

## VLL-999



### Features

- The latest microprocessing technique; better accuracy and resolution for pressure and temperature signals; digital compensation for both linearity and temperature error of pressure sensor;
  - Good data security due to nonvolatile memory units;
  - Single 3.6V/2400mAh Lithium cell for power supply; low current  $\leq 30\mu\text{A}$  for Standby Mode; long-term collection available;
  - Full stainless steel housing; multi-track O-ring sealing; easy to change battery and read data;
  - Complete recording to pressure, temperature and the happening time;
  - Flexible recording time setting, the min. 1s, the max. 255 hours 59 minutes 59 seconds;
- The max. 50,000 recording;
  - Bus line RS485 protocol; freely wake up transmitter to set and read pressure value, temperature value and recording;
  - Factory setting restore available, could reduce cost when the user makes incorrect setting or maintenance;
  - High stable design, use hardware watch-dog and multi-track software inspection to reduce system halted;
  - Protection class IP68, long-term submersible application available;
  - High accuracy class at wider temperature range  $-30^{\circ}\text{C} \sim 80^{\circ}\text{C}$

### Introduction

VLL-999 Recording Transmitter is able to be widely used in petroleum, chemi-industry, power station, water conservancy, city flood control and city water supply and drainage, etc. It is supplied by battery, could work without manual control. The transmitter could record level or pressure change continuously. By setting proper data collection interval, the transmitter could record from several days to several years. Very low power consumption is another advantages, one AA battery 3.6V/2400mAh could work many years continuously. VLL-999 has an absolute pressure sensor inside, to measure lower level, please be careful for atmosphere change. We suggest to install a barometer or another VLL-999 Recording Transmitter to record air pressure. And then calculate two pressure difference of two instruments by computer, that is the final level value; Please pay attention that get VLL-999 back from the measurement point, then remove end cap and read record through data interface.

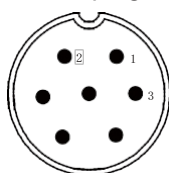
## Specification

Pressure range	0-10m H2O / 0-20m H2O / 0-30m H2O / 0-100m H2O		
Accuracy	0.5%		
Overpressure	2×pressure range		
Power supply	Cylinder 3.6V/2400mAh Lithium cell		
Output signal	RS485 digital		
Environment temp.	-30°C ~80°C		
Error <sup>1</sup>	-10°C ~40°C	±0.10%FS(typ.)	±0.2%FS(max.)
	-30°C ~80°C	±0.15%FS(typ.)	±0.3%FS(max.)
Stability	<±0.2%FS/year (typ.)		
Resolution	0.01%FS		
Temperature resolution	0.1°C (-30°C ~80°C )		
Temperature accuracy	±1°C		
Record interval	1s~255 hours 59 minutes 59 seconds (1s~10 days 15 hours 59 minutes 59 seconds)		
Record data quantity	Recording stops when the records are 50,000 (including date, time, temperature and pressure)		
Static current	(no collection, no recording, no communication)≤30uA		
Battery life	Typ. (once per hour) about 10 years		
Construction material	Housing: SS 316L O-ring: Viton		
Protection class	IP68		
Others	Weight: about 500g Resolution: 100MΩ@50V Shock: 20g 20Hz~5000Hz Impact: 20g 11ms		

1. Error calculation: the absolute value of max. error at working temperature and pressure.

## Electrical Connection

Aviation plug electrical connection:



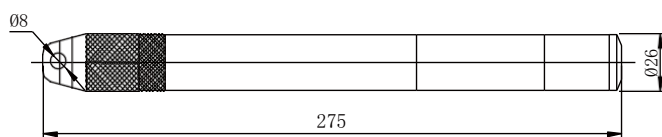
The end side of transmitter

Pin	Electric
1	RS485A
2	RS485B
3	GND
Other pin is null	

Pin 3 connects to GND of circuit inside. Generally, it can only connect to RS485A and RS485B. If RS485 communication has big disturbing, please connect to GND.

## Construction Outline

(Unit:mm)



## Application Example

By software, users could calibrate transmitter zero, check battery, set data collection interval, read record and get temperature data and so on.

The screenshot displays a software interface with several sections:

- Transmitter Info:** Fields for Addr, Baud Rate, Pressure Type, PortNum (COM3), Range Zero, Battery Voltage, Software Version, ID No, Range FS, Battery Capacity, Decimal Point, and Unit.
- Time Setting:** Instrument Time, Data Collection Interval Time (0h 0m 0s), System Time (2021-03-29 to 17-20-29), and Data Collection Start Time Setting.
- Store Operation:** Record Quantity, Remain Quantity, Read Data, Storage, Read Quantity, Clear, and navigation buttons (Previous, Next, OK, No).
- Real-time Transmitter Calibration Monitor:** Real-time Pressure (with a red indicator light), Real-time Temperature (with an On/Off checkbox), and buttons for Make Zero, Return to Factory, Cancel, Modify Addr, and Modify BaudR.

## Order Guide

VLL-999		Recording Transmitter			
	Range	Pressure range: m H2O			
	(0~X) mH2O	0-10m H2O / 0-20m H2O / 0-30m H2O / 0-100m H2O			
	Code	Output signal			
	R4	RS485 interface			
	Code	Others			
	A	Absolute			
VLL-999	(0~10)mH2O	R4	A	the whole spec	

## Notes

The basic transmitter measurement is absolute, please be careful that not to connect to power and cable when transmitter is not working. Please pay attention, if the atmosphere has big influence for measurement, please select a Pressure Recording Instrument, and use both two instruments together.

## Accessory

### Data Transfer Cable

