

# INDICATOR WITH 4 ALARMS AND ANALOG OUTPUT

## RIX100

REV. 4.0/9706

### FRONT VIEW

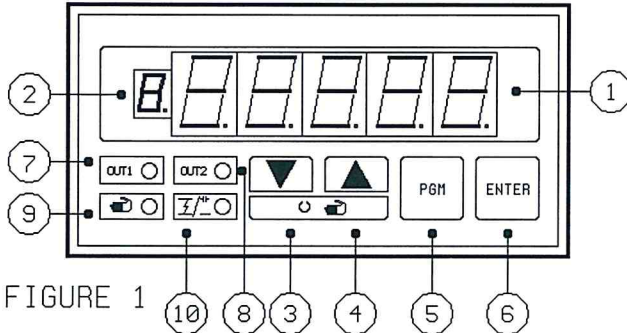


FIGURE 1

### REAR VIEW AND CONNECTIONS

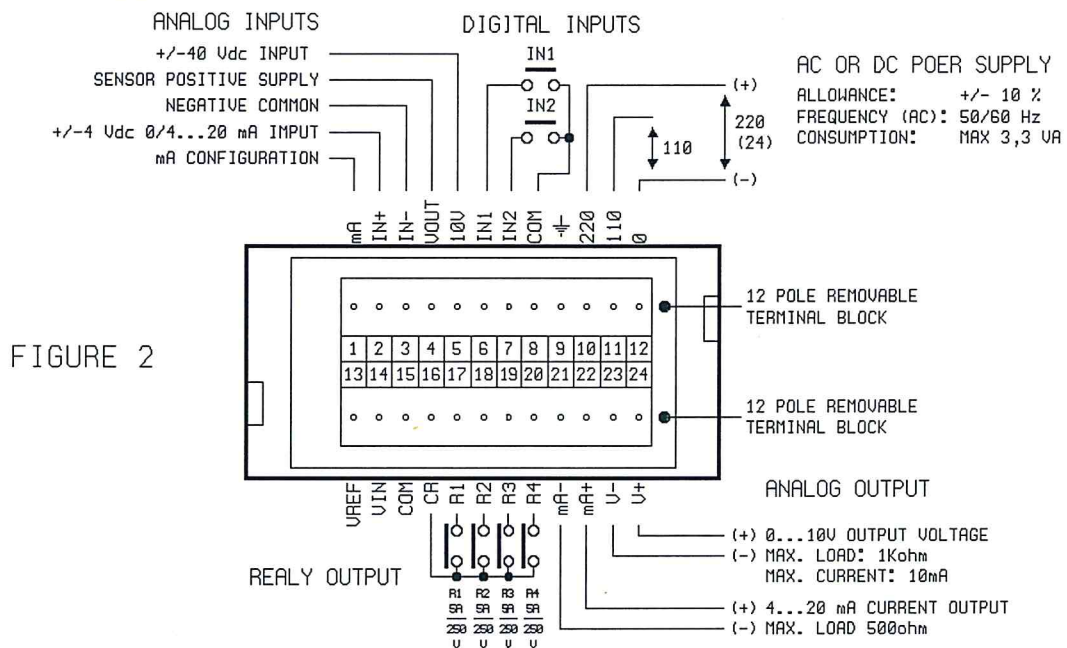


FIGURE 2

### ANALOG INPUTS CONNECTIONS

FIGURE 3

#### 4...20 mA TRANSMITTER

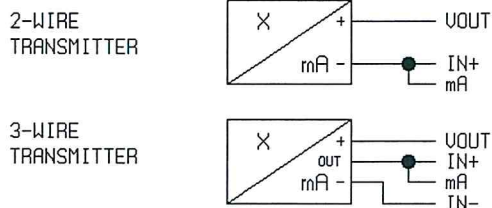


FIGURE 5

#### +/- 0...4 Vdc

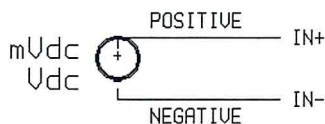


FIGURE 4

#### 4...20 mA LOOP +/- 0...40 mA

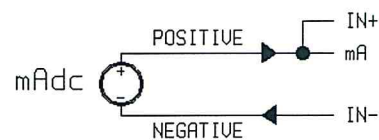
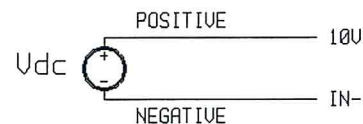


