RISHABH

Datasheet

RISH CON-I11

Measure Control Record Analyze Optimize

Datasheet

RISH *CON*-I11

Application:

The transducer **RISH CON-I11** (Fig.1) converts a sinusoidal AC Current into a 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 0.5 as per international standard
- IEC/EN60 688
- **Single Isolated DC currents or DC voltage outputs.**
- Response time < 200 ms
- Fast and easy installation on din rail or onto a wall or in panel using optional screw hole bracket.

Product Features:

Measuring Input:
AC Current input signal , sine wave.

Analog Output (Single):
Isolated analog output which can be Current or Voltage.

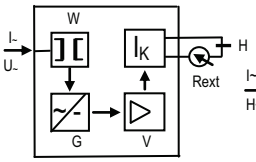
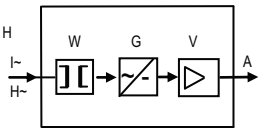
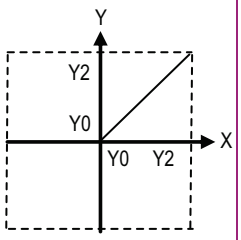
Accuracy:
Output signal accuracy **class 0.5** as per International Standard **IEC/EN 60 688**.

LED Indication:
LED indication for power ON.

Fig. 1 RISH *CON*-I11

Symbols & Their Meaning

Symbols	Meaning
X	Measuring input / Input variable
X0	Start value of input voltage / current
X1	Elbow of input voltage
X2	Final value of input voltage / current
Y	Measuring output / Output variable
Y0	Start value of output variable
Y1	Elbow of output variable
Y2	Final value of output variable
H	Power supply
R_{ext} Max	Max. output burden

Layout and Mode of Operation		Block Digram	Standard Transformation Characteristics
I11	The Transducer comprises a transformer W, a rectifier unit G and the amplifier V The measured variable I/U AC is isolated from the electronics by the transformer W, and is rectified and a smoothed in the rectifier unit G. The o/p amplifier V amplifies the resultant signal and converts it into the load-independent DC o/p signal A. The version with live-zero o/p has a 4mA constant current source to provide the zero setting. In the case of 2-wire connection the o/p increases from the zero setting of 4mA with an increase in measured value. The constant current source needs a supply voltage H between 12 and 30 V DC, which may be supply typically from the main installation, the receiving equipments or a separate power pack.	 **Fig. 2** .Block diagram for transducer with live-zero output & 2-wire connection  **Fig. 3** .Block diagram for transducer with unipolar Output.	 **Fig. 4** Linear curve, characteristics (X0 = 0; Y0 = 0.2 Y2)

Technical Specifications:

Current Transducer (RishCON - I11)

Final value of Nominal Input Current IN (X2) AC RMS	1A, 5A, 1.3A and 6.5A (On request)
Nominal Frequency FN	50 or 60Hz.
Nominal Input Current Burden	Full O/p value [mA] [VA] 1 <0.8VA at IN 5 <1.8VA at IN 10 <2.2VA at IN 20 <2.8VA at IN
Overload Capacity	1.5*IN Continuously, 2*IN for 10 second, repeated 10 times at 10 second intervals, 10*IN for 3 second, repeated 5 times at 5 minute intervals, 40*IN for 1 second, 1 time. Note: Overload not applicable for input range 1.3A and 6.5A

Measuring output Y

Output type	Load independant DC current I_A or DC voltage output V_A (Not superimposed)
Load independent DC current Output range	0...1/0...5/0...10/0...20 mA 4...20 mA
Output burden with DC current output signal	Rext max. [k ohm] = 15 V_A/I_{AN} [mA] I_{AN} = full output value
DC voltage output range	Output V_A not superimposed : std range of V_A: 0...10V
Output burden with DC current output signal	Rext ⩾ 200kΩ/V
Current limit under overload	⩽1.5 * IAN for current output Approx. 30 mA for voltage
Voltage limit under R_{ext} = ∞	<24 V
Residual Ripple in output signal	Current Ripple ⩽1%p.p.
Response time	<200ms
Output standard ranges	Current : 0...1/0...5/0...10/0...20 mA Voltage : 0-10V

