



UNIVERSAL UNI-/BIPOLAR SIGNAL TRANSMITTER

- Measures and outputs uni-/bipolar voltage and current signals
- Works with both passive and active inputs and outputs
- Uses the 4501 display for programming and process monitoring
- Fast < 20 ms response time and excellent < 0.05% accuracy
- Universally powered by 21.6...253 VAC / 19.2...300 VDC

Applications:

- Fast < 20 ms response time for measuring signals produced by torque, position, current & acceleration sensors.
- User configurable bipolar or unipolar I/O means the 4104 is suitable for nearly any voltage or current conversion.
- The excitation source enables measurement of two or three wire transmitters.
- The active or passive I/O makes the 4104 perfect for power matching current loops.
- Converts narrow bipolar inputs to wide bipolar or unipolar outputs, e.g., ± 1 volt input = ± 10 volt or 4-20 mA output.
- Selectable direct or inverse I/O makes the 4104 suitable for proportional control applications.
- The "V-curve" function outputs 100% - 0 - 100% when a 0 - 100% input signal is present.

Technical characteristics:

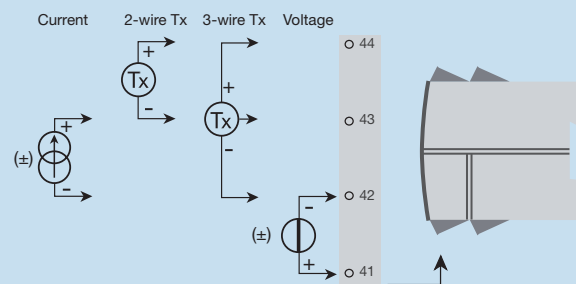
- The latest analogue and digital techniques are used to obtain maximum accuracy and immunity to interference.
- The current output can drive up to 800 Ohms, with an adjustable response time of 0.0...60.0 seconds.
- Exceptional mA output load stability of < 0.001% of span/100 Ohm.
- Meets the NAMUR NE21 standard, ensuring high accuracy in harsh EMC environments.
- Meets the NAMUR NE43 standard, allowing the control system to easily detect a sensor error.
- Each unit is tested to a high 2.3 kVAC, 3-port galvanic isolation level.
- Excellent signal to noise ratio of > 60 dB.

Mounting / installation / programming:

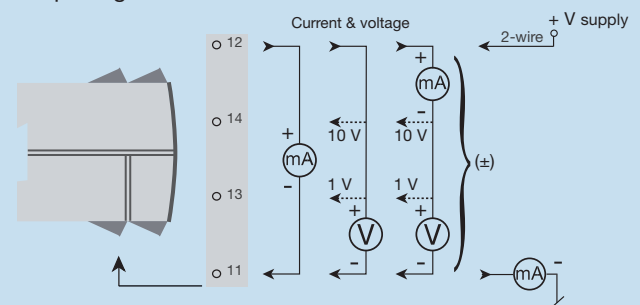
- Very low power consumption means units can be mounted side by side without an air gap - even at 60°C ambient temperature.
- Approved for marine applications.
- Programming, monitoring, and 2-point process calibration is accomplished with the 4501 detachable display.
- All programming can be password protected.

CONNECTIONS

Input signals:

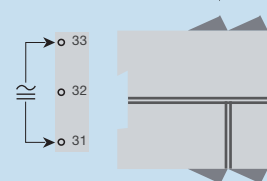


Output signals:



Supply:

21.6...253 VAC
or
19.2...300 VDC



Safe Area or
Zone 2 / Cl. 1, Div. 2, gr. A-D

For pricing or any further information, please contact Omni Instruments Ltd.

Order codes:
4104 = Universal uni-/bipolar signal transmitter
4501 = Display / programming front



PR 4501 Display / programming front

Mounting / installation

- 4501 is a detachable display that can be mounted on the 4104 front for programming and signal monitoring.

Application

- Communications interface for modification of operational parameters in 4104.
- When mounted in the process, the display shows process values and device status.

Technical characteristics

- LCD display with 4 lines:
 Line 1 (H=5.57 mm) shows the scaled process value - OK or error.
 Line 2 (H=3.33 mm) shows the selected engineering unit.
 Line 3 (H=3.33 mm) shows analogue output or TAG no.
 Line 4 shows status for communication and signal trending.
- Programming access can be blocked by assigning a password. 4501 can be moved from one device to another. The configuration of the first transmitter can be saved and downloaded to subsequent transmitters.

Environmental conditions:

Specifications range..... -20°C to +60°C
 Storage temperature -20°C to +85°C
 Calibration temperature..... 20...28°C
 Relative humidity..... < 95% RH (non-cond.)
 Protection degree..... IP20
 Installation in pollution degree 2 & measurement / overvoltage category II.

