



- User settable Offset, Span and Response
- Analogue outputs match any governor
- PWM output signal, 1kHz
- Instant reset gives full control of engine restart
- Power capacity limiting function
- Accuracy within 0.5 mV and 5µA increments
- Ultra reliable, no moving parts

## Specifications

Auxiliary Voltage:	24VDC nom. as standard (Fuse 2A)
Optional:	DC: 12V, 48V and 110V AC: 100-120, 200-240, 380-415 & 440-460V (Fuse 0.5A)
Adjustments:	Span: 1-10VDC Offset V: 0-10VDC Offset mA: 6.66-20mA Ramp rate 1: 3-30 secs. Ramp rate 2: 33-300 secs.
Term 11,13 open	
Term 11,13 linked	
Analogue output:	<b>MXR845CI2:</b> -2/0/+10VDC & 4-20mA <b>MXR845DI2:</b> -5/0/+5VDC Min load (V out): 10kohm Max load (mA out): 500ohm
PWM output:	1kHz output
Resolution:	V: 0.5mV max mA: 5µA max.
Temperature:	-20 to +70°C
Weight:	0.3kgs
Front protection:	IP21
EMC:	BS EN 50081-2 & BS EN 50082-2

## Description

Designed for use with Megacon synchronising and load sharing units or to give speed reference to any electronic regulator or AVR controllers.

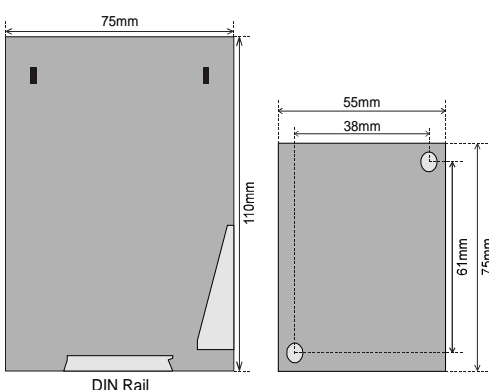
MXR845x2 will accept any volt free input such as push buttons or PLC digital outputs. Offset, Span, Ramp response and 4-step output matching resistance are user settable to suit any specific characteristic. Four output resistance levels are available together with two ramp ranges (rate 1 or 2, see specifications).

The 4-20mA output follows the -2 to 10VDC output on **MXR845CI2** and can be used independently or both at the same time. The two outputs are **NOT** galvanically isolated from each other (see MXR845CI2 Application Notes for further details, page 3 to 5). Use **MXR845DI2** model for -5/0/+5V signal.

The unit is designed for mounting inside the switchboard panel or into a small cabinet with door access. When using the volt signal to the governor it is recommended to have short distance between MXR845x2 and governor due to possible noise problem. Shield cable is preferred. There is no practical restriction of distance when using the mA output signal, however screened cable is recommended.

Cables for connection should be minimum 0.5mm<sup>2</sup> multithreaded cable. Type of cable will depend on mounting environment and customer specifications.

## Dimensions



Unit meets IEC60092-504 and relevant environmental and EMC tests specified in IEC60068/60092 and IEC61000/60533 respectively, to comply with Classification Societies requirements.

## ACCURACY

Precision accuracy and stability within 0.5mV and 5µA increments, even during engine crank brown-out.

## SAFETY

Isolated and fully protected outputs. Instant automatic reset gives full control of generator restart. Flame retardant enclosure (UL-94, V1 & V2).

## RELIABILITY

Fit-and-forget reliability. Superiority to motorised potentiometers. No moving parts, no deterioration of performance.

## POWER CAPACITY LIMITING FUNCTION

Span range can be set to limit output capacity of engine driven generators paralleled to a constant-frequency source (grid, shaft generator etc.). (See individual regulator interface on the application notes, page 3 to 5).

