

Conductivity Transmitter v4 CDT228

DESCRIPTION

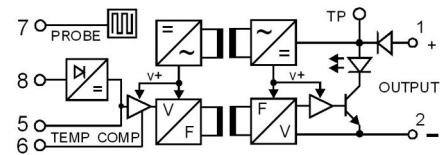
The CDT228 is a loop powered conductivity transmitter that combines signal isolation and conversion in one compact package designed to accommodate a wide range of conductivity measurement applications using suitable probes. Temperature compensation is also available as an option using probes with a built-in NTC thermistor or any other suitable compensation element. Excitation to the probe is via a low level AC voltage with short circuit protection to maximise the life of the probe. Final calibration is trimmed using the front accessible zero and span 15-turn trim adjustments. The CDT228 is ideal for field enclosures or in larger control cabinets. Reverse or direct action mode is changed by solder pads on the base board. Standard output is 4-20mA. Other factory set output configurations are 10-50mA loop powered and a range of negative reference 3-wire connections. Double surge protection is standard with all Series 200 loop powered transmitters to prevent failure due to spikes induced by DC switched inductive loads. A front mounted L.E.D. and a test socket verify module function and assist in calibration checks without disconnection of output wires.



General Specifications

Size:	23.5W x 71.5H x 109D (mm).
Mounting:	Clip for 35mm DIN-Rail.
Housing material:	ABS.
Connection:	Screw terminals.
Weight:	0.120 kg.
Protection class:	IP40.
Calibration accuracy:	<0.2%.
Front 'SPAN' adjust:	±25% typical.
Front 'ZERO' adjust:	+20/ -10% typical.
Internal Offset Adjust:	±50%.
Linearity:	<0.1%.
Long term drift:	<0.10%.
Ambient operating temperature range:	-10...+60°C.
Temperature drift error:	0.01% per °C.
Supply voltage:	8 - 40V continuous (50V 30 seconds).
Load for 4 - 20mA output:	$RL_{max} = \frac{SupplyVoltage - 8V}{0.02A} \Omega$
Load change effect:	0.1% up to RL max.
Response time:	Programmable - see table 2 overleaf.
Input/output isolation:	>2kV rms.
Input range:	1µS/cm up to 1000mS/cm. (100µS/cm to 20mS/cm with K=1 probe, the range can be extended with K factor other than 1).
Probe excitation:	200Hz bipolar square wave.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)

Block Diagram



Suitable conductivity probes with temperature compensation.

APCS: PR128-1, k=1, temperature compensation = 10k NTC.

AIC: P-K1TBTH

Any other probes can be used provided the thermistor characteristic is available. If temperature compensation is not required use standard probes.

For input / output combinations refer to TYPE NO. DESIGNATION overleaf.

TYPE NO. DESIGNATION

Output:

- | | | | |
|-------------------------|----------|-------------------------------------|-----------|
| 1 = 4 - 20mA. | } 2-Wire | *) 6 = 0 - 1V. | } 3-Wire |
| *) 2 = 10 - 50mA. | | | |
| *) 3 = 0 - 1mA. | } 3-Wire | *) 7 = 0 - 5 V, min supply 10.5Vdc. | } 0V Ref. |
| *) 4 = 0 - 10mA. | | | |
| *) 5 = 0 - 20mA. | | | |
| *) 9 = Other (Specify). | | *) 8 = 0 - 10V. min supply 15.5Vdc. | |
| | | *) 9 = Other (Specify). | |

Input:

- 1 = 100µS /cm
 - 2 = 200µS /cm
 - 3 = 500µS /cm
 - 4 = 1000µS/cm
 - 5 = 2mS/cm
 - 6 = 5mS/cm
 - 7 = 10mS/cm
 - 8 = 20mS/cm
 - 9 = Other (Specify).
- All values for K-factor = 1.0

Action:

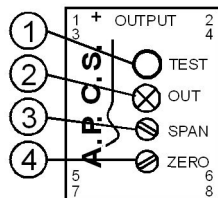
- 1 = Direct.
- 2 = Reverse.

Input Options:

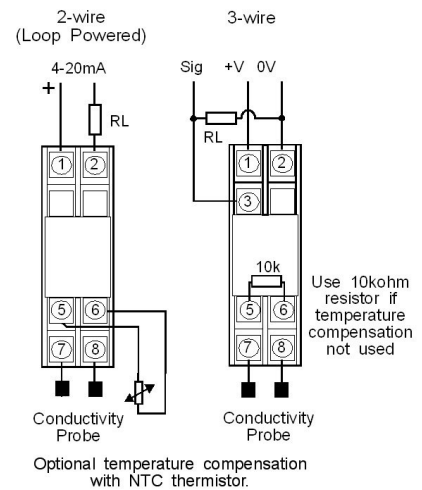
- 0 = None.
- *) 1 = Special Filtering (Specify).
- *) 9 = Other (Specify).

Front Control Explanation

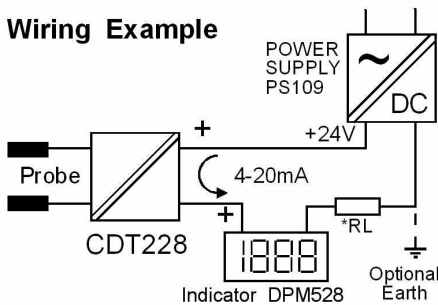
1. Test socket - output signal access with reference to terminal (1) loop integrity is maintained when digital multimeter Rin <30 Ω is used.
2. Loop indicator - dim at 4mA, bright at 20mA.
3. SPAN (full scale) adjust 15 turn.
4. ZERO (start scale) adjust 15 turn.



Connection Diagrams



Wiring Example



Note: RL is input load of PLC, VDS, or other process instrument.

Refer to CP22801 for re-calibration and set-up procedure.

Table 2 Response Time

SW 1	9	10
50 milliseconds	*	
500 milliseconds		*

*) Price Extra.

In the interest of development and improvement, APCS reserve the right to amend, without notice, details contained in this publication. APCS will accept no legal liability for any errors, omissions or amendments.