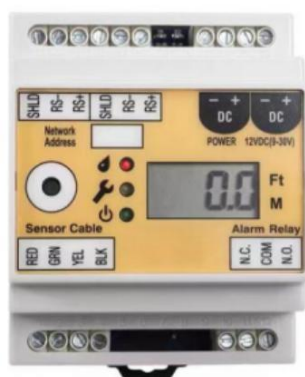
SPD-780B

Locating Leakage Detection Controller

SPD-780B is designed to work together with the locating leakage sensing cable. Once sensing cable find a leakage, it will send a signal to SPD-780B, then SPD-780B will make the relay working and trigger the alarm, and system will pinpoint the Leakageage location.

SPD-780B can be used as a stand-alone leak detection alarm, or connected to a host system (computer, or control automation system) via MODBUS-RTU(ASCII), pairing RS-485 serial communication wiring.

It has a wide range of applications, including data center, telecommunication rooms, HVAC equipment locations, pipes, electrical vaults, storage areas, tanks, and roofs.



Features

- Fault alarm, leakage alarm, interference alarm and communication status alarm are available.
- 3-digit LCD screen displays the leakage position with an accuracy of 0.1M
- Power supply: 9-30V DC
- With RS-485, the communication distance up to 1500 meters.
- Standard Modbus protocol, 128 data storage, it has data memory when power-off.
- Baud rate and RS485 address can be set through the software and module itself.
- Relay output: Normal open or normal close
- Good performance: anti-static, anti-lightning, anti-surge.
- DIN rail convenient installation way.

Technical Specification

Basic characteristics	Response time	$\leq 8S$
	Detection distance	150m
	Detection Accuracy	$\pm 0.5m+1\%$
	Location display accuracy	0.1m
	Size	85.8x70x58.7mm
Environmental ratings	Working temperature	-20°C~70°C
	Humidity	0%~95% RH (no condensation)
Power requirements	SPD-780B	9-30V DC (suggest 12V DC) Power consumption < 0.5W
	Communication protocol	MODBUS RTU; MODUS ASCII
RS-485 interface	Baud rate	2400, 4800, 9600(default), 19200 bit/s
	Address	1~254, default 199
	Data format	N,8,1
	Address setting	Defaulted as 199; 1 to 254 can be selected.
Relay	Dry contact. NO/NC/COM, rated 30VDC/3A	

