AG-LLM1
Location Water Leak Controller

آسیاگریچ
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AG-LLM1 Location water leak controller can detect 1500m sensing cable. It'll alarm by flash and sound once there's water leaks on the cable, and the leakage point will display on the LCD screen and the relays will be on automatically.

Combined with MOD BUS RTU protocol, AG-LLM1 makes it easy to integrate with monitoring system.

AG-LLM1 can be used as independent alarm, also can be connected to other monitoring system. It's widely used in monitoring machine room, ware house, museum, and industrial field to realize real-time leakage detecting.

- Power, leakage, the cable error and communication status display on the LCD screen.
- Leakage point and cable error will display on the nixie tube.
- 32 leakage records can be kept.
- Twisted-paired cable with RS-485 serial communication, standard Modbus protocol, The furthest communication can reach 1200m
- AC12V power supply
- Baud rate and module can be set on the software, no switch
- Relay outputting and NO/NC can be choosing.
- Super anti-static, anti-lighting and anti-surge to make sure the operation
- Easy guide rail installation.

Technical parameters

Basic characteristics	Sensor capability	A-LLW1000 sensing cable、TraceTek domestic same type leakage sensing cable
	Maximum length of the cable	1500m
	Accuracy	Sensor cable's length of 0.5%±0.5m
Environmental rating	Storage temperature	-40 ^{o}C - 60 ^{o}C（0 ^{o}F - 140 ^{o}F)
	Working temperature	-20 ^{o}C - 50 ^{o}C（32 ^{o}F - 122 ^{o}F)
	Humidity	5% - 95%(no condensation
Power supply		DC 12V, 3W
Serial interface	Network configuration	RS-485 double wire network, the baud rate can be set the factory default value is 9600, choose-able address is from 0 to 255, default address is 0
	Communication protocol	MODBUS RTU
Relay contactor	Function	NO, NC can be choose; leakage alarm or sensor error alarm
	Rating	AC125V, 0.5A, DC24V, 1A

Installation

Note: In order not to damage the controller, please keep it original package, open it until ready to install it.

Installation place choosing
Choose a location where the module will be protected from the elements, temperature extremes or heavy vibration.
The AG-LLM1 is designed to be snapped onto standard 35 mm DIN rail. Existing electrical or instrumentation cabinet-switch Spare rail space make good mounting locations. It is also possible to install a small section of DIN rail directly on a wall or cabinet surface and mount the AG-LLM1 in any location as long as it does not create a tripping hazard or expose the AG-LLM1 to impact damage. The AG-LLM1 should be mounted within 1200m wire run from the control system host. Contact the factory For methods to increase the wire run distance beyond 1200m.

Importance:

The AG-LLM1 is an electronic unit. Take the following precautions to avoid damage to electronic components:

- Handle with care and avoid mechanical shock and impact.
- Keep dry.
- Avoid exposure to static electricity by touching a nearby piece of grounded equipment or water pipe prior to handling the AG-LLM1.
- Avoid contact with metal filings, grease, pipe dope and other contaminants.
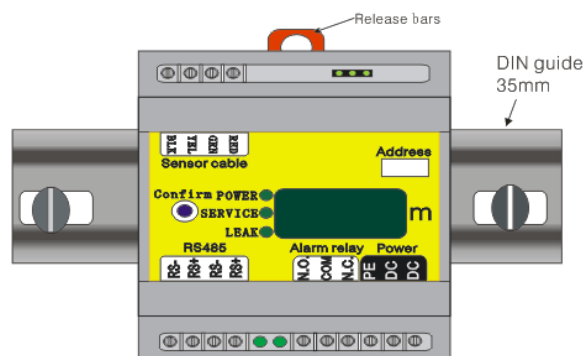

Installation of AG-LLM1

Secure a sufficient length of DIN rail to the desired mounting surface, or locate and existing DIN rail with sufficient space to install the AG-LLM1.
Remove the AG-LLM1 form its packaging and snap onto the DIN rail with the release Tab towards the bottom. Shown in the picture above.

