Process indicator *RIA 550*

Multi functional 1 or 2 channel indicator for monitoring and displaying analogue process data





















Application areas

- The RIA 550 process indicator displays either 1 or 2 analogue values. These can also be monitored for up to 2 limits. Each channel has a built-in loop power supply.
- The process indicator can be applied in:
 - Control rooms
- Control panels
- Stationary or mobile measurement systems
- Monitoring continuous processes

Advantages at a glance

- Various models: Available as vertical or horizontal mounting
- Multi functional: All normal measurement signals can be directly connected
- Loop power supply, 2 independent supplies on 2 channel unit
- User friendly: Simple dialogue matrix operation
- Readability: 4 digit LED dot matrix display for indicated value and engineering units, LED bargraph for analogue display
- Reliability: Complete limit monitoring function
- Interference security: Complies to EMC requirements to EMVG, CE and NAMUR
- IP 55 front protectection when installed



Quality made by Endress+Hauser



Function



Schematic function diagram

Analogue inputs

The analogue inputs are measured 10 times per second and converted to the preset engineering unit range. They are then shown as an analogue bargraph and digital LED display.

Limit monitoring

The converted signal is monitored once every second for limit infringements. The presettability (upper/lower limit markings as well as max / min security) of the buitl-in relays guarantee highest security in the event of an alarm.



Display

A clearly readable dot matrix LED display shows the measured value digitally and an LED chain indicates it as an analogue bargraph. The digital display scrolls the measured value and engineering units in a 4:1 tact, the bargraph is continuous and permanently displays the limit set points.



Operation

Parameters can be selected and set up in dialogue with the setting up programme. Here the setting up matrix is divided into channel and limit dependent levels.

Function



RIA 550 Monitoring inflow, outflow temperatures and displaying the resulting values

Front end operation and display



Dialogue operation using the front panel keypad

Display: Limit infringements, bargraph, digital display and engineering units scrolled on a 4:1 ratio

Installation



Required panel cutout (to DIN 43700) 138 ⁺¹ mm X 33 ^{+0.6} mm

Electrical connection

Cable screen connection -11 Т - 13 + Analogue input 1 - 14 -RTD -- 15 - 21 L - 23 + Analogue input 2 -24 -- 25 RTD / - 81 + 24V Loop power 1 - 82 - 83 24V Loop power 2 - 84 - 56 Relay 4 b 55 Relay 4 a 53 Relay 3 b 52 Relay 3 a 46 Relay 2 b 45 Relay 2 a - 43 Relay 1 b 42 Relay 1 a \oslash L Line N Neutral Power supply Earth \oslash

Technical data

Model Panel mounted 144x36x230 mm Protection class, Front IP 55, IEC 529

Power supply

90...253 V, 48...440 Hz Option: Low voltage supply 10...36 V DC or 24 V AC, ± 15% Low voltage security

Power consumption

max. 8 W

Unit fuse

315 mA slow blow (90...253 V)

Terminals

Power supply: Screw terminals Phoenix Combicon (3pole) Relay outputs: Screw terminals Phoenix Combicon (8pole) Signal inputs: Screw terminals Phoenix Minicombicon (12pole)

Display system

1 or 2, 4 digit 5x7 dot matrix LED display (red) (digit height 4,6 mm) 1 or 2 x 64 element bargraphs

Operation

Structured menu with matrix operation using 3 front panel mounted push buttons

Limit

All channels 2.5 x / secund (400 ms) Alarm contact function: Presettable minimum or maximum security: Hysteresis fixed to 1 %. Set points indicated using one mark each in the LED bargraph chain Control contact function: Presettable minimum or maximum security; variable hysteresis Set points indicated using 2 marks eachin the LED bargraph chain

Ambient operation temperature

0° C...+50° C, to DIN 40040 relative humididy <= 75 % on yearly average without condensation