FIGURE 6

#### +/- 0...40 Vdc



# ALARM TYPE

FIGURE 7A

MAXIMUM  
DIRECT

DISPLAY SYMBOL

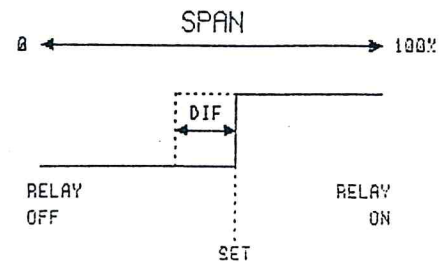


FIGURE 7B

MAXIMUM  
REVERSE

DISPLAY SYMBOL

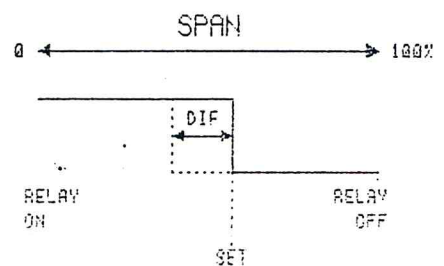
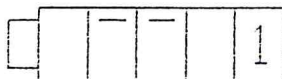


FIGURE 7C

MINIMUM  
DIRECT

DISPLAY SYMBOL

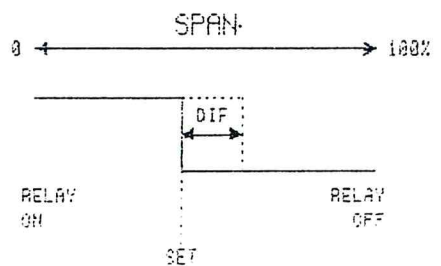
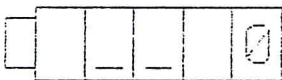
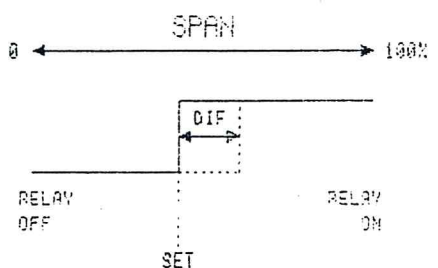
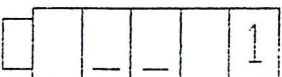


FIGURE 7D

MINIMUM  
REVERSE

DISPLAY SYMBOL



# ALARM TYPE

FIGURE 7E  
WINDOW  
DIRECT

DISPLAY SYMBOL

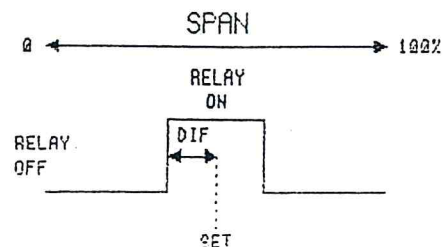


FIGURE 7F  
WINDOW  
REVERSE

DISPLAY SYMBOL

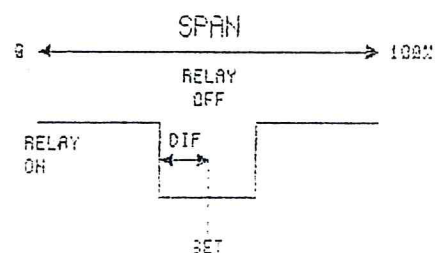


FIGURE 7G  
HYSTERESIS  
DIRECT

DISPLAY SYMBOL

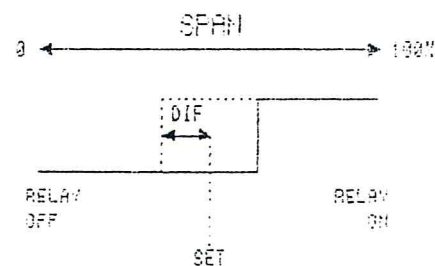
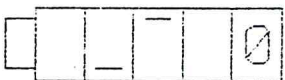
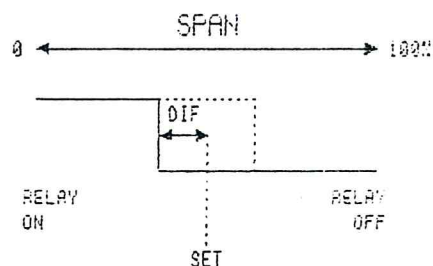
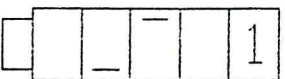