Connections for Power and Telemetry

AG-LLM1 communicates all alarm and status messages Via RS-485 twisted pair telemetry. Two of the four conductors in the power/telemetry Cable accesses are used for telemetry and the other two may be used to provide the supply voltage. Alternatively, separate wiring may be used For the supply voltage, as shown in the picture.
The AG-LLM1 is can be supplied DC12V access (DC two terminals), PE terminal for power ground (not the power negative), can achieve good Access to power ground of anti-interference ability. The specific method of pick up what is shown in the picture above
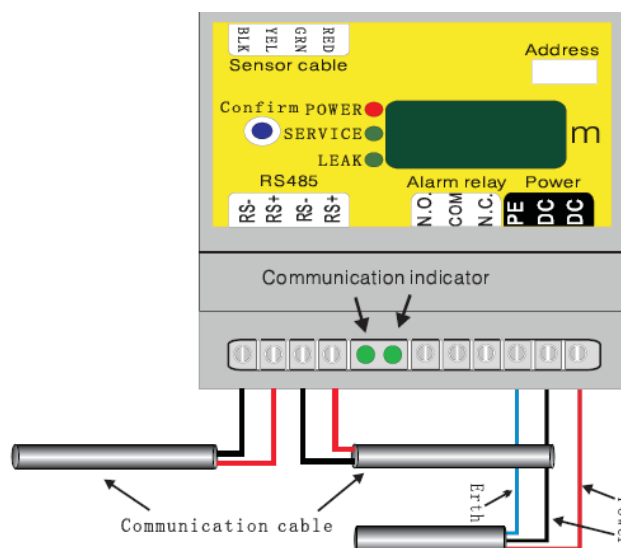
Connections for Alarm Relay

AG-LLM1 of relay contacts can be used for local or remote alarm, or control valve or other devices, also can control automation system contacts Input connection. It only for leakage alarm relay. The relay has to often open, closed two kinds of state, the user can choose by the way. Please See the Table below.

Wiring combination	Alarm condition	Output state
N.O.—COM	No alarm	open
	alarm	closed
	Lose power	open
N.C.—COM	No alarm	open
	alarm	closed
	Lose power	open

Connection wire installation

The AG-LLM1 can be used with the A-LLW1000, or any of the similar leak detecting sensing cables. Connect the leader cable to the AG-LLM1 as shown in the picture below.
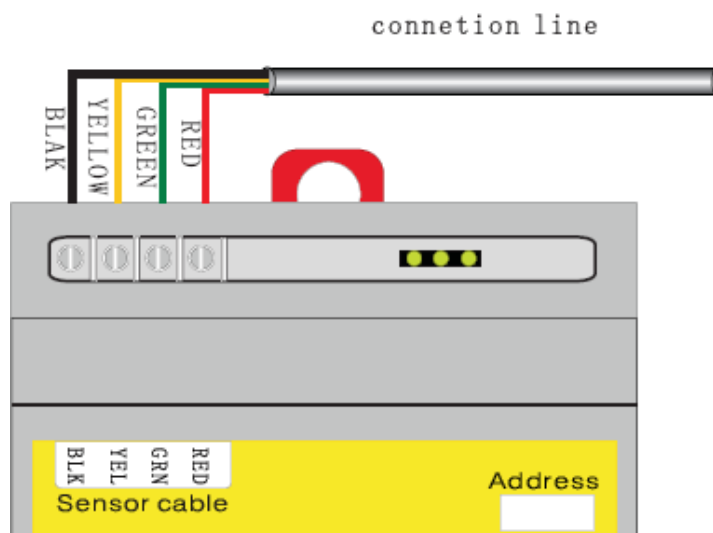
Instruction of system configuration

AG-LLM1 address and baud rate settings

If AG-LLM1 integrated in a monitoring system, each a piece of AG-LLM1 are required to have a separate address. Manufacturers of delivery of all AG-LLM1 network address all is 0, baud rate is 9600.

