

Universal Process Indicator

neuro 200 / neuro 200L

Universal Input with inbuilt 24 VDC Transmitter Supply
32 Point User Defined Linearization
2 x Alarm Outputs & Retransmission Analog Output
1/16 DIN (48x48) & 1/4 DIN (96x96) Size Options

Process Precision Instruments
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Salient Features

- Available in 1/16 DIN (48x48) & 1/4 DIN (96x96) Sizes
- 2 Rows of Bright Green 7-Segment LED Display, Designed for Sunlight Readability (0.36" for 48x48 & 0.8" for 96x96)
- Universal Input :
J, K, T, R, S, B, N Thermocouples, RTD Pt100, DC mA/mV/V
- 24VDC @ 30mA Excitation Power for Transmitters
- Programmable Range / Resolution for DC mA/mV/V Inputs
- Programmable Input Signal Conditioning (Digital Filter & Zero Offset)
- 32 Point User Defined Linearization for DC mA/mV/V Inputs
- Facility to View & Store Min/Max Process Value
- °C / °F Units Selection for Thermocouples / RTD Pt100 Inputs
- Selectable Process Value Units indication on Lower Readout
- Front Panel Alarm Acknowledge Key
- 2 Programable Alarms with Optional Relay Outputs
- Optional PV Retransmission Output
- RS485 MODBUS RTU Serial Communication Port
- Universal Supply Voltage : 85~264 VAC, 50/60 Hz
- DIN Standard Dimensions (mm) :
neuro 200 : 48(H) X 48(W) X 94(D)
neuro 200L : 96(H) X 96(W) X 84(D)
- Available in Flame-proof (Gas Group IIA & IIB) Enclosure

General Information

Product Type Universal Process Indicator

Ordering Code

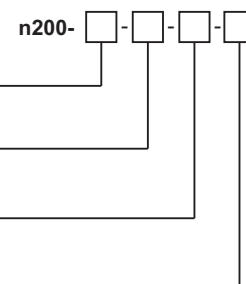
Size	48 : 48 x 48	96 : 96 x 96
Output 1 (Retransmission)	0 : None	1 : mA 2 : V
Output 2 (Alarm-1)	0 : None	1 : Relay 2 : SSR
Output 3 (Alarm-2)	0 : None	1 : Relay 2 : SSR

Example Code : n200-48-1-1-0

Size : 48 x 48
Output 1 : mA
Output 2 : Relay
Output 3 : None

Quantity 1 Unit

Accessories (Optional) USB to RS485 Convertor



Operator Interface

Display	neuro 200 : 2 Rows of 4 Digits, 0.36" Height, Luminous Green, 7 Segment LED neuro 200L : 2 Rows of 4 Digits, 0.8" Height, Luminous Green, 7 Segment LED
Status Indicators	8 Red LEDs
Keys	4 Tactile Switches PAGE, DOWN, UP, ENTER

PV Input

Sensor/Signal (User Configurable)	Thermocouple : J, K, T, R, S, B, N RTD : Pt100, 3 wire DC Linear : 0 - 20 mA, 4 - 20 mA, 0 - 80 mV, 0 - 1.25 V, 0 - 5 V, 0 - 10 V, 1 - 5 V
Accuracy	Thermocouples : $\pm 0.2\%$ of reading for J, K, T (Excluding CJC) $\pm 0.4\%$ of reading for R, S, B, N (Excluding CJC) CJC : $\pm 1.5\text{ }^{\circ}\text{C}$ (Specified over 18 to 37 $^{\circ}\text{C}$) RTD Pt100 : $\pm 0.2\%$ of reading Lead Resistance Compensation : Max. 5 Ω per Lead for 3-wire RTD DC mV/V/mA : $\pm 0.1\%$ of reading
Display Resolution	Thermocouples : 1 $^{\circ}\text{C}$ Fixed RTD Pt100 : 0.1 / 1 $^{\circ}\text{C}$ (Selectable) DC mV/V/mA : 0.001 / 0.01 / 0.1 / 1 Counts (Selectable)
Range	Refer Table-1 for Thermocouples & RTD Inputs Adjustable from -1999 to 9999 Counts for DC mA/mV/V
Zero Offset	User Adjustable over Full Range
ADC	16 Bit ($\pm 32,768$ Counts), Sigma-Delta ($\Sigma\Delta$)
Sampling Time	200mS (5 Samples per Second)
Input Resistance	> 8 M Ω for Thermocouples, RTD Pt100 & mV Inputs > 47 K Ω for Voltage Input 249 Ω Precision Shunt for mA Input
Common Mode Rejection	> 100dB at 50/60 Hz
Input Protection	ESD : 8KV EFT : 2KV Surge : 1KV
Input Conditioning	First Order Analog R-C Low-Pass Filter & Settable Digital Low-Pass Filter