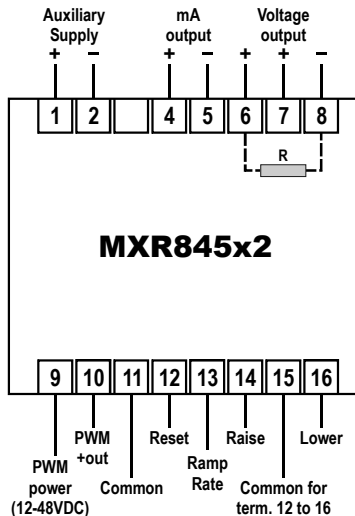
## RESET FUNCTION

The use of the reset input or by removing the auxiliary supply allows the unit to be reset to a fixed point. When used on a generator this allows the engine to be reset to start on nominal speed after a stop. Reset input should be a pulse or a relay signal for engine stopped.

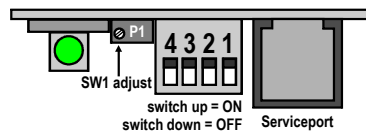
## OUTPUTS

The voltage and milliamp outputs are **NOT** galvanically isolated from each other. If both outputs are utilised then one must be galvanically isolated externally to the MXR845x2.





## Connection and adjustment



Switch ON	Resistor
1	10 kohm (adjustable P1 under lid for SW1)
2	100 kohm
3	470 kohm
4	N/A



## General Application Note:

- 1) The output voltage offset & span can be independently adjusted by trimpots on the front of the instrument.
- 2) **RAISE/LOWER:** The unit will be set to the offset output on applying auxiliary power and will remain at this output until a raise or lower input is applied.
- 2) **RESET:** The unit can be reset to the offset output by momentary closure between terminals 12 and 15.
- 3) **RAMP RATE:** The standard response can be adjusted by the trim pot R12 from 3-30 secs, but can be increased to 30-300 secs by linking terminals 13 and 15.
- 4) **PWM:** A pulse width modulation output is available from T10 in addition to the voltage and mA outputs on terminals T4-T8. The amplitude is fixed 11VDC if supplied internally, or an external voltage between 12-48VDC can be connected to T9 which will override the internal voltage level. T11 is common for both the optional 12-24VDC reference supply (T9) and the PWM output (T10).
- 5) The direct voltage output is between terminals 7 and 8. For input resistance matching to governors, terminals 6 and 8 should be used. Series resistors can then be selected using the four way switch located under the lid.
- 6) The remote speed potentiometer on the governor should be used to set the generator to its nominal speed before connection of the MXR845x2. Once set, it must be locked or situated so that it can not be accidentally adjusted.
- 7) If the generator response is too fast then it can be slowed down by selecting switch 2 instead of switch 1. This must be done with the generator stopped and may require re-adjustment of offset, span and response trimpots. If it is still too fast then switch 3 can be selected instead of switch 2.
- 8) If the generator response is too slow then it can be speeded up by adjusting trimpot R12 (under lid) clockwise. This may be done with the generator running but may require re-adjustment of offset, span and response trimpots.
- 9) The outputs offset, Span and Response time can be independently adjusted.

## Guide for use with generator Electronic Speed Governors (ESG) with voltage input:

- A) With the MXR845x2 disconnected, measure the voltage between battery negative and the terminal to which the MXR845x2 will be connected.
- B) Measure between terminals 7 and 8 and adjust the offset until the voltage matches the reading taken in (A). Span and response should be set to mid point.
- C) Stop the generator and connect the MXR845x2. Restart the generator and if required adjust the offset until nominal speed is achieved.
- D) If the generator speed adjustment is too coarse it can be reduced by changing to terminal 6 and switching in a series resistor. The generator should be stopped whilst the switch is selected. ESG sensitivity will be reduced with increase of series resistor (Switch 1 to 3, see above).