Auxiliary supply Self powered

Accuracy (Acc. to IEC/EN 60688)

Reference value	Input end value X2
Accuracy Class	0.5

Reference conditions for Accuracy

Ambient temperature	23°C,± 5k
Pre-conditioning	⩽5 min.
Input variable	0 to 100% for current measurement 20 to 100% for voltage measurement
Input waveform shape	Sinusoidal.
shape factor	1.1107
Input signal frequency	50...60Hz ± 2%
Distortion factor	< 0.5%
Output load	Current output 0 - Rext Max. Voltage output Rext Max to ∞
Power Supply	± 1% for 24Vdc with 4...20mA output.

Influence Effects (maxima) :

Linearity error	< ± 0.3%
Frequency	± 0.3% (Fn ± 0.2%)
Dependances on external resistance Δ Rext Max	± 0.1%

Additional Errors

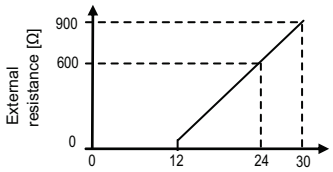
Temperature influence	± 0.2% /10°C.
Curve shape of Input	Sine waveform only
Frequency of input variable	45...200Hz ± 0.5%
Influence of Variations	As per IEC/EN 60 688 standard.

Power Supply

DC power supply	12-30V (only for 2-wire connection with output 4...20mA)

Output Characteristics

2 wire output with 4...20mA, 12...30V DC AUX:
With 2 wire conneciton



H= Power Supply [V]

$$Rext\ max.[k\Omega\ ] = \frac{H[V] - 12V.}{20mA\ `\ .}$$

Fig. 5
Standard ranges of IA = 4...20mA,
External Resistance Rext -dependent
on power supply H(12...30V DC)

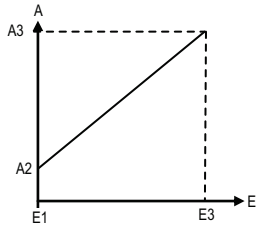


Fig. 6
Characteristics A
"Standard and live zero."

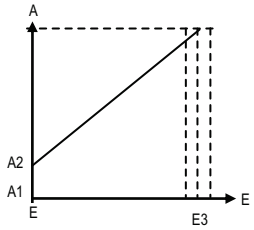


Fig. 7
Characteristics A "Standard"
Variable Sensitivity and live zero.

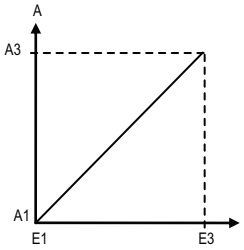


Fig. 8
Characteristics A
"Standard"

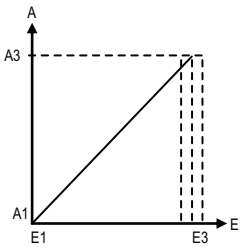


Fig. 9
Characteristics A "Standard
Variable Sensitivity".
E3 ±5% or ±10%

Safety:

Protection Class	II (Protection Isolated, EN 61010)
Protection	IP 40, housing according to EN 60529 IP 20 ,terminal according to EN 60529
Pollution degree	2
Insulation Voltage	7750VDC, Input versus outer surface 7750VDC, Output versus outer surface 5500VDC,Input versus output
Impulse withstand Voltage Acc to IEC 255-4 CI,III	5kV 1.2/50 sec, 0.5Ws common mode and differential mode between any terminals

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. 0.35kg
Product Performance	IEC EN 60 688

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

Operating temperature	-25 °C...23 °C... 55 °C
Storage temperature	-40 °C to 70 °C
Relative humidity of annual mean	⩽ 75% Standard Climatic Rating ⩽ 90% Enhanced Climatic Rating
Altitude	2000m max

Ambient tests:

EN 60068-2-6	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
EN 60068-2-7	Shock
Acceleration	3 x 50g 3 shocks in each direction

