

RISH CON - CA/CV Dual Output

DUAL OUTPUT CURRENT / VOLTAGE TRANSDUCER

Application :

The transducer **RISH CON - CA/CV** (Fig.1) converts a sinusoidal AC Current or AC Voltage into **load independent** DC Current or a **load independent** DC Voltage proportional to the measured value.

Salient Features :

- Arithmetical mean value measurement
Calibration to RMS with sine waveform
(Average Value)
- Accuracy **class 0.2**
as per International Standard **IEC/EN 60 688**.
- Wide range Auxiliary Power Supply:
60-300 VAC/DC. or 20-40 VAC/20-60 VDC.
- Dual Isolated DC current or DC voltage outputs.**
- Output Response Time < 250 ms.
- Fast and easy installation on DIN RAIL or onto a wall
or in panel using optional screw hole bracket
- Connection Terminal: Conventional Screw type.

Product Features :

Measuring Input :

AC Current/ Voltage input signal , sine wave.

Analog Output (Dual):

Isolated analog output, which can be Voltage or Current.

Accuracy:

Output signal accuracy **class 0.2** as per International Standard **IEC/EN 60 688**.

LED Indication:

LED indication for power ON

Output Response Time :

< 250 ms.



Fig. 1. Transducer RISH CON - CA/ CV

Symbols and their meanings:

X = Input AC Voltage / AC Current.	H/L = Power supply.
Y = Output DC Voltage / DC Current.	Y0 = Start value of output DC
Y2 = End value of output DC	UN = Nominal input voltage.
FN = Nominal Frequency.	IN = Nominal input current.
RN = Rated value of output burden.	

Mode of Operation :

Input signal X is separated from the mains network by using a transformer.

The signal is rectified and filtered in rectifier unit.

The transformation properties of the measuring transducer are determined in the succeeding characteristics circuit.

The isolated output amplifiers transforms the measuring signal into an impressed output signal Y.

The circuit is supplied with Auxiliary supply H or L.

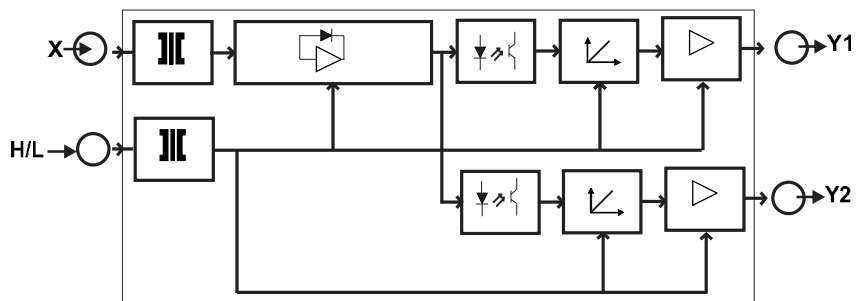


Fig. 2. Block Diagram.



RISHABH
INSTRUMENTS
Measure, Control & Record with a Difference

RISHABH INSTRUMENTS PVT.LTD.

F-31, MIDC, Satpur, Nashik-422 007, India.

Tel.: +91 253 2202160, 2202202 Fax : +91 253 2351064

E-mail : India :- marketing@rishabh.co.in

International :- exp.marketing@rishabh.co.in

www.rishabh.co.in

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Technical Specifications:

Measuring Input X:

Voltage Transducer (RISH CON - CV) :

Final value of Nominal input Voltage U_N (X2) AC RMS	$63.5V \leq U_N \leq 500 V.$
Nominal Frequency F_N	50 or 60 Hz.
Nominal input Voltage burden	$< 0.6 VA$ at $U_N.$
Overload Capacity:	$1.2 * U_N$ continuously, $2 * U_N$ for 1 second, repeated 10 times at 10 second intervals.