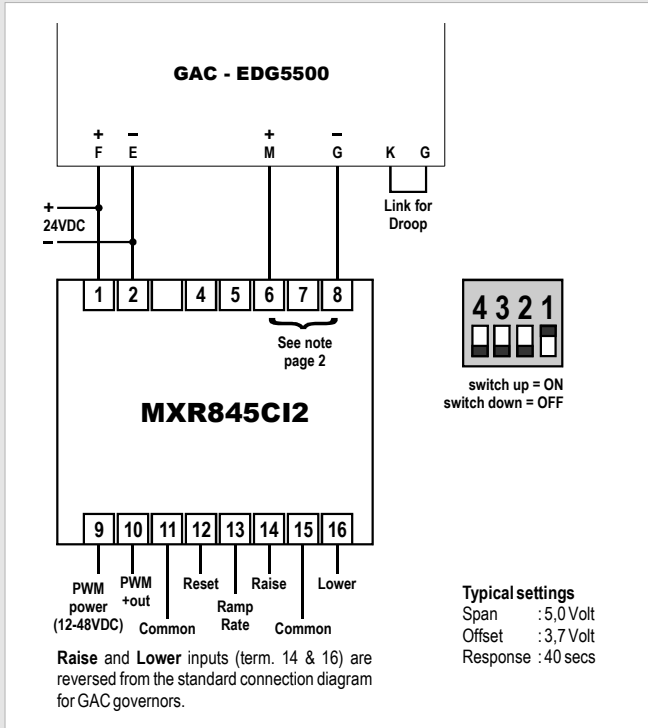
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**IS**  
Range