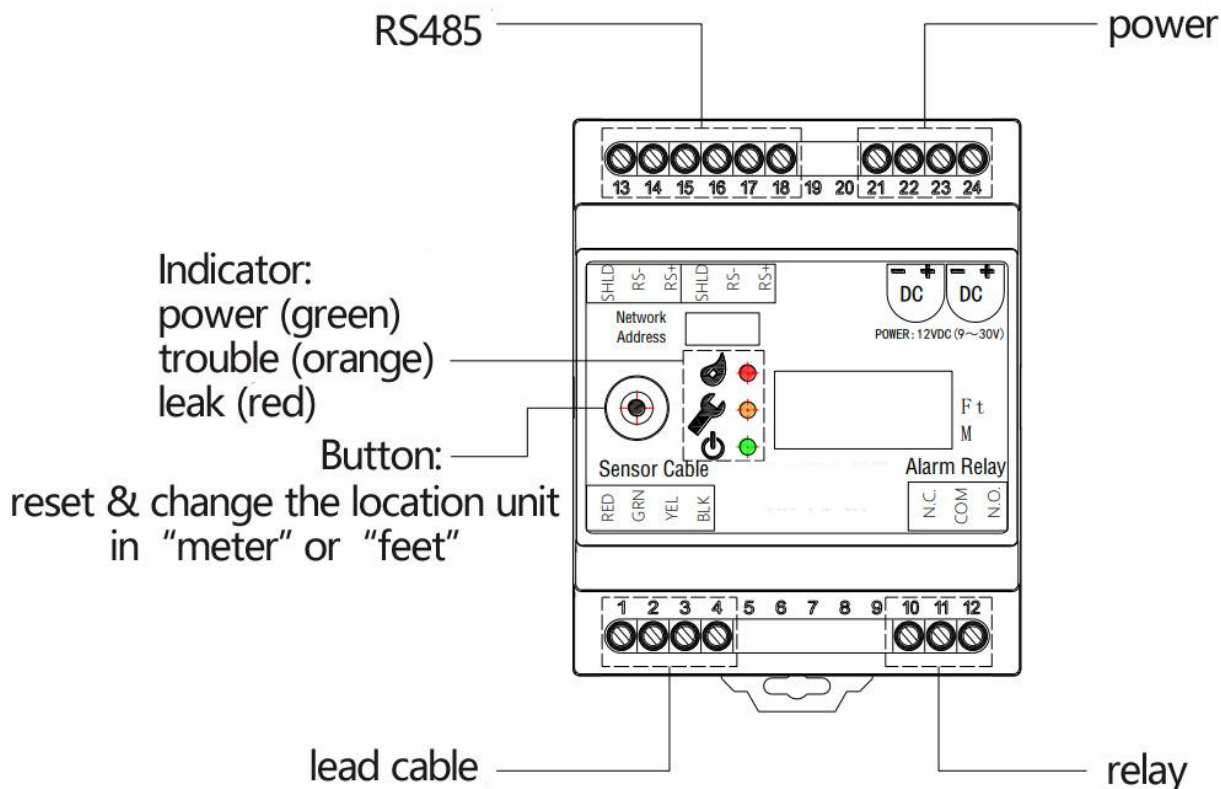
Wiring

1) Leakage detection system

SPD-780B is used in Leakage detection system which includes: controller, sensing cables, lead cable and other accessories.

According to relay output signal, SPD-780B can control peripheral devices such as siren, phone dialler, switch value acquisition module, SMS module, etc.

The sensing cable connects to RED, GRN, YEL, BLK, the output signal of relay is NO, COM and NC correspondingly.

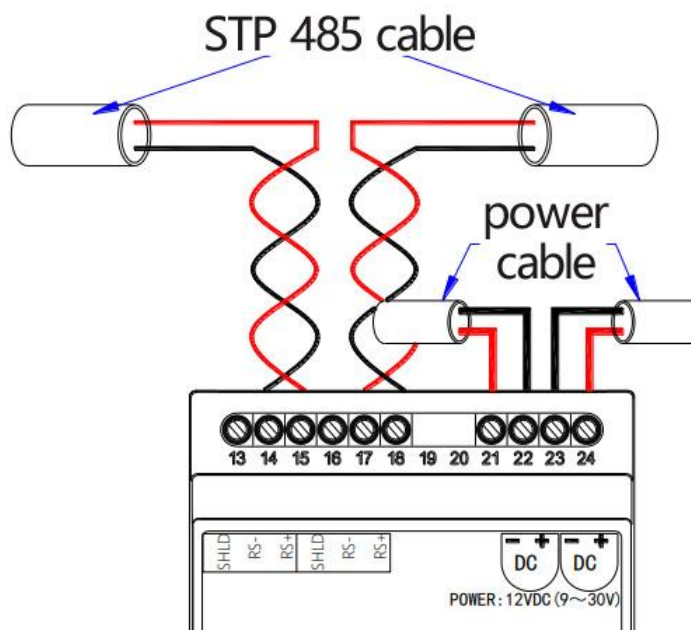


2) Wiring

<p>Lead cable</p>	<p>The 4 wires (red, green, yellow, black) of the lead cable separately connect to the "RED, GRN, YEL, BLK" on the controller. Then other end of the lead cable connects to the sensing cable.</p>
<p>Relay</p>	<p>The relay output (NO/NC) can be connected to the remote monitoring system, also can connect to alarm device outputting alarm signal. The relay quantity need to be increased if big current equipment need to be controlled. If necessary, add the contactor to expand the contact load capacity, otherwise the controller will be burnt out.</p>
<p>Power</p>	<p>Connect the 9-30V DC power supply according to label. Power supply voltage must be within range specified on the label. If the voltage is too low, it will not work normally. If it is too high, the controller will be burned.</p>
<p>Communication cable</p>	<p>RS-485 communication cable is used to transmit alarm and status information. Pay attention to the positive and negative wires. SPD-780 has 2 groups of RS485 communication wires, 1 group wires upstream to monitoring host and 1 group wires is to connect to other RS485 module if there is.</p>

3) Power and RS485 communication cable

SPD-780B communicates all alarm and status messages via RS-485 serial port. Pay attention to the positive and negative wires. SPD-780 has 2 groups of RS485 communication wires, 1 group wires upstream to monitoring host and 1 group wires connect to other RS485 module if there is.