In setting AG-LLM1 network address, need to do the following steps:
- AG-LLM1 on electricity, and communication lines change the RS485 signal into RS232 signal, access the PC designated serial interface.
- Open configuration software as below
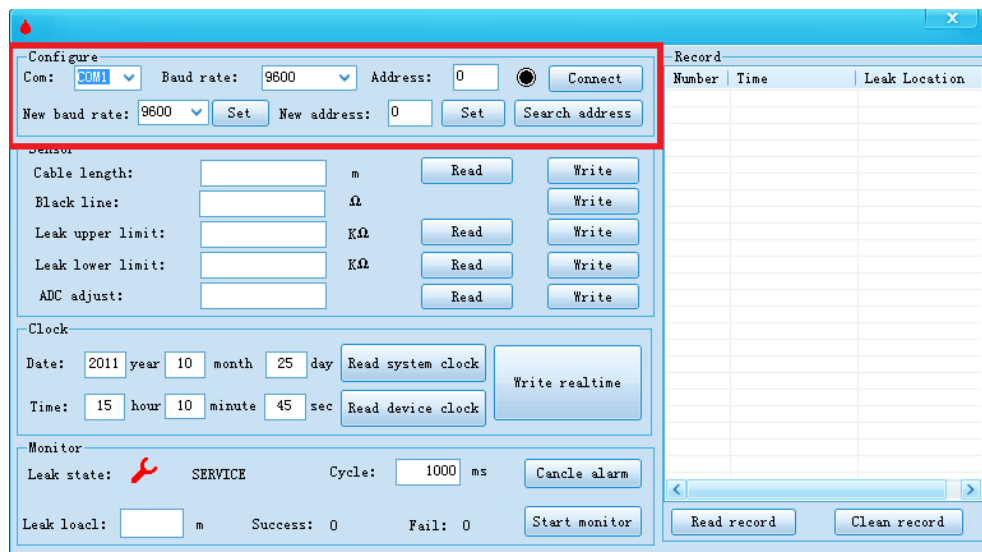
- Choose the correct number of serial, baud rate and the address, and then click "Connect". Set the PC and the AG-LLM1 communications connection success, the "New baud rate "and ""New address "input for new baud rate and new address, click on "Set" respectively. Set respectively after success, then baud rate and address is set to complete.
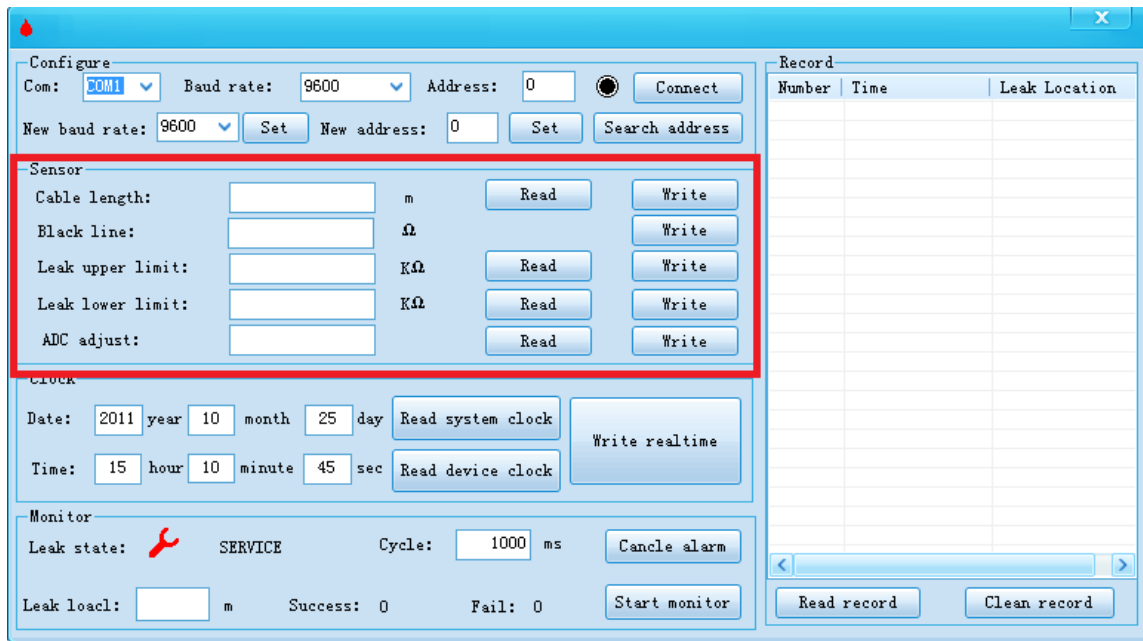
Note: set new baud rate, need to restart the AG-LLM1 set to take effect.