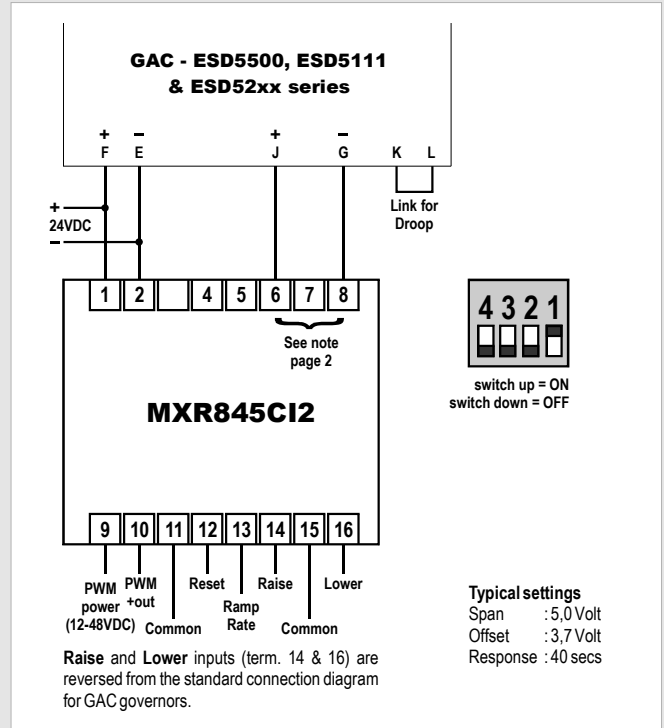


## Application Notes:

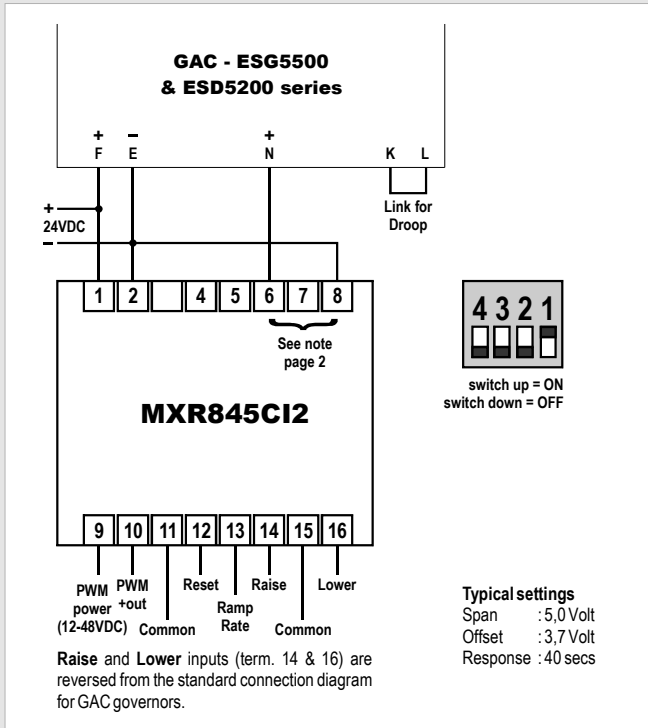
### GAC EDG5500 Interface



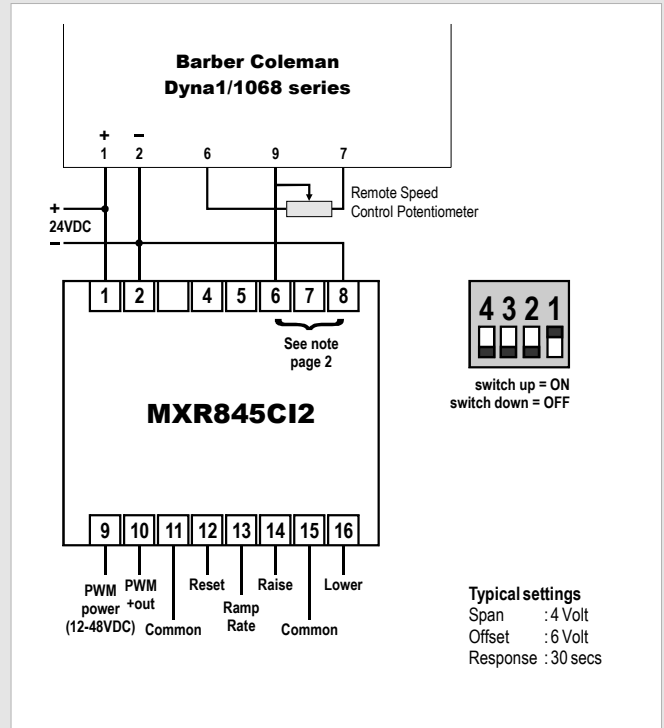
### GAC ESD5xxx Interface



### GAC ESG5500 Interface