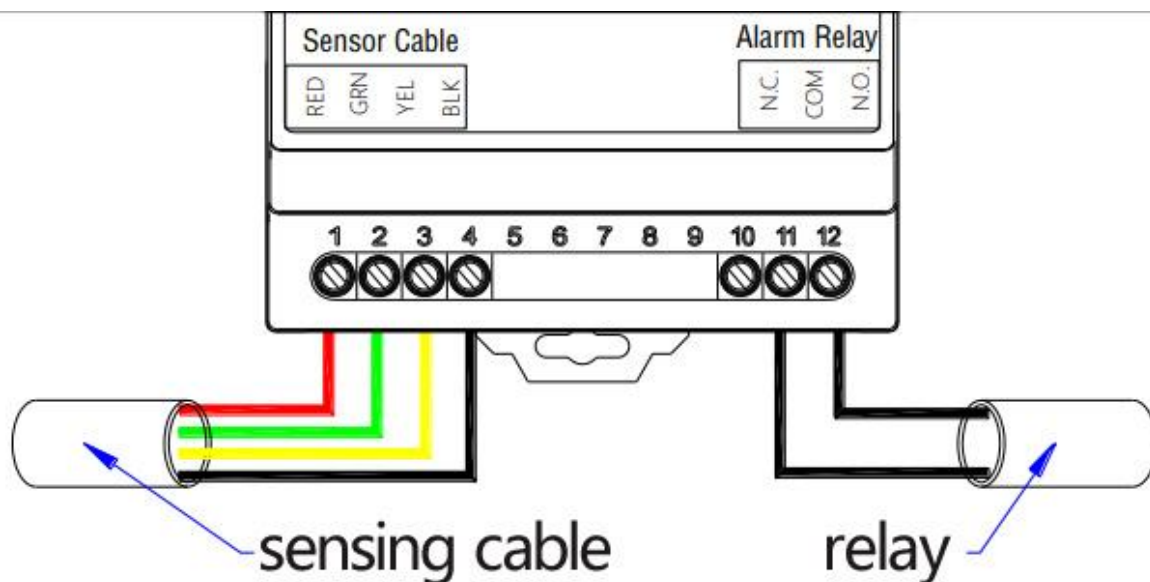
4) Relay

The relay can be used for local or remote alarm, or control a valve something else, or connect to a control automation system contact input. It can be programmed to alarm on leak only, and there are 2 status: normally closed or open. User can freely choose the connection mode.

Terminals	Alarm Status	Relay output
N.O.-COM	No alarms	open
	Alarm	closed
	Power off	open
N.C.-COM	No alarms	closed
	Alarm	open
	Power off	closed

5) Lead cable

In the whole leakage detection system, the lead cable is used to connect the controller and the sensing cable. (picture as below).



6) LED lights definition

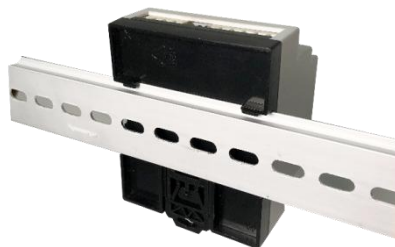
(1) There are 3 LEDs on the controller that represent: Power, Cable or Controller Failure, Leak. When the controller is powered up and operating normally, the green power LED is on, the following table lists the various indicator states and possible corrective actions.

Operational status indicators

LED	Status	Indicators
Power light (Green)	On	Normal. (light always being on)
	Off	Abnormal power on or controller failure.
Trouble light (Orange)	On	Incorrect connection of the induction line, cable failure, too little liquid immersion in the induction line, insufficient liquid conductivity or interference to the alarm, etc.
	Off	Normal. (Sensing cable has been connected correctly.)
Leak light (Red)	On	Leak detected.
	Off	Normal.

