

RM4-SSI Process Unit

DIN Rail Mounted

SSI (Synchronous Serial Interface) Input

Functions as:

Display/Alarm/Converter/Transmitter/ PLC & Computer Interface

Description

Model RM4-SSI is a DIN rail mounted process unit which can function as an indicator/alarm/controller/converter/transmitter/computer interface.

SSI communication is typically used in high accuracy non contact measurement applications. Long transmission distances (up to 1.2km) are possible when connecting to SSI devices. Devices available with SSI output include position encoders and laser distance measuring equipment. The data transmitted is in the form of a binary or Gray code (up to 24 bits). The serial communications is externally activated via clock pulses generated from the RM4. Shielded twisted pair wire should be used for the clock and data lines.

The RM4 meter can be programmed to scale the input signal to give a display in engineering units e.g. Metres. All function settings and scaling is accomplished via the instrument's pushbuttons.

When used with AIC model RM-BC or RM4-BC converters the RM4-SSI may be used as a Binary/BCD/Gray code display/converter.

Two alarm relays are provided as standard. Combinations of optional outputs including extra relays, analog retransmission or serial communications (ASCII or Modbus RTU protocol) can also be provided.

The RM4 has a programmable display brightness function, this allows the unit to be operated with low display brightness to reduce the instrument power consumption and to improve readability in darker areas. To reduce power consumption in normal use the display can be programmed to automatically dim or blank after a set time. The display brightness will be restored if an alarm relay is activated or any of the front buttons is pushed.

Electrical isolation between power supply, input signal and retransmission eliminates grounding and common mode voltage problems. This isolation feature makes the RM4 ideal for interfacing to PLCs, computers and other data acquisition equipment.



Features

- SSI input in binary or Gray Code form
- Scaleable to display in engineering units
- Pushbutton scaling and setup
- 240V, 110V, 48V, 42V, 32V, 24V AC, 12 to 48V DC or 50 to 110V DC operation (factory configured)
- Two alarm/control relay outputs (5A)
- Can be used via model RM-BC or RM4-BC to display from Binary/BCD/Gray code sources
- 5 digit LED display and relay/alarm status LEDs
- Isolation between input signal, output and supply
- Programmable display brightness reduces power consumption and controls glare in low brightness areas. Auto dim feature conserves power
- Rugged aluminium DIN rail mount housing
- 2 year guarantee

Options

- Isolated analog output single or two independent outputs 4-20mA, 0-1V or 0-10V
- 16 bit analog retransmission + 3rd setpoint relay
- Additional relays in combination with analog or transmitter supply outputs
- Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)
- Isolated RS232, RS422 or RS485 serial comms. with choice of ASCII or Modbus RTU protocol
- Combined analog 4-20mA and RS485 serial outputs

SPECIFICATIONS

Specifications are subject to change without notice

TECHNICAL SPECIFICATIONS

Input Types: Synchronous Serial Interface (SSI) binary or Gray code - up to 24 bits

Microprocessor: MC68HC11 HCMOS

Ambient Temp: -10 to 60°C

Humidity: 5 to 95% non condensing

Display: LED 5 digit 7.6mm + alarm annunciator LEDs

Power Supply: 240V, 110V, 48V, 42V, 32V, 24VAC
12 to 48V DC or 50 to 110V DC operation (factory configured)

Power Consumption: AC supply 6VA max, DC supply less than 6W (depends on load & options)

Output (standard): 2 x relays, form A rated 5A resistive 240VAC

Relay Action: Programmable N.O. or N.C.

OUTPUT OPTIONS (see order code for valid combinations)

Third relay: Rated 0.5A resistive at 30VAC or DC, form C if no other options fitted, otherwise form A

Fourth relay: Rated 0.5A resistive at 30VAC or DC, form A

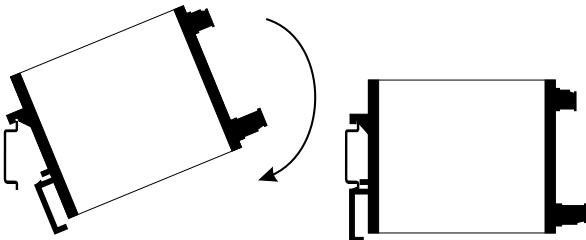
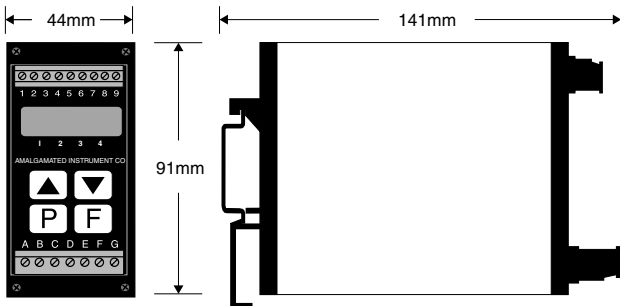
Transmitter supply: Isolated & regulated 12VDC @ 50mA or 24VDC @ 25mA (link selectable)

