

Process Indicator *RIA 550*

Multi functional 1 or 2 channel indicator, with loop power supply, for monitoring and displaying analog process data



Application areas

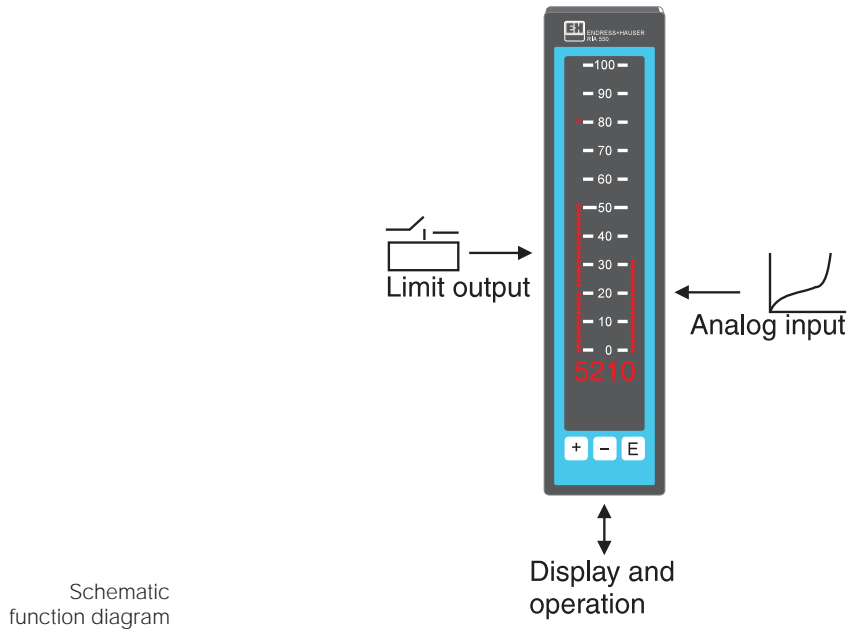
- The RIA 550 process indicator displays either 1 or 2 analog values. These can also be monitored for up to 2 limits.
- The process indicator can be universally applied.
- For displaying analog measured values, limit monitoring and loop power supply to 2 wire transmitters.

Advantages at a glance

- Various models: Available as vertical or horizontal mounting
- Multi functional: All normal measurement signals can be directly connected (bipolar voltage, current, thermocouples, RTD)
- Clear LED bargraph display: 4 digit LED dot matrix display for measured value and engineering units.
- Measurement range, engineering units and limits programmable via simple matrix operation.
- Interference security: Complies to EMC requirements to EMVG and NAMUR (with CE-Mark)
- Delta-function: differential value of the 2 channels



Function

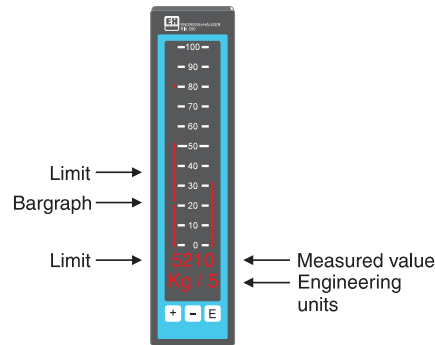


Analog Inputs

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

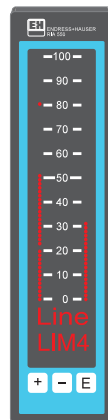
Limit monitoring

The converted signal is monitored 2.5 times every second for limit infringements. The presetability (upper/lower limit markings as well as max/min security) of the built-in relays guarantee highest security in the event of an alarm.



Display

A clear dot matrix LED display shows the measured value digitally and 1 or 2 LED chains indicates it as an analog 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.

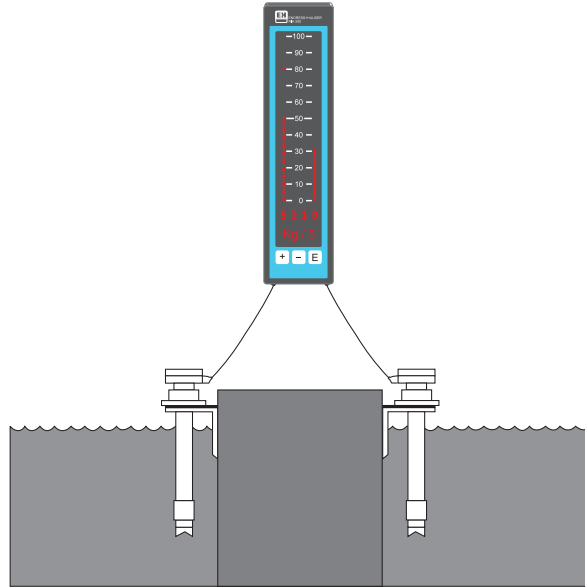


Operation

Parameters can be selected and set up by matrix programming. Here the setting up matrix is divided into channel and limit dependent levels.