Sensing cable parameter set

Because each manufacturer of the parameters cable leakage induced be deferent, so of different bands of leakage of the parameters of the induction cable to set up, and the specific procedure is as follows and see the Figure 5:

- Leak induction cable, termination and lead line connected together correctly, using a multi meter to ohms gear measurement the resistance value of Yellow line between the black lines.
- In "Cable length "input access induction the length of the sensor cable ,and then click "write", in "Black line" input the resistance value which using a multi meter to measured sensor cable, click "writing". Other please doesn't change.

Note: If use the company's complete fittings products, Leakage induction cable parameter keep all default value.

Set the clock of the AG-LLM1

Click on the "Read system clock "to read the computer system clock and display in time in the box, click "Write real time "to set the AG-LLM1 Clock and computer system clock are exactly the same. Click "Read device clock" also can read the AG-LLM1 clock and shown the clock in the box. Please see the Figure 6 Set the clock of the AG-LLM1.


Alarm event records

The AG-LLM1 most can record 32 item leakage alarm records, the alarm information including leak happened time, sequence and leak happened position. When record full article 32 after recorded, if produced, once leakage alarm coming ,the AG-LLM1 will deleted 32 item records, at the same time record this new leakage alarm record. If leakage alarm record of less than 32 items, also you can use the AG-LLM1 test software manually remove it. Please see the Figure 8.

Maintenance and troubleshooting

Each AG-LLM1 is tested and calibrated at the factory. An operation AG-LLM1 runs a continuous self-check routine and reports any discrepancies to host computer. If the AG-LLM1 or the network wiring fails in such a way that the AG-LLM1 can't communicate with the host ,then the host reports the failure as a communications failure.

Status Indicators

There are 5 LED's on the AG-LLM1 circuit board to indicate: power, communications (RX=inbound and TX=outbound),sensor status (leak detected and trouble). Please check the picture
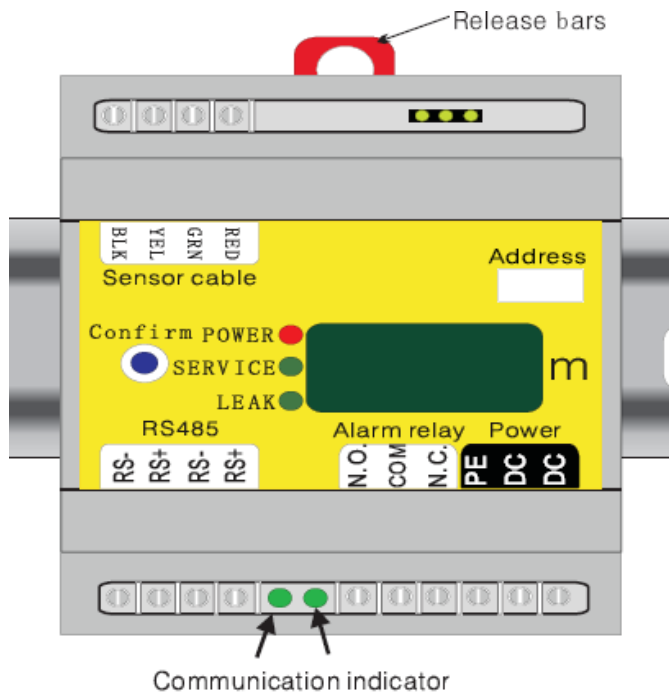
Form1: AG-LLM1 working status

	On	Power normal
Power （red）	On	Power normal
	Off	Power failure or AG-LLM1 failure
Service （green）	On	Cable failure; Check sensor and leak-wires/jumpers /end terminal for continuity or contamination.
	Off	Sensing cable has been properly connected.
Leak （green）	On	Leakage happens
	Off	No leakage

Form2: AG-LLM1 communication status

TX	RX	INDICATION
FLASH	FLASH	AG-LLM1 unit is communication normally with host
OFF	FLASH	AG-LLM1 unit is receiving communication from host but is not responding.
OFF	ON	RS-485 communication wires are reversed
OFF	OFF	AG-LLM1 unit is not communicating with host