### Barber Coleman Dyna 1/1068 Interface



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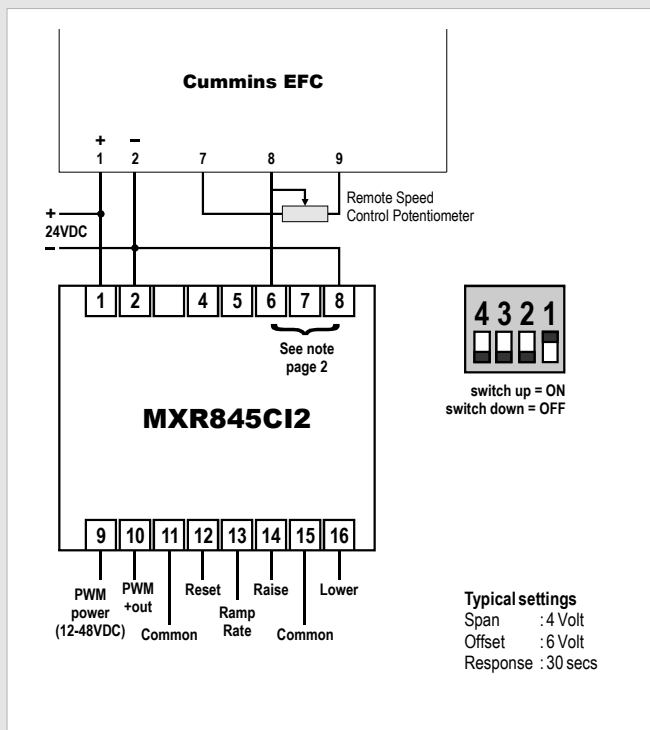
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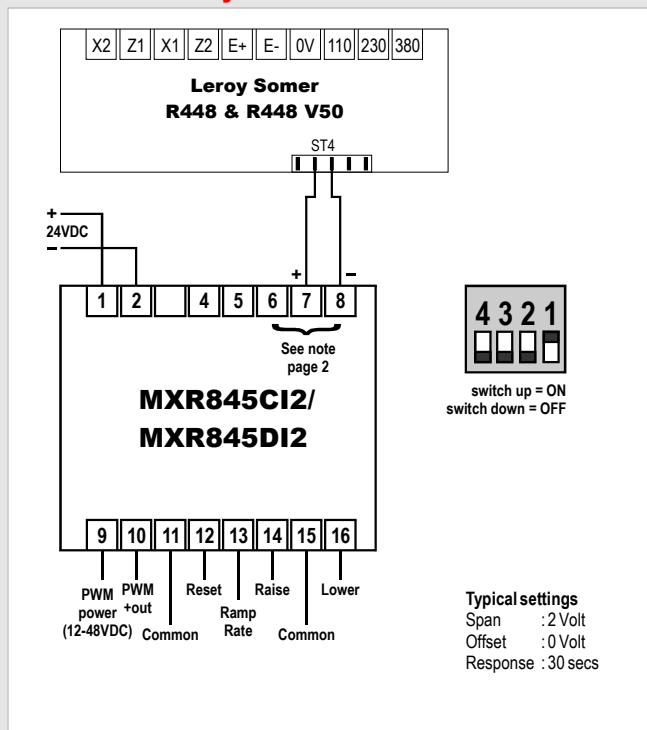
Page: 3 of 5

