



# RAISE - LOWER (SET-POINT) / RAMP GENERATOR TYPE C16-65

- User selectable input type (Voltage or open-collector / volt-free contact)
- Selectable output ranges: V, mA sink or source
- Externally selectable ramp times
- Output scaleable between max. & min. limits
- Programmable response to simultaneous start/raise, stop/lower input signals
- Programmable reset actions
- Universal AC/DC powered (85 - 260 VAC, 24 - 200 VDC)



The C16-65 can be configured either as a Ramp Generator or a Raise Lower / set-point device. Control of the output signal is provided by three inputs; Start/Raise, Stop/Lower and Reset. Input and output signals are reconfigurable. Output signal rise and fall times are selected by externally accessible switches. Optional PC software provides user selection of all other functions. For applications not requiring adjustments to programmable functions, the C16-65 can be supplied preconfigured to order.

## Ramp Generator mode

### Input signal functions (Start, Stop & Reset)

The ramp is started and stopped by momentary signals. The Stop signal halts the ramp at the current output 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. Active states of input signals are individually programmable.

### Output options

Four ramp types are available 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 (*range 0-102.3% of full scale*).

## Test mode

The test mode, selected via externally accessible switches, generates a range of output signals for commissioning and maintenance purposes.

## Raise-Lower mode

### Input signal functions (Raise, Lower & Reset)

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.

### Output options

The initial value of the output, i.e. after power up or reset, and the maximum and minimum values of the output signal, may be set within the range 0-102.3% of full scale.

## Programming kit (optional)

Comprising Windows™ compatible software, programming manual and RS232 Serial interface cable is available.

## Accessories

USB to RS232 adapter for PCs without a RS232 serial port.

## Specifications

### Input signal type

User selectable by jumper links

Minimum pulse width 100 ms

- a) Volt-free contacts (must sink 3mA approx.)
- b) Open collector transistor (npn - must sink 10mA approx.)
- c) Voltages in the range >5V <50V DC  
(external circuit must source 3mA approx.)

NB Active states of inputs signals are software programmable.

### Output signal

User selectable by jumper links

(figures in brackets are load impedances in ohms)

0-10 mA (2000R max.); 0-20 mA (1000R max.)  
4-20 mA (1000R max.); Current sink 4-20mA @ 30V max.  
0-5 Volts (500R min.); 1-5 Volts (500R min.)  
0-10 Volts (500R min.)

### Output period

User selectable by externally accessible switches

Period switch (time to full scale): 15, 30, 60 secs; 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096 mins

Percent switch (% of period switch setting): 0 - 100% in 10% steps

Timing accuracy: < ± 1%

### Output signal range

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 voltage inputs:** inputs and the output are isolated from each other and from the power supply.

**For volt-free contact and open collector inputs:** the input stage and the output are isolated from each other and from the power supply. However, the inputs share a common internal 12V transducer supply.

### Power supply

85 - 260 VAC 50/60Hz; 24 - 200 VDC (3W nominal)

### Safety & EMC

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

### Mechanical

Weight: approx. 0.5kg, Dimensions (mm): 116D\* x 22.5W x 99.5H \*Depth is 117.9 when mounted on DIN rail TS3/TS35D

### Temperature range

Operating: - 10 to + 60°C

Storage: - 20 to + 70°C

## Software programmable functions

(Optional programming kit required)

Items marked with asterisk denote default settings.

### Raise - lower mode (Default mode)

Output initial value: 0-102.3% of full scale (0%\*) or

Set-point (last output value on power off)

### Ramp generator mode

Ramp start after reset:  Yes  No\*

Ramp start when power applied:  Yes  No\*

Repeating ramp:  Yes  No\*  
 Low > High\*  High > Low

Ramp type:  Low>High > Low  
 High > Low > High

### Settings applicable to both modes

Action with simultaneous inputs:  No change\*  Raise  
 Lower  Reset

Input 1 polarity<sup>1,2</sup>  Normal\*  Reversed

Input 2 polarity<sup>1,2</sup>  Normal\*  Reversed

Input 3 polarity<sup>1,2</sup>  Normal\*  Reversed

Output maximum: 0-102.3% of full scale (100%\*)

Output minimum: 0-102.3% of full scale (0%\*)

### Information required when ordering:

#### Standard unit

Standard units are supplied in Raise Lower mode with the above default software settings and the following link and switch settings: Input type: Volt-Free Contact; Output: 4-20mA; Period: 60s.

Order code: **C16-65**

**Programming kit order code: Prog-65**

Accessories:

**RS232 to USB adapter, order code: USB-2-COM**

#### Pre-configured units

Specify type **C16-65/9** followed by:-

Raise Lower or Ramp Generator Mode

Input type, output signal & period

Software programmable function settings (see above)

#### Notes

1- Input signal polarity: 'Normal' is voltage signal 'high', volt-free contact closed, npn open collector active.

2- Input 1 = Raise/Start, Input 2 = Reset, Input 3 = Lower/Stop



**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

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