

- Pulse inputs for NPN, PNP or voltage signals**
- Built-in supply for external sensor**
- 16 metering ranges, switch selectable**
- Galvanically isolation between supply, input and output**
- Current, voltage or relay output**
- DC supply or AC supply voltages up to 230 VAC**
- Made in accordance with the  and EMC regulations**



The C-mac<sup>®</sup> converter, type LR10 is used for speed monitoring, where the input signal comes from a contact, a proximity sensor, a flow transducer or similar. The unit is supplied with a 24 VDC, max. 25 mA output, which can be used to supply an external proximity sensor.

The unit is supplied with either analogue or relay output.

By means of a rotary switch on front of the unit you can select between 16 different metering ranges from 0-100 p.p.m. to 0-20000 Hz.

With analogue outputs you use another switch to select the output range (0-20 / 4-20 mA or 0-10 / 2-10 V) and to enable fine-adjustment of the metering range

With the fine-adjustment you can select any range between the nominal range lower than the actual range up to maximum of the actual range.

With relay output you use the switches to select the relay functions (relay on / relay off)

The analogue output level is updated at each input pulse (at high speed ranges 10 times per second), which ensures a quick reaction and a stable output signal, even at very low input frequencies.

### Technical data:

<b>Supply voltage:</b>	24, 115 and 230 VAC +/- 10%
<b>Supply frequency:</b>	40-70 Hz
<b>Supply voltage DC:</b>	12-50 VDC
<b>Isolation voltages:</b>	Supply - internal electronics: 3.75 kV Input - output: 2.5 kV
<b>Power consumption:</b>	3 VA
<b>Operation temp.:</b>	-20°C to +60°C
<b>Humidity:</b>	0 - 90% RH, non condensing
<b>Temp. coefficient:</b>	< 0,01% /°C
<b>Transducer supply:</b>	24 VDC, max. 25 mA
<b>Indications:</b>	
Green LED:	Supply ON
2 red LED's:	Relay 1 and 2 active (only modules with relay output)
<b>Accuracy:</b>	better than 0.3%
<b>Resolution:</b>	0.1%
<b>Adjustments,</b>	
analogue units:	Span adjustment.
relay units:	setpoint adjustment relay 1 and 2. adjustment range 10 - 100%

### Hysteresis:

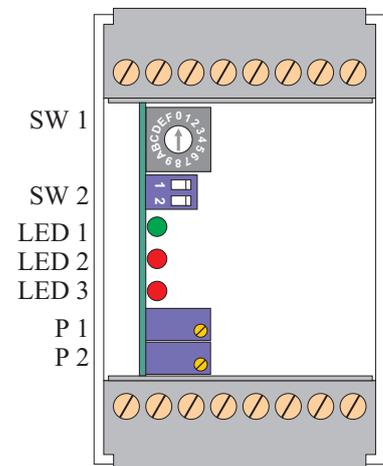
Relay version: 5%

### Metering ranges:

16 Selectable ranges from 0-100 p.p.m. to 0-20000 Hz.

Pulse/pause ratio: min 10% at max speed for each range (min 15µsec. at range D,E and F)

### Front view:



### SW 1: Range selection:

0 = 0 - 100 p.p.m.	8 = 0 - 100 Hz
1 = 0 - 200 p.p.m.	9 = 0 - 200 Hz
2 = 0 - 500 p.p.m.	A = 0 - 500 Hz
3 = 0 - 1000 p.p.m.	B = 0 - 1000 Hz
4 = 0 - 2000 p.p.m.	C = 0 - 2000 Hz
5 = 0 - 5000 p.p.m.	D = 0 - 5000 Hz
6 = 0 - 10000 p.p.m.	E = 0 - 10000 Hz
7 = 0 - 20000 p.p.m.	F = 0 - 20000 Hz