Excitation Power

Ratings	24 V ($\pm 10\%$) @ 30 mA (Standard)
Note : For 2-wire Transmitters (4-20 mA), the Excitation Power can source only one transmitter.	

Alarms

Numbers	2, Independent
Programmable Parameters	Type : Process Low, Process High Hysteresis : 1 to 3000 Unit Counts Inhibit : No, Yes Logic : Normal, Reverse Latch : No, Yes
Outputs (Optional)	Relay Change-over Contacts or SSR Drive (Factory Settable) Output-2 for Alarm-1, Output-3 for Alarm-2

Retransmission (Output-1)

Signal Type	Standard : DC Current (0/4-20 mA) Optional : DC Volts (0-5/10 V)
PV Range	User Settable Through 'Range Low' and 'Range High' Parameters

Electrical Specifications for Outputs

Relay	Contact Type : Potential-free Change-over Contacts Contact Rating : 5A Resistive @ 250 VAC Contact Life : > 5,00,000 Operations at Rated Voltage / Current
SSR Drive	12 VDC @ 30 mA
DC Linear	Current : 0-20mA, 4-20mA (into 500Ω Maximum) Voltage : 0-5V, 0-10V (into 1KΩ Minimum)
Isolation	Only for neuro 200L : All Outputs are Isolated from Power, Analog Inputs & RS485 Port Rating : 1500VAC for 1 second or 250VAC continuous Isolation.

Serial Communication

Port	RS485, 2-wire, Half Duplex, Start-Stop Synchronized
Protocol	MODBUS RTU
Baud Rate	Settable : 4800, 9600, 19200 bps
ID	1 to 127
Parity	Settable : None, Even, Odd
Max. Units per Loop	31
Max. Distance	1200 Meters

Power Supply

Type	Switch Mode (SMPS)
Line Voltage	85~264 VAC, 50/60Hz
Consumption	5 VA Max

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Physical

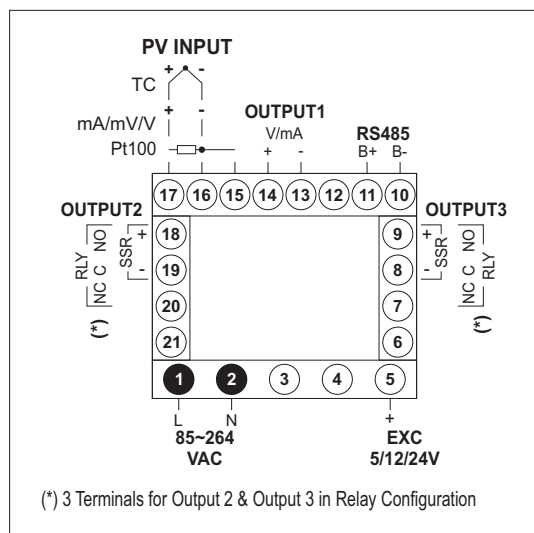
Mounting	Plug-in with Panel Mounting Clamps	
Overall Dimensions	neuro 200 : 48(H) X 48(W) X 94(D), mm	neuro 200L : 96(H) X 96(W) X 84(D), mm
Panel Cutout	neuro 200 : 45(H) X 45(W), mm	neuro 200L : 92(H) X 92(W), mm
Terminals	Screw Type, Pluggable	
Weight	neuro 200 : 200 gm, Approx.	neuro 200L : 400 gm, Approx