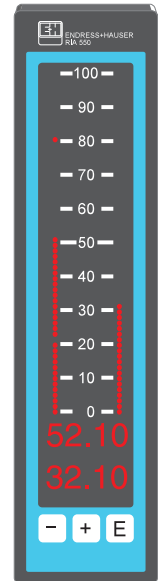
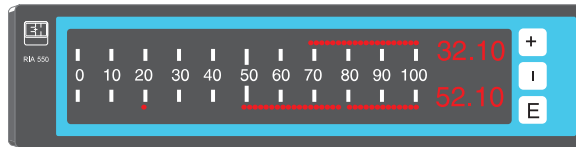
Function

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



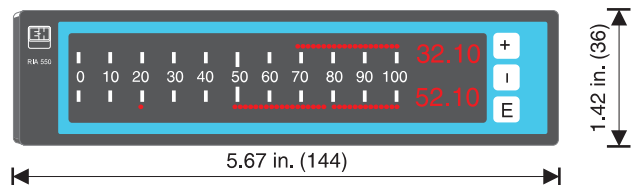
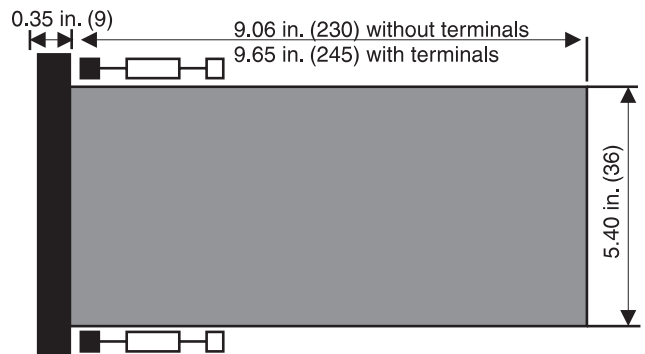
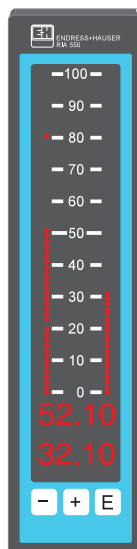
Front end operation and display

Dialog operation using
the front panel keypad
Display: Limit
infringements,
bargraph, digital display
and engineering units
scrolled on a 4:1 ratio