FIGURE 7H  
HYSTERESIS  
REVERSE

DISPLAY SYMBOL



## GENERAL SPECIFICATIONS

### PACKAGE

Suitable for panel mounting - frontal dimensions 48x96 mm  
Cutout dimensions 45x92 mm  
Dept over connection terminals 100 mm  
Protection level IP54  
Connection through two removable 12+12 terminal blocks

### ANALOG INPUT

Selectable through terminal block connection:

- 0...± 40 mA Impedance 100  $\underline{n}$
- 4...20 mA Impedance 100  $\underline{n}$
- 0...± 4 V Impedance 10  $\underline{Kn}$
- 0...± 40 V Impedance 110  $\underline{Kn}$

Permissible steady state overload 100%

17 Vdc output for transmitter supply

Safety circuit to cut off connection (4...20 mA only)

### DIGITAL OUTPUT

Autocalibration; reading reset; hold; peak hold

IN1 (zero); IN2 (span) - unpowered or static NPN contact

Voltage at terminal 18 V max - Making current 4 mA max

### A/D CONVERTER AND INDICATOR

Resolution: ± 20000 points

Average conversion time: 250 millisecond

5-digit indicator plus sign

Maximum range: ± 99999

Keypad configured reading scale

Programmable decimal point

### ANALOG OUTPUT

Proportional to reading set through keypad

Selectable through terminal block connection, 0...10V and 4...20mA

Resolution 2000 point

Accuracy 0,01 %

Linearity 0,0025 %

Applicable impedance: 0...10 V > 1 Kohm 4...20 mA < 500 ohm

### ALARMS AND OUTPUT THRESHOLDS

Four alarm thresholds with relay output

Alarm configuration: minimum, maximum, window, hysteresis

Programmable differential

Four relay, R1, R2, R3, R4 with SP 5A - 250V contact

Possible manual operation

### AUXILIARY POWER SUPPLY

Voltage as per code: 24, 110, 220 Vac; 24 Vdc

Mains frequency (AC): 50/60 Hz

Data storage during power outage on EEPROM

### COMPLIANCE WITH EEC DIRECTIVES

93/68 EEC - Electromagnetic compatibility; low voltage

## OPERATION

A front view is shown in Figure 1:

- 1 = 5-digit display, character height 12.5 mm
- 2 = polarity display
- 3 = DOWN key: Used to decrease variable setting
- 4 = UP key: Used to increase variable setting
- 5 = PGM key: accesses programming levels
- 6 = ENTER key: confirms programmed data
- 7 = OUT 1 led: indicates relay 1 excitation status
- 8 = OUT 2 led: indicates relay 2 excitation status
- 9 = MANUAL led: indicates that device is in manual programming mode
- 10 = CABLE INTERRUPTED LED: indicates that transmitter is not connected or that connecting cables are interrupted. Led flashes in the event of malfunction. (4...20 mA only)



## **PROGRAMMING**

Five programming levels are available:

- **OPERATION**
- **PARAMETRIZATION**
- **CONFIGURATION**
- **MANUAL**
- **CALIBRATION**

### **OPERATION PROGRAMMING**

The four alarm thresholds, SET1, SET2, SET3 and SET4 are programmed in this level.

Any changes must be confirmed with the ENTER key or PGM key.

If the ENTER key is depressed, the value of the input variable will return to display.

When the PGM key is depressed, the display indicate "SET1" for one second, followed by the value.

Setpoint 1 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "SET2" for one second, followed by the value.

Setpoint 2 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "SET3" for one second, followed by the value.

Setpoint 3 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "SET4" for one second, followed by the value.

Setpoint 4 can be changed using UP or DOWN keys.

### **PARAMETRIZATION PROGRAMMING**

The differential, diF1, diF2, diF3 and diF4 of the four setpoint are programmed in this level.

Differential are positioned according to the type of alarm selected during configuration (see paragraph CONFIGURATION and alarm type).

After setpoint 4 has been programmed, the parametrization level can be accessed by holding down the PGM key for around three seconds.

Any changes must be confirmed with the ENTER key or PGM key.