Installation

- Please install the controller in a firm indoor collection box or cabinet or other places easy to maintain and check. The installation position shall be protected from the elements, temperature extremes and heavy vibration, corrosive gas environment and other electronic interference sources, etc.
- SPD-780B max detection distance is 150m. Contact factory please for methods to increase the cable run distance beyond 150m.
- SPD-780B is standard 35 mm DIN rail installation. The power must be cut off when installation.



Notes

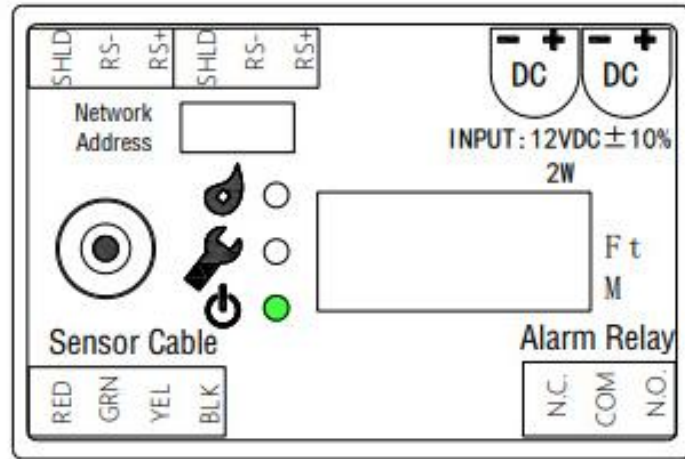
This product is an electronic device, please follow the following precautions to avoid damage to electronic components

- Do not modify or disassemble it;
- Please do not touch it with wet hands when power connected;
- Before installing the device, please check the rated voltage and power supply voltage;
- When using the relay output, please confirm the rated load of the device connected;
- Please avoid using organic solution during regular inspection and maintenance, and use dry cotton yarn to wipe;
- Avoid contact with metal filings, grease, pipe paint and other contaminants

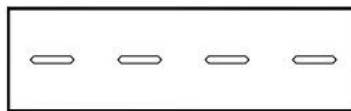
Testing

After all the wiring steps are completed, debugging can be carried out according to the following instructions.

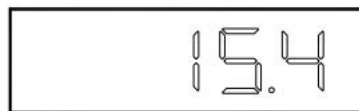
- When the controller is powered on, the power indicator light up and always being green.



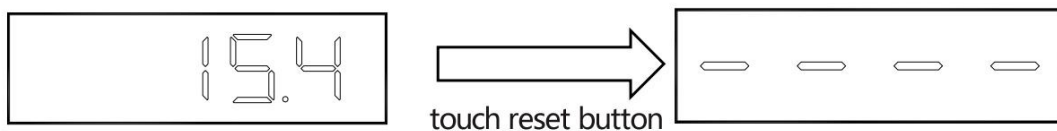
- In normal working state (no leakage), the LCD screen is in the state of "four horizontal lines flashing", as shown in the figure below, otherwise, the fault indicator light flashes orange, please check whether the sensing line is connected correctly;



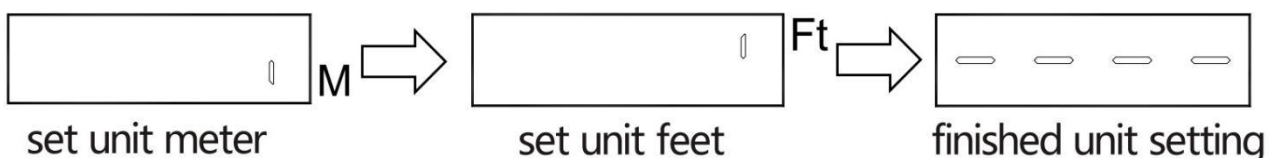
- Take a small amount of liquid and immerse the induction line in the liquid for 5~8s, the relay will act, the leakage indicator light will be solid red, and the LCD screen will display the leakage position.



- After wiping the liquid off the cable, the relay is reset, the leak indicator is off, and the LCD screen flashes, touch the reset button to reset the LCD screen.(Note: Each time the screen displays data, it needs to be reset manually, otherwise the data will always show the last leak location.)



- Setting LCD screen display: long press the button to enter the meter or foot unit setting, touch the button to select, after the selection is complete, long press the button to complete the setting.



Dimension

Unit: mm