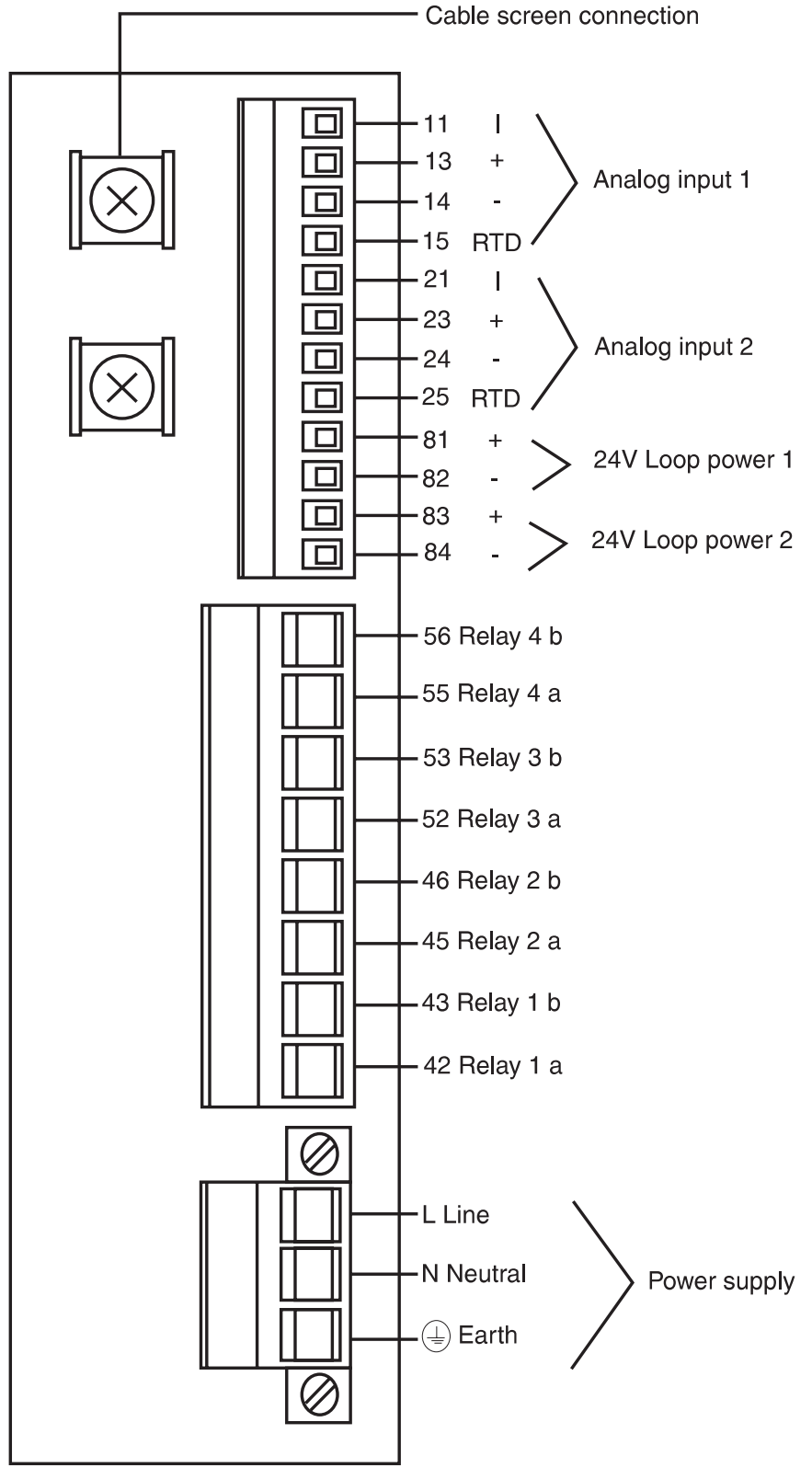


Installation

Required panel cutout
(to DIN 43700)
54.4 in. x 1.3 in.
(138⁺¹ mm x 33^{+0.6} mm)



Electrical connection



Technical data

Model

Panel mounted 5.67 x 1.42 in. x 9.06 in.
(144x36x230 mm)
Protection class, Front IP 65, IEC 529

Power supply

90 to 253 V 48 to 440 Hz
Option: Low voltage supply 10 to 36 V DC or
24 V AC, $\pm 15\%$
Low voltage security

Power consumption

max. 8 W

Terminals

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

Display system

1 or 2, 4 digit 5x7 dot matrix LED display
(red) (digit height 0.18 in. (4.6 mm)) or 2 x
64 element bargraphs

Operation

Matrix operation using 3 front panel
mounted push buttons

Limit

All channels 2.5 x / second (400 ms) Alarm
contact function:
Presetable minimum or maximum security:
Hysteresis variable
Set points indicated using one mark each in
the LED bargraph chain

Ambient operation temperature

32°F to +122°F (0°C to +50°C), to DIN 40040
relative humidity $\leq 75\%$ on yearly average
without condensation

Storage temperature

-4°F to +158°F (-20°C to +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 EC801-310V/m
HF immunity, conducted: to IEC 801-6 10 V
Surge (supply cables): to IEC 801-5
1.0 kV sym., 2kV unsym.
Surge (signal cables): to IEC 801-5.1 KV
unsym.
With external over voltage protection

Transmissions

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

Standard input signals

0 to 1/10 V, $R_i = 800$ KOhm
0/4 to 20 mA, $R_i = 50$ Ohm
Basic accuracy: 0.2% FSD
Temperature drift: 0.2% /10 K
Overrange: 10%
Max. Input current: 100 mA
Common mode noise rejection:
0.1 % measurement
span at 63 V 50/60 Hz

Normal mode noise rejection:
40 dB at input
range/10, 50 to 60 Hz

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
Resolution: approx. 15 Bit

Loop power supply

Quantity: 1 per channel
Output voltage: 24 V $\pm 10\%$
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 1013-1/EN 61010-1 protection class I;
Over voltage category II;
max. Allowable degree of soiling. II

OPTIONS

Multi function input

Number of channels: 1 or 2
Voltage input ranges: bipolar
 ± 20 mV ± 50 mV ± 100 mV ± 200 mV
 ± 1 V, ± 2 V, ± 5 V, ± 10 V $R_i = 1$ MOhm bipolar