### SW 2.1, analogue version: Output offset

off: 0-20 mA / 0-10 V  
on: 4-20 mA / 2-10 V

### SW 2.1, relay version: Inversion, relay 1

### SW 2.2, analogue version: Range adjustment

off: Factory adjusted  
on: manual adjustment

### SW 2.2, relay version: Inversion, relay 2

### LED1: Power on

### LED2: Relay 1 on

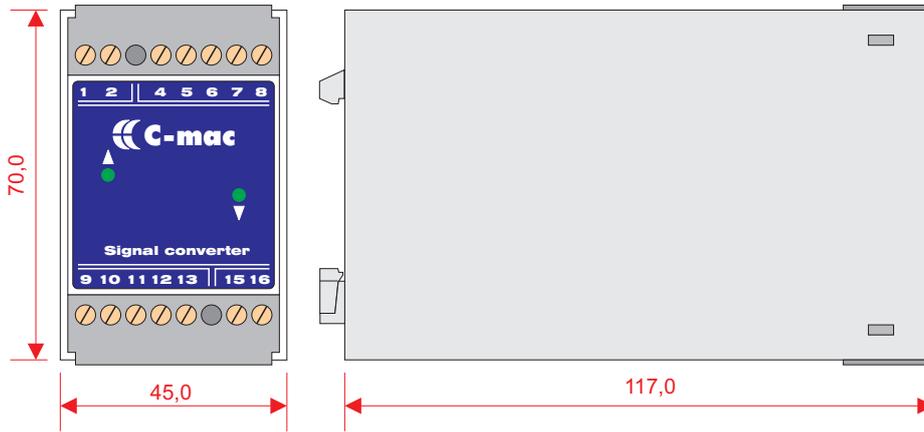
### LED3: Relay 2 on

### P 1, analogue version: Manual range adjustment

### P 1, relay version: setpoint adjustment, relay 1

### P 2, relay version only: setpoint adjustment, relay 2

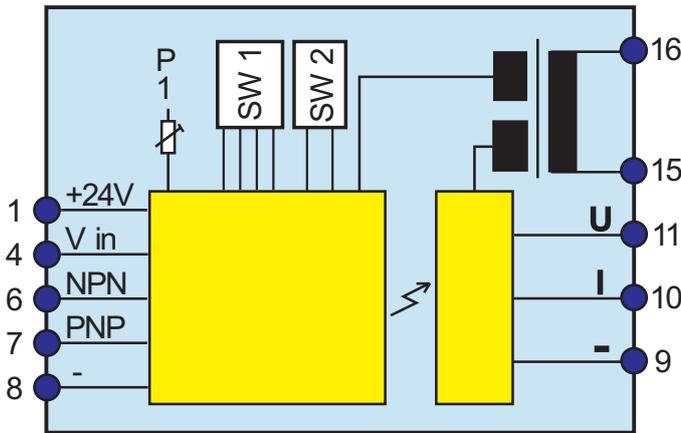
## Mechanical dimensions:



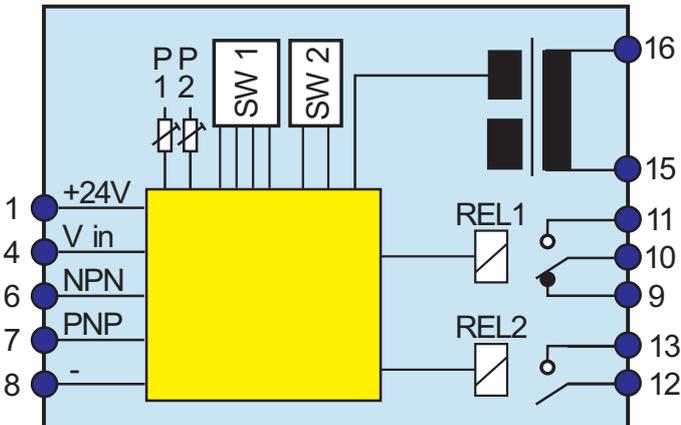
## Materials and weight:

<b>Housing base:</b>	CYCOLOY C2100, grey
<b>Frontplate:</b>	CYCOLOY C2100, grey
<b>Terminal cover:</b>	CYCOLOY C2100, black
<b>Terminals:</b>	Zinc-plated brass
<b>Screws:</b>	Zinc-plated iron
<b>Weight:</b>	260 g

### Block diagram, analogue outputs:



### Block diagram, relay outputs:



### Electrical connections:

<b>Supply voltage:</b>	pins 15 and 16
<b>Input circuit:</b>	
Common	Pin 8
DC supply out	Pin 1, 24 VDC, max load 25 mA
Voltage input:	Pin 4, AC or DC signals, max 50 V input resistance 50 kOhm
Input active:	$V_{in} > 3 \text{ V}$
not active:	$V_{in} < 1.5 \text{ V}$
NPN input:	Pin 6, input resistance 10 kOhm
Input active:	$V_{in} < 6 \text{ V}$
not active:	$V_{in} > 15 \text{ V}$
PNP input:	Pin 7, input resistance 10 kOhm
Input active:	$V_{in} > 15 \text{ V}$
not active:	$V_{in} < 6 \text{ V}$
<b>Analogue output:</b>	
Common:	Pin 9
Current out:	Pin 10, max. output load 500 Ohms
Voltage out:	Pin 11, min. output load 4 kOhms
<b>Relay output:</b>	
Relay 1:	pin 9 (NC), 10 (C) and 11 (NO)
Relay 2:	pin 12 (C) and 13 (NO)
Max load:	6A / 240 VAC

### EMC and safety regulations.

<b>Emmission:</b>	EN 50 081 - 1
<b>Immunity:</b>	EN 50 082 - 2
<b>Safety:</b>	EN 60 730

**Approvals:** The units are produced in accordance with the CE og low voltage regulations.

### Ordering guide:

LR10-x-yyy

x = Converter type  
A = analogue outputs  
R = Relay outputs

yyy = Supply voltage  
024 = 24 VAC  
115 = 115 VAC  
230 = 230 VAC  
712 = 12-50 VDC

Ordering example: LR10-A-230