Current Transducer (RISH CON - CA):

Final value of Nominal input Current I_N (X2) AC RMS	1 A, 5 A.
Nominal Frequency F_N	50 or 60 Hz.
Nominal input Current burden	$< 0.2VA$ at $I_N.$
Overload Capacity:	$1.2 * I_N$ continuously, $10 * I_N$ for 3 second, repeated 5 times at 5 minute intervals, $20 * I_N$ for 1 second, repeated 5 times at 5 minute intervals, $50 * I_N$ for 1 second.

Measuring Output Y(Dual):

Output type	Load independent DC Voltage/Current.
Load independent DC output (Y)	Calibration to RMS with sine waveform (Average Value) 0...10mA, 0...20mA, 2...10mA, 4...20mA, 0...5V, 0...10V.
Output burden with DC current output Signal	$0 \leq R \leq 15 V/Y2$
Output burden with DC voltage output Signal	$Y2/(2 mA) \leq R \leq \infty$
Current limit under overload $R=0$	$\leq 1.6*Y2$ with Current output. $\leq 40 mA$ with Voltage output.
Voltage limit under $R=\infty$	$\leq 1.6*Y2$ with Voltage output. $\leq 25 V$ with Current output.
Residual Ripple in Output signal	$\leq 1\%$ pk-pk.
Response Time	$< 250 ms.$

Auxiliary Supply H/L:

Rated operating voltage(for high Aux. supply H)	60...300 V AC/DC
Rated operating range of frequency(for high Aux. supply H)	45... <u>50...60</u> ...65 Hz
Power consumption(for high Aux. supply H)	$< 5 VA$
Rated operating voltage(for low Aux. supply L)	20...40 VAC/20...60 VDC
Rated operating range of frequency(for low Aux. supply L)	45... <u>50...60</u> ...65 Hz
Power consumption(for low Aux. supply L)	$< 5 VA$



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Accuracy:(Acc. to IEC/EN 60 688)

Accuracy class 0.2

Reference conditions for Accuracy :

Ambient temperature 23°C +/- 1°C

Pre-conditioning 30 min acc. to IEC/EN 60 688

Input Variable Rated Voltage Range / Rated Current Range.

Input waveform Sinusoidal

Input signal frequency 50....60Hz

Auxiliary supply voltage 230 V AC/DC (for high Aux. supply H)
24 V AC/DC (for low Aux. supply L)

Auxiliary supply frequency 50Hz

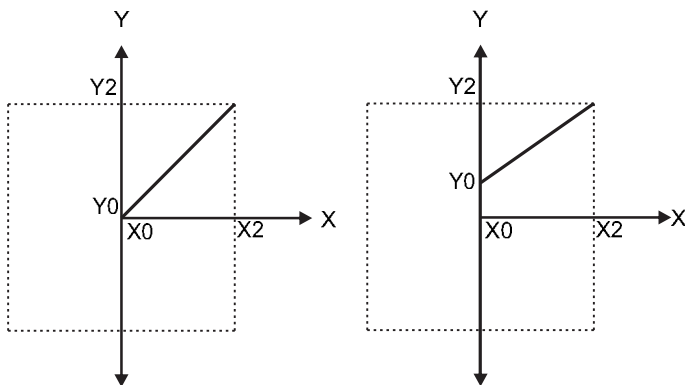
Output Load $R_N = 7.5 \text{ V} / Y_2 \pm 1\%$ With DC Current output signal.
 $R_N = Y_2 / 1 \text{ mA} \pm 1\%$ With DC Voltage output signal.

Miscellaneous Acc. to IEC/EN 60 688

Additional Error :
Temperature influence $\pm 0.2\% / 10^\circ\text{C}$

Influence of Variations: As per IEC/EN 60 688 standard.

Output characteristics:



X0 = Start value of input

Y0 = Start value of output

X2 = End value of input= U_N/I_N

Y2 = End value of output

U_N = Nominal input voltage

I_N = Nominal input current



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Safety:

Protection Class	II (Protection Isolated, EN 61 010)
Protection	IP 40, housing according to EN 60 529 IP 20 ,terminal according to EN 60 529
Pollution degree	2
Installation Category	III (At ≤ 300V) II (At > 300V)
Insulation Voltage	7770V DC, Input versus outer surface. 5230V DC, Input versus all other circuits. 5230V DC, Auxiliary supply versus input and output circuits. 690V DC, Output versus output versus each other versus outer surface.