Storage temperature

-20° C ... +70° C

Influencing effects

Power failure: <20 ms, no effect >20 ms, automatic function resumption Burst: to IEC 801-4 supply cable 4 kV, signal cable 4 kV ESD: to IEC 801-2 6 kV contact discharge Electromagnetic fields: to IEC 801-3 10 V/m HF capacitance: nach IEC 801-6 10 V Surge (supply cables): to IEC 801-5 1,0 kV sym., 2 kV unsym. Surge (signal cables): to IEC 801-5, 1 kV unsym. With external over voltage protection

Transmissions

RF protection to EN 55011/VDE 0875, Teil 11, Class A (industrial areas) Harmonics to IEC 555-2.

Standard input signals

0...1/10 V, Ri = 800 KOhm 0/4...20 mA, Ri = 50 Ohm 0.2 % FSD Basic accuracy: Temperature drift: 0.2 % / 10 K 10 % Over range: Max. Input current: 100 mA Common mode noise rejection: 0,1 % measurement span at 63 V 50/60 Hz

40 dB at input

range/10, 50...60 Hz

Normal mode noise rejection:

Allowable input voltage range: ± 60 V (differential mode) Allowable common voltage range: ± 100 V (common mode) No dangerous voltages !

Measurement system

System: U/f convertor Integration time: 100 ms approx. 15 Bit Resolution:

Loop power supply

Quantity: Standard 1 per channel Output voltage: 24 V ± 10 % Output current: 25 mA max. (internally limited short circuit protected) Galvanically isolated from each other and all other circuits

Limits / Alarm relays

Number of relays: 2 per channel Limit output: One potential free closing contact per limit 3 A, 250 V AC, Isolation group A to VDE 0110

Safety

To IEC 1010-1/EN 61010-1 protection class 1; Over voltage category 2; max. Allowable degree of soiling: 2

OPTIONS

Multi function input

Number of channels: 1 or 2

Voltage input ranges: ± 20mV, 50mV, 100mV, 200mV Ri = 1 MOhm bipolar + 1V. 2V. 5V. 10V Ri = 1 MOhm bipolar

Thermo-couple input ranges:

Type L -200....+900° C Type U -200....+600° C Туре В 0...+1820° C Type S 0...+1800° C -50...+1800° C Type R Туре К -200...+1372° С Type J -210...+1200° C Туре Т -270....+400° C Type N -270...+1300° C

RTD input ranges: -60....+180° C -100..+600° C Ni100 Pt100 Pt500 -100..+600° C Pt1000 -100..+600° C

0.2 % FSD 0.2 % / 10 K approx. 1 mA up to approx. 100 Ohm 10 % Allowable input voltage range: ± 60 V (differential mode) 100 mA

Normal mode noise rejection: span at Common mode noise rejection: 40 dB at input

No dangerous voltages !

Measurement system

System: U/f convertor Integration time: 100 ms Resolution: approx. 15 Bit

Technical alterations reserved !

Base accuracy: Temperature drift:

Energising current: Cable compensation: Over range: Max. Input current:

0.1 % measurement 63 V 50/60 Hz range/10, 50...60 Hz

Process indicator RIA 550

Certificates R Model for non-Ex areas Power supply 1 90..253 V, 48..440 Hz 2 10...36 V DC/20...27 V AC Model H Horizontal 36x144x230 mm HxWxD V Vertical 144x36x230 mm HxWxD Input signals 1 Channel 1 0/4..20 mA, 0..1/10 V 2 Channel 1 multi-function input Current, Voltage, Thermo couples, Pt 100 3 Channel 2 0/4..20 mA, 0..1/10 V 4 Channel 2 multi-function input Current, Voltage, Thermo couples, Pt 100 Version 1 Standard version 2 Settings/labeling to request 3 Neutral version/operating instructions 4 Neutral version **RIA550-** \leftarrow Order code

Export division

E*H II

Endress+Hauser Instruments International Postfach 2222 97574 Wei an Rhein West Germany Tel. (07621) 975-02