Environmental

Operating Ambient	0 to 55°C & 5 to 90%RH Non-condensing	
Storage Temperature	-10 to +70°C	
Atmospheres	Not Suitable for use in Corrosive or Explosive Atmospheres. The Panel in which the Instrument is Mounted must be free of Electrically Conductive Pollution.	

Terminations

neuro 200 : 48x48



neuro 200L : 96x96

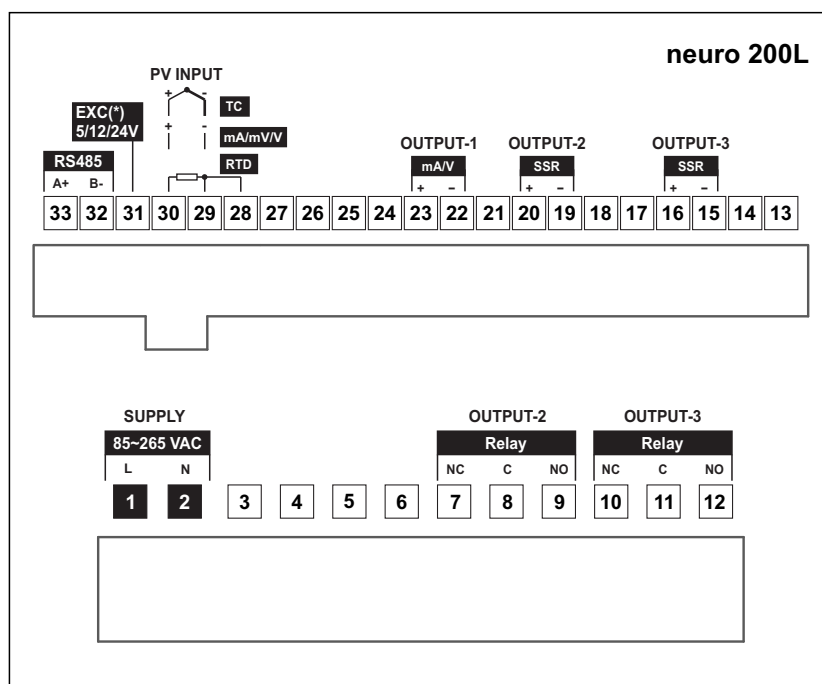


Table-1 : Thermocouple & RTD Input Ranges

Input Type	Range (Min. to Max.)
2 / 3-wire, RTD Pt100	-199.9 to +850.0 °C / -328.0 to +1562.0 °F
Type J Thermocouple (Fe-K)	0.0 to +960.0°C / +32.0 to +1760.0°F
Type K Thermocouple (Cr-Al)	-200.0 to +1376.0°C / -328.0 to +2508.0°F
Type T Thermocouple (Cu-Con)	-200.0 to +387.0°C / -328.0 to +728.0°F
Type R Thermocouple (Pt / Pt-Rh13%)	0.0 to +1771.0°C / +32.0 to +3219.0°F
Type S Thermocouple (Pt / Pt-Rh10%)	0.0 to +1768.0°C / +32.0 to +3214.0°F
Type B Thermocouple (Pt-Rh6% / Pt-Rh30%)	0.0 to +1826.0°C / +32.0 to +3318.0°F
Type N Thermocouple (NiCrSi / NiSi)	0.0 to +1314.0°C / +32.0 to +2397.0°F

Process Precision Instruments (An ISO 9001 : 2008 Company)

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