



# RAISE ~ LOWER (SET-POINT) AND RAMP GENERATOR

TYPE 112-65s

- \* **Switch selectable ramp times**
- \* **Fully programmable with PC software**
- \* **Ramp scaleable between max. & min. limits**
- \* **Voltage, current, open-collector or volt-free contact inputs**
- \* **Output signal options cover all common process signals**
- \* **Universal mains power (85 to 265 VAC) or optional DC power**
- \* **Wall or DIN rail mounting**

The 112-65s is a versatile programmable instrument which may be configured either as a Ramp Generator or a Raise Lower device. Control of the output signal is provided by three inputs; Start/Raise, Stop/Lower and Reset. Optional PC software provides user selection of all functions except output signal rise and fall times which are user selectable by internal switches.



This instrument may be supplied preconfigured to required settings without any user programming required. The function of the two modes of operation are described below.

## Ramp Generator mode

### Input signal functions

The ramp is started and stopped by momentary contact closure or voltage/current Start and Stop signals. The Stop signal halts the ramp and holds the output at the current value. The response to simultaneous Start and Stop signals may be set to perform 'no action' or Start, Stop or Reset the ramp. Post reset action may be set to either restart the ramp or to take no further action. The active states of input signals are individually programmable ('normal' or 'reversed').

### Output options

Four ramp types are supported each of which may be set to generate a single period waveform or, using the repeat option, a continuous waveform. Other options enable the ramp to start when power is applied and set maximum and minimum values of the ramp signal (range 0-102.3% of full scale). A test mode is provided generating a range of output signals for commissioning and maintenance purposes.

## Raise ~ Lower mode

### Input signal functions

In this mode, the output rises whilst the Raise input signal is present. Similarly the output falls whilst the Lower input signal is active. With no Raise or Lower signals the output is held at the current value. The response to simultaneous Raise and Lower input signals may be set to Raise, Lower or Reset the output signal or to take no action. The active states of input signals are individually programmable ('normal' or 'reversed').

### Output options

The initial value of the output (i.e. output after the instrument is powered up or after a reset) and the maximum and minimum values of the output signal may be set within the range 0-102.3% of full scale. For manually activated inputs, the initial value of the output may alternatively be set to the last value present on the output before powering down. A test mode is provided generating a range of output signals for commissioning and maintenance purposes.

## Optional programming kit

A Programming Kit, comprising Windows™ compatible software and serial link cable is available. This option enables adjustments on all options except the ramp times/output signal rate of rise and fall which are set by internal switches.

## INPUT SIGNAL OPTIONS

Minimum pulse width 100 ms

- a) Contact closure (*must sink 10mA approx.*)
- b) Open collector transistor (npn - *must sink 10mA approx.*)
- c) Voltages in the range >5V <50V  
(*external circuit must source 10mA approx.*)
- d) Current signals >10 <20mA

## OUTPUT SIGNAL OPTIONS *(Others can be provided)*

0-10 mA into 2000 ohms maximum  
0-20 mA into 1000 ohms maximum  
4-20 mA into 1000 ohms maximum  
Current sink 4-20mA @ 30 volts maximum  
0-5 Volts into 500 ohms minimum  
1-5 Volts into 500 ohms minimum  
0-10 Volts into 500 ohms minimum

## OUTPUT PERIOD

Coarse switch settings - times to full scale: 15, 30, 60 seconds;  
2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096 minutes  
Fine settings (% of coarse setting): 0 - 100% in 10% steps

## OUTPUT SIGNAL RANGE

Output signal maximum and minimum values may be set within the range 0-102.3% of full scale

## ISOLATION

Maximum Voltage 250V RMS or 400V DC

**For active inputs:** each of the inputs and the output are isolated from each other and from the power supply.

**For passive inputs:** the input stage and the output are isolated from each other and from the power supply. However, inputs are connected to each other via the shared internal isolated 24 V transducer supply.

## TEMPERATURE RANGE

Operating: -10°C to +60°C; Storage: -20°C to +70°C

## POWER SUPPLY

Universal ac supply accepts 85 Vac to 265 Vac, 50/60Hz  
Protected by a fusible resistor.  
DC Supply Option: 24 VDC (18-36VDC) 3.5 W  
Protected by a 250mA internal self-resetting fuse.

## DIMENSIONS

160 (H) x 76 (W) x 106 (D)

## WEIGHT

Approx. 0.4kg

## SAFETY & EMC

Safety: EN61010-1 Immunity: EN50082-1  
Emissions: EN50081-1 CE certified

## CONNECTIONS AND SET-UP

For information on terminal connections, installation and set up see the 112-65S User Guide available from our Web site.