Current input range:
0/4 to 20 mA: $R_i = 50$ Ohm

Thermocouple input ranges:
Type L -328°F to +1652°F (-200 to +900°C)
Type U -328°F to +1112°F (-200 to +600°C)
Type B 32°F to +3308°F (0 to +1820°C)
Type S 32°F to +3272°F (0 to +1800°C)
Type R -58°F to +3272°F (-50 to +1800°C)
Type K -328°F to +2502°F (-200 to +1372°C)
Type J -346°F to +2192°F (-210 to +1200°C)
Type T -454°F to +752°F (-270 to +400°C)
Type N -454°F to +2372°F (-270 to +1300°C)
Cable open circuit is evaluated.
Reference point: Internal; Accuracy ± 5 K
 $\pm 1^\circ\text{C}/10\text{K}$ surrounding temperature

RTD input ranges:
Ni100 -76°F to +356°F (-60 to +180°C)
Pt100 -148°F to +1112°F (-100 to +600°C)
Pt500 -148°F to +1112°F (-100 to +600°C)
Pt1000 -148°F to +1112°F (-100 to +600°C)

Base accuracy: 0.2 % FSD
Temperature drift: 0.2 % /10 K
Energizing current: approx. 1 mA
Cable comp.: up to approx. 100 Ohm
Overrange: 10%

Max. input voltage: 50 V
Max. Input current: 100 mA
Normal mode noise rejection:
0.1% FSD at
63 V 50/60 Hz

Common mode noise rejection:
40 dB at input
range/10, 50 to 60 Hz

No dangerous voltages

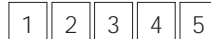
Measurement system

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

Technical alterations reserved

Ordering Information

Order Code: **Process Display RIA 550-**



1 Certificates

R Version for non-Ex (non-hazardous) areas

2 Power supply

1 90 to 253 V, 48 to 440 Hz
 2 10 to 36 V DC/20 to 27 V AC
 not available with multi-function input

3 Style

H Horizontal 1.42 in. x 5.67 in. x 9.06 in. (36x144x230 mm) HxWxD
 V Vertical 5.67 x 1.42 in. x 9.06 in. (144x36x230 mm) HxWxD

4 Input signals

1 0/4 to 20 mA, 0 to 1/10 V, loop powered 25mA, 1 channel
 2 Multi-function input, loop powered 25mA, 1 channel
 Current, Voltage, Thermocouples, Pt 100
 3 0/4 to 20 mA, 0 to 1/10 V, 2 channels
 4 Multi-function input, loop powered 25mA, 2 channels
 Current, Voltage, Thermocouples, Pt 100
 5 0/4 to 20 mA, 0 to 1/10 V, power supply 80mA, 1 channel
 6 0/4 to 20 mA, 0 to 1/10 V, power supply 80mA, 2 channels

5 Version

1 Standard version
 Y Others

Panel mounted with 4 digit LE-display scroll between engineering units and measured value per channel. Bargraph-display with limit indication and transmitter power supply.

- per channel: two adjustable limit
 two relays as contact 250 V, 3 A
 transmitter supply 24 VDC
- operation via 3 keys
- screw clips fixed to rear
- protection class to 40050; front IP 65, rear IP 20
- EC -certification of conformity as well as EC -conformity label CE

Options:

- Version with 2 input channels, delta function
 channel 1 - channel 2 selectable

Setting up possibilities

1 =One or two channel display (standard)

2 =Delta function: channel 1 - channel 2

Delta is displayed in channel 2 and all limit functions are active on the delta function. Delta function is indicated in display as (Δ).

Prestable engineering units

"OFF", "bar", "C/kg", "cal", "cd", "cm", "cm2", "cm3", "dB", "G", "g/h", "g/l", "g/m3", "g/ml", "g/s", "gnl", "HZ", "kg/s", "km/h", "kPa", "kV", "kVar", "kW", "kWh", "kΩ", "l", "l/h", "l/s", "lb/h", "lm", "m", "m/h", "m/s", "m/s2", "m3/d", "m3/h", "m3/s", "mbar", "mg/l", "mm", "mm2", "mm3", "MPa", "mPa", "mR/h", "ms", "mΩ", "MΩ", "mV", "Mvar", "MW", "MWh", "N", "N/m2", "Nm", "oz", "PH", "ppb", "ppm", "rem", "5", "l", "Vs", "V", "VA", "Var", "Vol%", "Wh", "Ω", "μA", "μF", "μm", "μs", "μS", "uΩ", "μV", "%", "°C"

Subject to change without notice

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