Installation Data:

Mechanical Housing	Lexan 940 (polycarbonate) Flammability Class V-0 acc. To UL 94, self extinguishing, non dripping, free of halogen.
Mounting position	Rail mounting / wall mounting.
Weight	Approx. 0.2Kg

Connection Terminal:

Connection Element	Conventional Screw type terminal with indirect wire pressure
Permissible cross section of the connection lead	≤ 4.0 mm ² single wire or 2 x 2.5 mm ² fine wire

Environmental:

Nominal range of use	0 °C... <u>23 °C</u> ... 45 °C (usage Group II)
Storage temperature	-40 °C to 70 °C
Relative humidity of annual mean	≤ 75%
Altitude	up to 2000 m

Ambient tests:

IEC 60 068-2-6	Vibration
Acceleration	± 2 g
Frequency range	10....150...10Hz,
Rate of frequency sweep	1 octave/minute
Number of cycles	10, in each of the three axes
IEC 60 068-2-27	Shock
Acceleration	3 x 50g 3 shocks in each in 6 directions
EN 60 068-2-1/-2/-3	Cold, Dry heat, Damp heat
IEC 61 000-4-2/-3/-4/-5/-6 EN 55 011	Electromagnetic compatibility.



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Electrical Connections :

Connection	Terminal details	
Measuring input	~	5 6
Auxiliary Power supply	~ , + ~ , -	7 8
Measuring output - 1	+ -	1 2
Measuring output - 2	+ -	3 4

LED Indication:

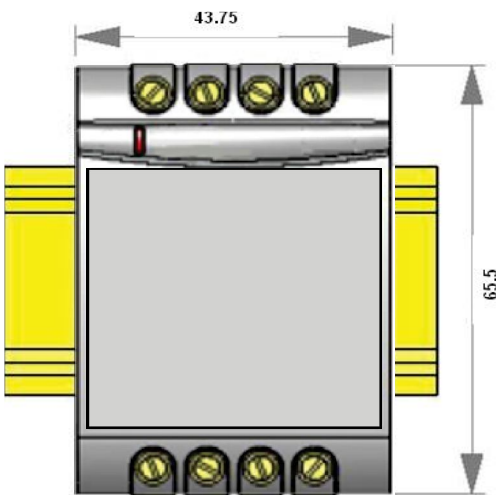
ON LED	Aux.supply healthy condition	Red LED continuous ON
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Fig 2.

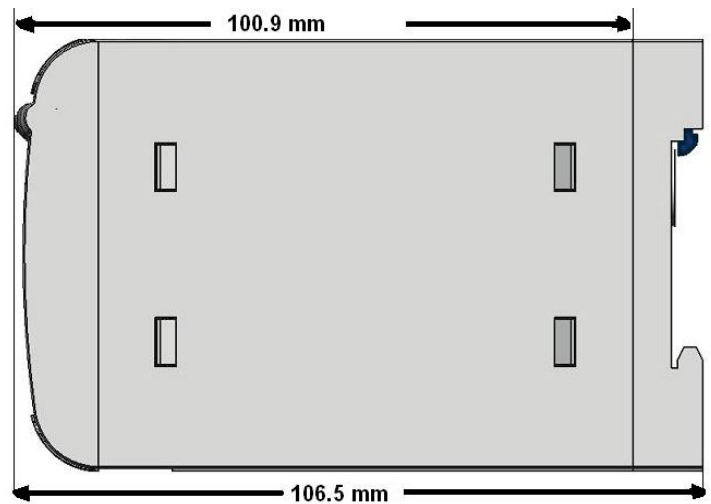
Fig. 3. RISH CON - CV/CA Connection Diagram.

Dimensions :



Note : All Dimensions are in mm.

Fig. 4. RISH CON - CV/CA Dimensions.



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