**THIS UNIT CAN BE MAINS POWERED, AND ALL INPUTS TO IT MUST BE ISOLATED FROM DANGEROUS VOLTAGES BEFORE THE FRONT COVER IS REMOVED. LIVE TERMINALS WILL BE EXPOSED.**

Continuous development may necessitate changes in these details without notice

## ORDERING INFORMATION

- |               |   |   |
|---------------|---|---|
| Specify mode  | <input type="checkbox"/> Raise ~ Lower                      | <input type="checkbox"/> Ramp Generator   |
| Power supply  | <input type="checkbox"/> 85-265VAC                          | <input type="checkbox"/> Specify DC volts |
| Input signal  | <input type="checkbox"/> specify type - see 'Input Signal'  |   |
| Output period | <input type="checkbox"/> specify time - see 'Output Period' |   |
| Output signal | <input type="checkbox"/> specify type - see 'Output Signal' |   |

Unless otherwise specified by the customer, the following parameters will be set to the default settings for the mode specified (identified below with '\*' or figure within '[ ]'). Customers requiring units pre-programmed to other than default settings should provide the following information:

### RAISE LOWER

- |                                       |   |                                   |                                |                                |
|---------------------------------------|---|-----------------------------------|--------------------------------|--------------------------------|
| Action taken with simultaneous inputs | <input type="checkbox"/> No change *                                | <input type="checkbox"/> Raise    | <input type="checkbox"/> Lower | <input type="checkbox"/> Reset |
| Raise input polarity <sup>1</sup>     | <input type="checkbox"/> Normal*                                    | <input type="checkbox"/> Reversed |                                |                                |
| Lower input polarity <sup>1</sup>     | <input type="checkbox"/> Normal*                                    | <input type="checkbox"/> Reversed |                                |                                |
| Reset input polarity <sup>1</sup>     | <input type="checkbox"/> Normal*                                    | <input type="checkbox"/> Reversed |                                |                                |
| Output maximum                        | <input type="checkbox"/> % of full scale [100% of FS]               |                                   |                                |                                |
| Output minimum                        | <input type="checkbox"/> % of full scale [0%]                       |                                   |                                |                                |
| Output initial value                  | <input type="checkbox"/> % of full scale [0%] or                    |                                   |                                |                                |
|                                       | <input type="checkbox"/> Set-point (last output value on power off) |                                   |                                |                                |
| Programming kit                       | <input type="checkbox"/> Yes  | <input type="checkbox"/> No*      |                                |                                |

### RAMP GENERATOR

- |                                       |   |                                     |                               |                                |
|---------------------------------------|---|-------------------------------------|-------------------------------|--------------------------------|
| Action taken with simultaneous inputs | <input type="checkbox"/> No change*                   | <input type="checkbox"/> Start      | <input type="checkbox"/> Stop | <input type="checkbox"/> Reset |
| Start input polarity <sup>1</sup>     | <input type="checkbox"/> Normal*                      | <input type="checkbox"/> Reversed   |                               |                                |
| Stop input polarity <sup>1</sup>      | <input type="checkbox"/> Normal*                      | <input type="checkbox"/> Reversed   |                               |                                |
| Reset input polarity <sup>1</sup>     | <input type="checkbox"/> Normal*                      | <input type="checkbox"/> Reversed   |                               |                                |
| Output maximum                        | <input type="checkbox"/> % of full scale [100% of FS] |                                     |                               |                                |
| Output minimum                        | <input type="checkbox"/> % of full scale [0%]         |                                     |                               |                                |
| Ramp start after reset                | <input type="checkbox"/> Yes                          | <input type="checkbox"/> No*        |                               |                                |
| Ramp start when power applied         | <input type="checkbox"/> Yes                          | <input type="checkbox"/> No*        |                               |                                |
| Repeating ramp                        | <input type="checkbox"/> Yes                          | <input type="checkbox"/> No*        |                               |                                |
| Ramp type                             | <input type="checkbox"/> Low > High*                  | <input type="checkbox"/> High > Low |                               |                                |
|                                       | <input type="checkbox"/> Low > High > Low             |                                     |                               |                                |
|                                       | <input type="checkbox"/> High > Low > High            |                                     |                               |                                |
| Programming kit                       | <input type="checkbox"/> Yes                          | <input type="checkbox"/> No*        |                               |                                |

### Notes

<sup>1</sup> Input signal polarity: 'Normal' is voltage signal high, volt-free contact closed, npn open collector on, current >10 <20mA.

<sup>2</sup> This option is for manually activated inputs only.

# SIL

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