## Application Notes:

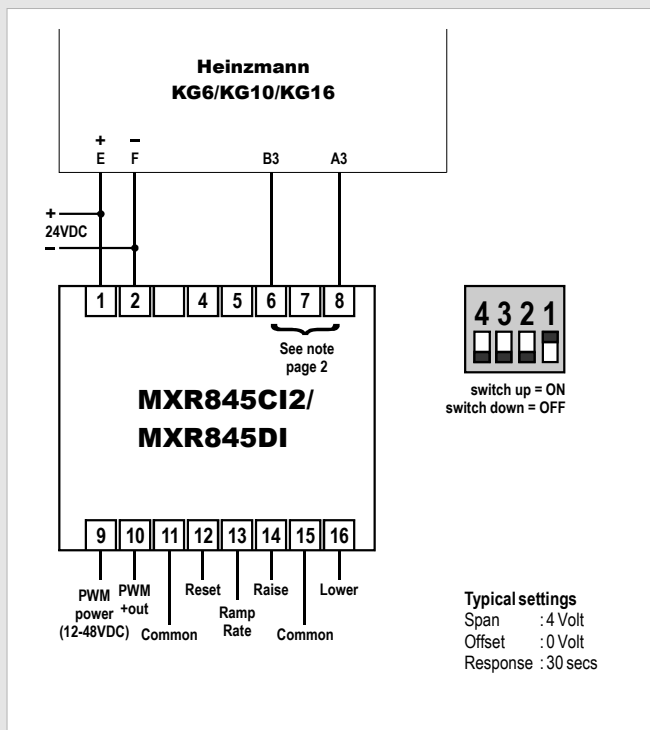
### Cummins EFC Interface



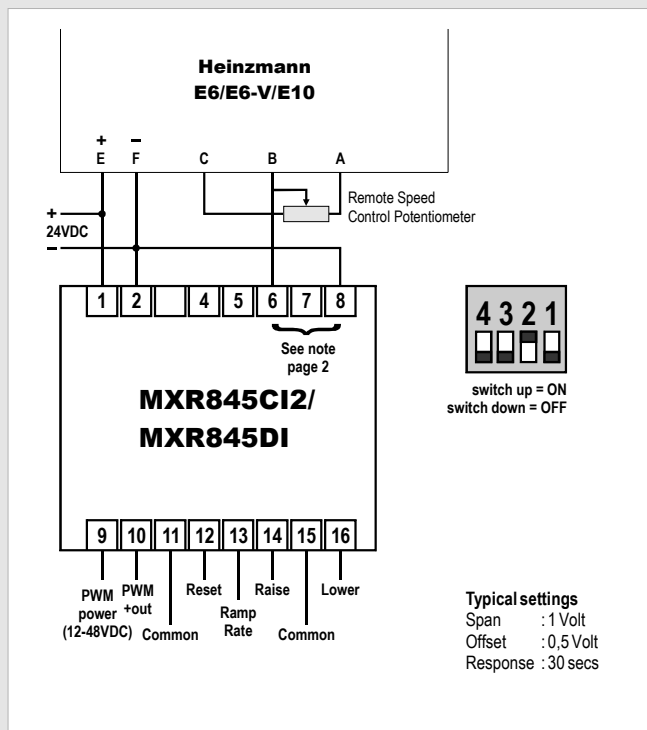
### Leroy Somer R448 Interface



### Heinzmann KG series Interface



### Heinzmann Interface

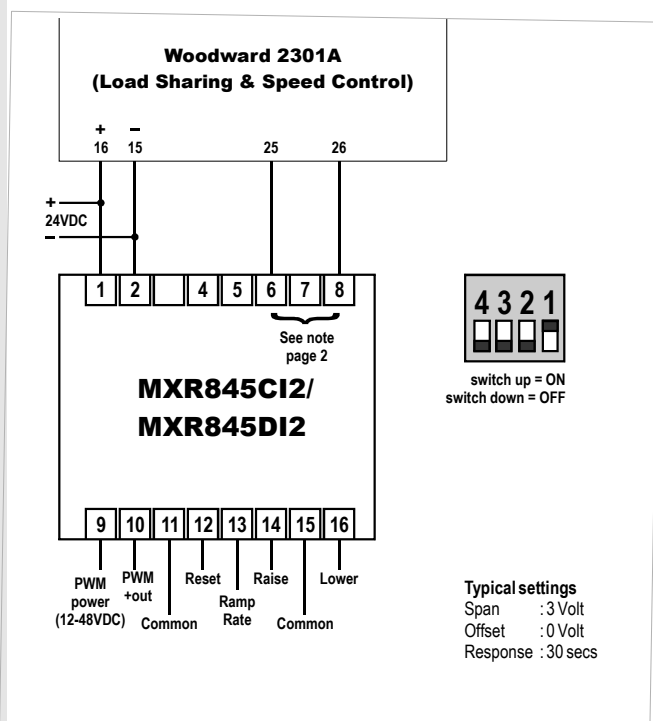


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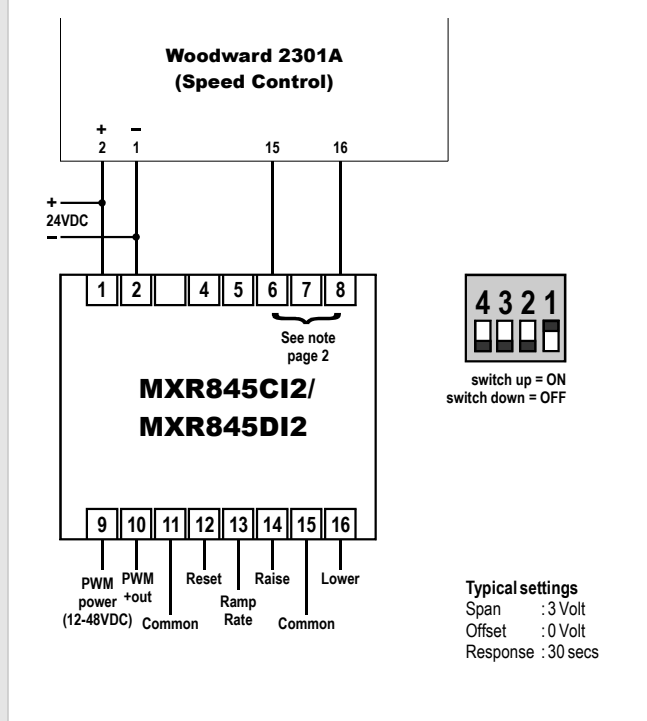