Mechanical specifications:

Dimensions (HxWxD)..... 109 x 23.5 x 104 mm
 Dimensions (HxWxD) w/ 4501 display 109 x 23.5 x 116 mm
 Weight approx. 250 g
 DIN rail type..... DIN EN 60715 - 35 mm
 Wire size 0.13...2.08 mm² / AWG 26...14 stranded wire
 Screw terminal torque 0.5 Nm

Common electrical specifications:

Supply voltage, universal 21.6...253 VAC, 50...60 Hz or 19.2...300 VDC
 Power consumption ≤ 2.5 W
 Internal power dissipation ≤ 2.0 W
 Isolation voltage - test / working..... 2.3 kVAC / 250 VAC
 MTBF, acc. to IEC 61709 (SN29500)..... > 111 years
 Signal / noise ratio..... > 60 dB
 Cut-off frequency (3 dB)..... > 40 Hz
 Response time (0...90%, 100...10%) < 20 ms

Accuracy values

Input	Absolute accuracy	Temperature coefficient
All	≤ ±0.05% of span	≤ ±0.01% of span / °C

EMC immunity influence < ±0.5% of span
 Extended EMC immunity:
 NAMUR NE 21, A criterion, burst..... < ±1% of span

of span = of selected range

Input specifications:

Current input:

Signal range ±23 mA
 Programmable measurement ranges 0-20, 4-20, ±10, ±20 mA
 Input voltage drop, nom. 1.4 V @ 20 mA
 Loop error detection, 4...20 mA:
 Low detection < 3.6 mA
 High detection > 21 mA
 2-wire loop supply, (terminal 43 & 44) > 16 V / 20 mA
 3-wire loop supply, (terminal 42 & 44) > 18 V / 20 mA
 Loop supply limitation, terminal 44, nom. . 30 mA

Voltage input:

Signal range ±12 V
 Programmable measurement ranges 0-1, 0.2-1, 0-5, 1-5, 0-10, 2-10, ±1, ±5 and ±10 V
 Input resistance, nom. 2 MΩ

Current output specifications:

Active unipolar and bipolar mA:

Programmable ranges 0-20, 4-20, ±10 and ±20 mA
 Direct or Inverted action
 V-curve function, 100-0-100% 20-0-20 mA
 Load, max. 800 Ω / ± 16 V @ ± 20 mA

Passive 2-wire mA:

Programmable ranges 0-20 and 4-20 mA
 Direct or Inverted action
 V-curve function, 100-0-100% 20-0-20 mA
 External 2-wire loop supply..... 3.5 - 26 V

Common specifications mA:

Signal range 0...23 mA (unipolar) / -23...+23 mA (bipolar)
 Current limit..... ≤ 28 mA (unipolar) ± 28 mA (bipolar)
 Load stability ≤ 0.001% of span / 100 Ω
 Programmable damping..... 0.0...60.0 s
 Output limits:
 on 4...20 and 20...4 mA signals..... 3.8...20.5 mA
 on other unipolar signals..... 0 and 115% of max. value
 on bipolar signals ±115% of min. & max. values
 Sensor error indication, at 4...20mA input:
 selectable Low, High, Zero, None

Low - corresponds to 0 mA at 0...20 mA and to 3.5 mA at 4...20 mA
 High - corresponds to 23 mA at both 0...20 and 4...20 mA
 Zero - equals 0 mA output
 None - the output state is undefined

Voltage output specifications:

Programmable ranges 0-1, 0.2-1, 0-5, 1-5, 0-10, 2-10, ±1, ±5 and ±10 V
 Direct or Inverted action
 V-curve function, 100-0-100% 1-0-1, 5-0-5 and 10-0-10 V
 Load, min. ≥ 500 kΩ
 Programmable damping..... 0.0...60.0 s
 Output limitation - outside range:
 on unipolar signals starting from 0..... 0 and 115% of max. value
 on unipolar signals with offset..... -5% of min. value and 115% of max. value
 on bipolar signals ±115% of min. & max. values
 Sensor error indication, at 4...20mA input:
 selectable Low, High, Zero, None

Low - corresponds to the selected min. range value
 High - corresponds to the selected max. range value
 Zero - equals 0 V output
 None - the output state is undefined

Approvals:

EMC 2004/108/EC EN 61326-1
 LVD 2006/95/EC EN 61010-1
 UL, Standard for Safety..... UL 508
 GOST R

Marine:

Det Norske Veritas, Ships & Offshore..... Stand. f. Certific. No. 2.4

Ex:

FM 3025177