Switched voltage: 24VDC output (common to input ground but isolated from supply) to be used for open collector or solid state relay driver

Analog retransmission: Isolated 4-20mA. 0-1V or 0-10V link selectable. 12 bit or 16 bit resolution versions available

Serial communications: Isolated RS232, RS485 or RS422 factory configured

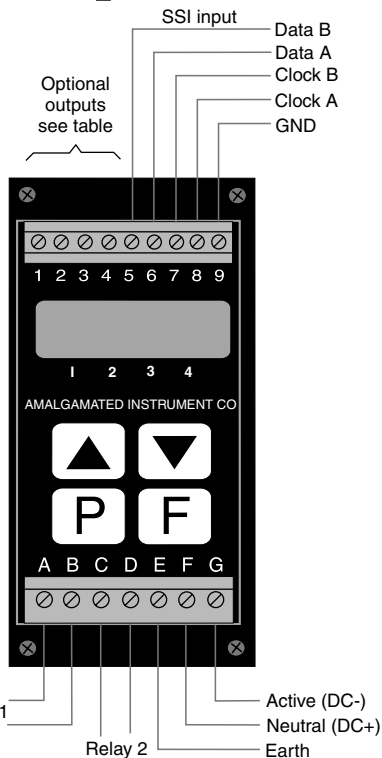
DIMENSIONS AND INSTALLATION DETAILS



ELECTRICAL CONNECTIONS

Common optional output connections

Third relay + analog retransmission	1 Relay 3 2 Relay 3 3 Analog retransmission + 4 Analog retransmission -
Transmitter supply + analog retransmission	1 Transmitter supply 12/24VDC + 2 Transmitter supply GND 3 Analog retransmission + 4 Analog retransmission -
Third relay only (Form C)	1 Not used 2 Relay 3 N/C 3 Relay 3 N/O 4 Relay 3 COM
Third and fourth relays	1 Relay 4 2 Relay 4 3 Relay 3 4 Relay 3
Serial communications	1 RS232 Rx or RS485/RS422 A 2 RS232 Tx or RS485/RS422 B 3 RS232/RS485 GND or RS422A 4 RS422 B



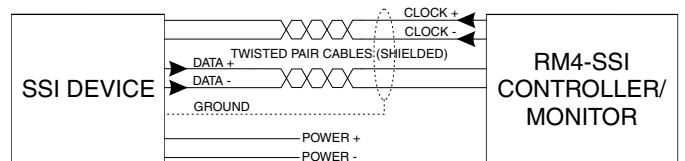
PHYSICAL CHARACTERISTICS

Case size: 44mm x 91mm x 141mm

Connections: Plug in screw terminals. Max 2.5mm² wire (relays and supply), 1.5mm² wire for input and options

Weight: 500 gms basic model, 550 gms with option card

TYPICAL WIRING DETAILS



ORDER CODE

RM4-SSI- - -

POWER SUPPLY

RM4-SSI- -

240 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
110 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
48 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
42 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
32 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
24 VAC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12 to 48 VDC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
50 to 110 VDC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

DISPLAY TYPE (ALL MODELS ARE TYPE 5E)

RM4-SSI- -

5 DIGIT LED + KEYPAD + STATUS LEDs

OUTPUT OPTIONS

THIRD RELAY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
THIRD AND FOURTH RELAY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
THIRD RELAY PLUS TRANSMITTER SUPPLY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
TRANSMITTER SUPPLY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
THIRD AND FOURTH SETPOINTS 24VDC	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ANALOG RETRANSMISSION (12 BIT)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
DUAL ANALOG RETRANSMISSION (12 BIT)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ANALOG PLUS TRANSMITTER SUPPLY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ANALOG (12 BIT) PLUS 3RD RELAY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ANALOG (16 BIT) PLUS 3RD RELAY	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
RS232 COMMUNICATIONS - ISOLATED	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
RS422 COMMUNICATIONS - ISOLATED	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
RS485 COMMUNICATIONS - ISOLATED	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
ANALOG RETRANSMISSION (12 BIT) PLUS RS485 COMMUNICATIONS	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>