Electrical Connections:

Connection	Terminal details	
Measuring input	~ ~	5 6
Measuring output	+ -	1 2
Not Connected	NC	3,4,7,8

LED Indication:

ON LED	Power ON	Red LED continuous ON

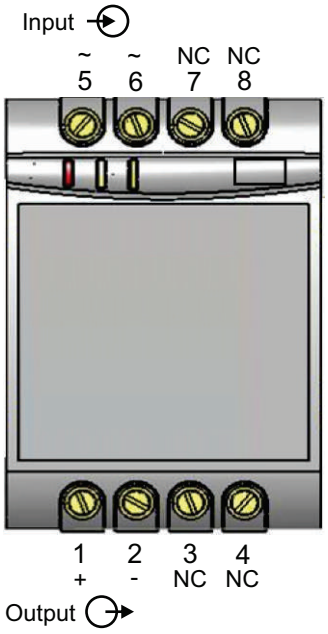
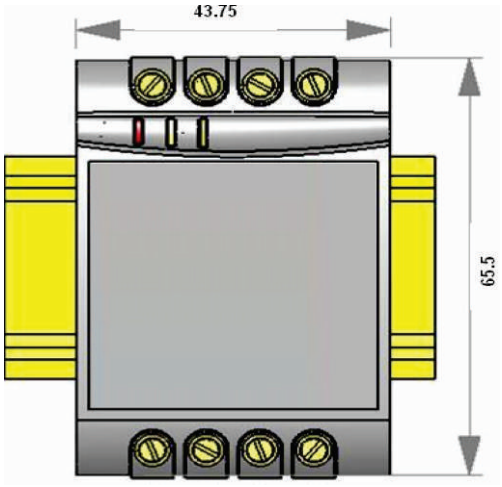


Fig 10. RishCON- I11 Connection diagram

Dimensions:



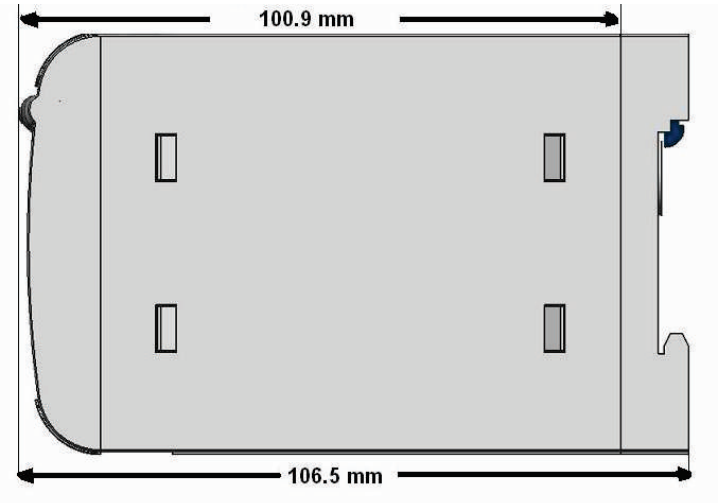


Fig 11. RishCON- I11 Dimensions

Note: All dimensions are in mm.

Ordering Information: Standard Version :

Single Output : RISH CON - I11

Product Code	CA11-	X	XX	XX	00000000
Model	AC CURRENTTRANSDUCERClass 0.5	A			
Input Current range	Fixed Input : 0…1A		11		
	Fixed Input : 0…5A		51		
Output	0 ... 10mA			01	
	0 ... 5mA			02	
	0 ... 20mA			03	
	4 ... 20mA			04	
	0...10V			05	

Ordering Example:

CA11-A693200000000 - RishCON- I11, Input: 5A,output: 0...20mA.

RISHABH

Measure Control Record Analyze Optimize

RISHABH INSTRUMENTS LIMITED

Domestic (India): +91 253 2202099 | marketing@rishabh.co.in

International: +91 253 2202004/06/08/99 | global@rishabh.co.in

www.rishabh.co.in