## Application Notes:

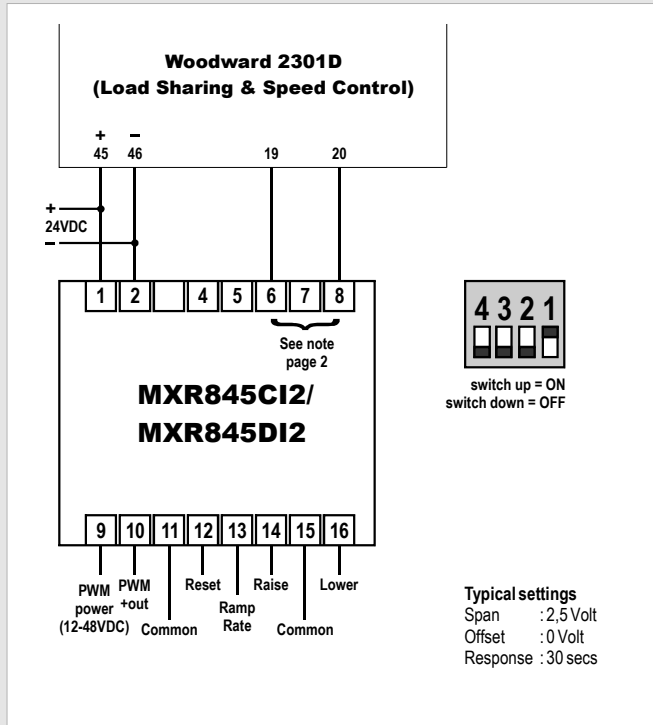
### Woodward 2301A Interface



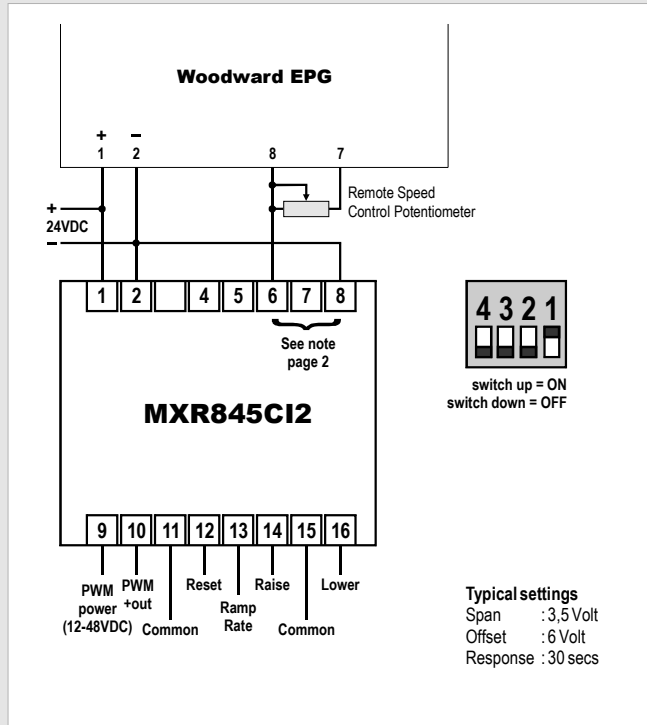
### Woodward 2301A Interface



### Woodward 2301D Interface



### Woodward EPG Interface



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#### ORDERING EXAMPLE:

Type: MXR845CI2  
Aux. Supply: 200-240VAC