If the ENTER key is depressed, the value of the input variable will return to display.

The display will indicate "diF 1" for one second, followed by the value.

Differential 1 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "diF 2" for one second, followed by the value.

Differential 2 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "diF 3" for one second, followed by the value.

Differential 3 can be changed using UP or DOWN keys.

If the PGM key is depressed, the display will indicate "diF 4" for one second, followed by the value.

Differential 4 can be changed using UP or DOWN keys.

## CONFIGURATION PROGRAMMING

The following items are programmed in this level:

ITEM	DEFAULT
- analog output start of scale	[0]
- analog output end of scale	[1000]
- input scale	[4-20]
- decimal-point	[none]
- fixed-zeroes	[0]
- start of display scale reading	[0]
- end of display scale reading	[1000]
- reading scale limitation	[0]
- reading integration	[1]
- alarm type for setpoint 1	[max - direct]
- alarm type for setpoint 2	[max - direct]
- alarm type for setpoint 3	[max - direct]
- alarm type for setpoint 4	[max - direct]
- cable interruption	[All n]
- output 1&2 status in event of current interrup.	[OFF-OFF]
- output 3&4 status in event of current interrup.	[OFF-OFF]
- password	[0]
- password level	[0]
- digital input function	[0]

Configuration is accessed after parametrization by holding down the PGM key for around three second.

After programming each item, depress ENTER to exit from programming or PGM to proceed.

### ANALOG OUTPUT START OF SCALE

Program display reading to be associated with analog output start of scale (analog output start of scale is 0 Volt for the voltage output or 4 mA for the current output).

The display indicates "Out0".

After approximately one second, display shows the previously programmed value. Value can be changed using the UP and DOWN keys.

### ANALOG OUTPUT END OF SCALE

Program display reading to be associated with analog output end of scale (analog output start of scale is 10 Volt for the voltage output or 20 mA for the current output).

The display indicates "OutFS".

After approximately one second, display shows the previously programmed value. Value can be changed using the UP and DOWN keys.

### INPUT SCALE

Display shows "4-20"; may be changed to "0-20" using UP key.

### DECIMAL POINT

Display shows "99999." (no decimal point).

Use the UP key to enter the decimal point. The decimal point will move one place to the left each time the UP key is depressed: "9999.9" "999.99" "99.999" "9.9999".

### FIXED-ZEROES

Display shows "Zeri".

Use the UP key to enter one of following number:

0 = reading scale 99999

1 = reading scale 99990

2 = reading scale 99900



#### **START OF DISPLAY SCALE READING**

Display indicates "4-20" (or "0-20" if the latter input scale is selected) with the 4 (0) flashing. After approximately 1 second, it shows the start of scale value.

Value can be changed using UP or DOWN key.

#### **END OF DISPLAY SCALE READING**

Display indicates "4-20" (or "0-20" if the latter input scale is selected) with the 20 flashing. After approximately 1 second, it shows the end of scale value.

Value can be changed using UP or DOWN key.

#### **READING SCALE LIMITATION**

Reading scale can be free or limited.

When is free the display value can be exceed start or end scale value.

When is limited display shows UFL or OFL if value exceed start or end scale.

The display shows "range".

Use the UP key to enter one of following number:

0 = full scale free

1 = limited scale

#### **INTEGRATION**

Display indicates "Int" for one second.

The integration value can be set from 0 to 4 using the UP and DOWN key. The number of reading and averages performed before the input value is displayed increases in proportion to the programmed integration value.

#### **ALARM TYPE: SETPOINT 1**

Display indicates "OUT 1" for approximately one second, followed by the alarm type (see Figure 7A through 7H). Use the UP or DOWN key to select one of the eight available alarm types.

#### **ALARM TYPE: SETPOINT 2**

Display indicates "OUT 2" for approximately one second, followed by the alarm type (see Figure 7A through 7H). Use the UP or DOWN key to select one of the eight available alarm types.

#### **ALARM TYPE: SETPOINT 3**

Display indicates "OUT 3" for approximately one second, followed by the alarm type (see Figure 7A through 7H). Use the UP or DOWN key to select one of the eight available alarm types.

#### **ALARM TYPE: SETPOINT 4**

Display indicates "OUT 4" for approximately one second, followed by the alarm type (see Figure 7A through 7H). Use the UP or DOWN key to select one of the eight available alarm types.

#### **CABLE INTERRUPTION**

Display indicates "ALL n" (standard value, i.e. normal alarm operation in the event of connecting cable interruption). Use UP key to change display to "ALL F", i.e. alarm override: in the event of a problem, the output will assume a status determined independently of programmed setpoint and selected alarm type.

#### **OUTPUT 1 AND 2 STATUS IN THE EVENT OF MALFUNCTION**

Display shown "F 1 2" with the two set1 and set2 led off.

Use the UP key to select one of the following:

- relay1 OFF relay2 OFF
- relay1 ON relay2 OFF
- relay1 OFF relay2 ON
- relay1 ON relay2 ON

### **OUTPUT 3 AND 4 STATUS IN THE EVENT OF MALFUNCTION**

Display shown "F 3 4" with the two set1 and set2 led off.

Use the UP key to select one of the following:

- relay3 OFF    relay4 OFF
- relay3 ON     relay4 OFF
- relay3 OFF    relay4 ON
- relay3 ON     relay4 ON

### **PASSWORD**

Select the desired password value.

Zero value is equal at no password.

Default value is 21204.

### **PASSWORD LEVEL**

The program is enabled only with password value.

Display indicates "L.PASS" for approximately one second, followed level. Use the UP or DOWN key to select one of level:

0 = configuration

1 = parametrization + configuration

2 = operation + parametrization + configuration

### **DIGITAL INPUT FUNCTION**

Display will shown "Inp" for approximately one second.

Value from 0 to 2 can be selected using the UP and DOWN keys.

0 = IN1 performs zero calibration

IN2 performs end of scale calibration

1 = IN1 performs zero reading

IN2 hold (holds the reading present at the time command is given)

2 = IN1 performs zero reading

IN2 peak-hold (records and displays peak value reached by analog input)

### **MANUAL PROGRAMMING**

This programming level is used to check system serviceability.

To access "Manual" level, press UP and DOWN keys simultaneously, starting from the operation level (do not attempt to access "Manual" from other programming levels); the MAN LED will go on.

The four outputs will be de-energized regardless of their previous status. Display will show "Out 1".

Output 1 can be energized using the ENTER key. The SET1 LED will indicate whether or not output is energized.

Press UP key to pass to output 2; output 1 will remain in the state selected previous. Display will show "Out 2".

Output 2 can be energized using the ENTER key. The SET2 LED will indicate whether or not output is energized.

Press UP key to pass to output 3; outputs 1 and 2 will remain in the state selected previous. Display will show "Out 3".

Output 3 can be energized using the ENTER key. The flashing "3" will indicate whether or not output is energized.

Press UP key to pass to output 4; outputs 1, 2 and 3 will remain in the state selected previous. Display will show "Out 4".

Output 4 can be energized using the ENTER key. The flashing "4" will indicate whether or not output is energized.

Press UP and DOWN keys simultaneously to exit manual mode.

Outputs will return to their correct status on the basis of programs and input variables.

MAN LED will go off.



## **CALIBRATION PROGRAMMING**

The calibration operation makes it possible to associate two value for the input variable (start and end of scale) with the two reading values programmed for the parameters "start of scale reading" and "end of scale reading" in the configuration programs.

### **KEYBOARD PROCEDURE**

To access calibration, hold down the PGM key for around three seconds after the last configuration programming step.

To perform this operation, indicator must be connected with the input variable (real or calibrator).

Set analog input to start of scale. Enter calibration mode.

The display will indicate "tar.IS": press ENTER to calibrate start of scale, or press PGM to pass to end of scale calibration.

If ENTER is pressed, the display will indicate "attend" (wait) while the unit the operation required for calibration (this may take some time, particularly if the variable is not perfectly stable).

After data acquisition, the display will show "tar.FS".

Enter the end of scale value.

Press ENTER to calibrate end of scale. To exit from calibration programming, press PGM.

If ENTER is pressed, the display will indicate "attend" (wait) while the unit the operation required for calibration (this may take some time, particularly if the variable is not perfectly stable).

### **DIGITAL INPUT PROCEDURE**

To perform this operation, indicator must be connected with the input variable (real or calibrator).

The "inp" calibration program must be set to zero

Set analog input to start of scale.

Enter IN1 input signal.

Enter the end of scale value.

Enter IN2 input signal.