RISHABH

Data Sheet

RISH CON-I11

AC Current Transducer Self Powered

RoHS CE

Measure Control Record Analyze Optimize

Overview

The transducer RISH CON-I11 converts a sinusoidal AC Current into a load independent DC current or a load independent DC voltage proportional to the measured value

Product Features

Arithmetical mean value measurement Calibration to RMS with sine waveform (Average Value)

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

Accuracy
Output signal accuracy class 0.5 as per International Standard IEC/EN 60688.

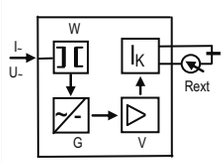
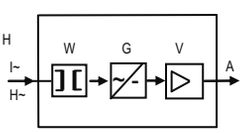
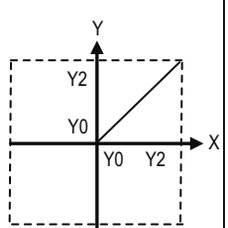
Measuring Input
AC Current input signal , sine wave.

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

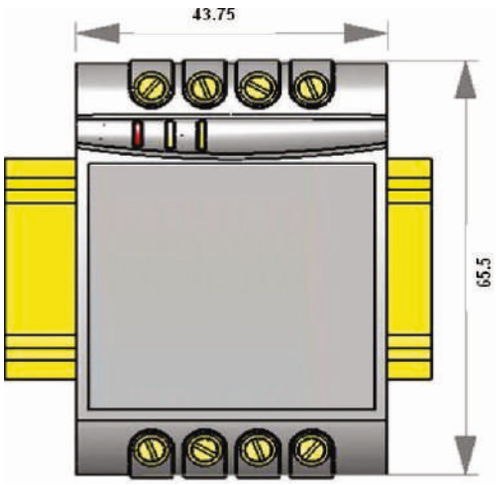
LED Indication
LED indication for power ON

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. 1** Block diagram for transducer with live-zero output & 2-wire connection  **Fig. 2** Block diagram for transducer with unipolar Output.	 **Fig. 3** Linear curve, characteristics (X0 = 0; Y0 = 0.2 Y2)

Dimensions Details:



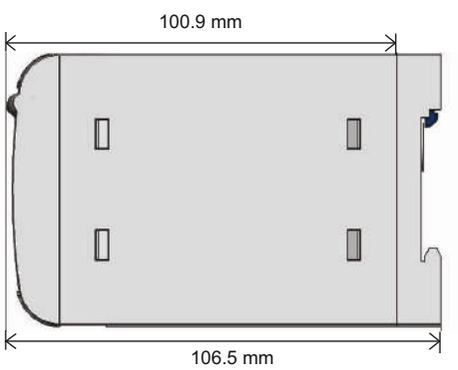


Fig. 4 Rish CON- I11 Dimensions
Size: 43.75 X 65.5 X 100.9

Note- All dimensions are in mm

Technical Specifications:

Current Transducer (Rish CON - I11)

Final value of Nominal Input Current I_N (X2) AC RMS	1A, 5A 1.3A and 6.5A (On request)
Nominal Frequency F_N	50 or 60Hz
Nominal Input Current Burden	Full O/p value [mA] [VA] 1 <0.8VA at I_N 5 <1.8VA at I_N 10 <2.2VA at I_N 20 <2.8VA at I_N
Overload Capacity	$1.5*I_N$ Continuously, $2*I_N$ for 10 second, repeated 10 times at 10 second intervals $10*I_N$ for 3 second, repeated 5 times at 5 minute intervals $40*I_N$ for 1 second, 1 time Note: Overload not applicable for input range 1.3A and 6.5A
Measuring output Y	
Output type	Load independent 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 VA: 0...10V
Output burden with DC current output signal	Rext ≥ 200k Ω /V
Current limit under overload	≤1.5 * I_{AN} for current output Approx. 30 mA for voltage
Voltage limit under Rext =∞	<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

Electrical Connections:

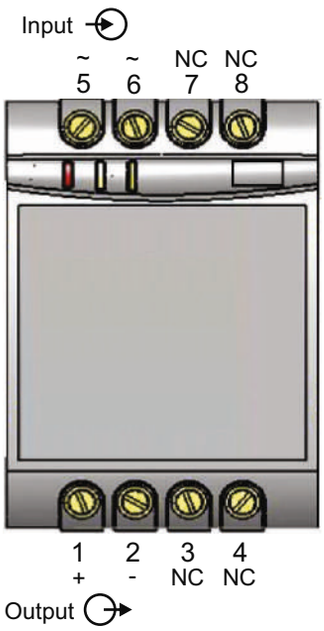


Fig 5. Rish CON - I11 Connection diagram

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

Technical Specifications:

Influence Effects (maxima)

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

Additional Errors

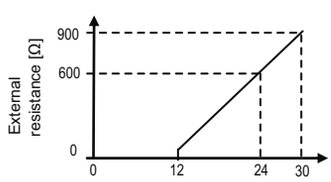
Temperature influence	± 0.2% /10°C
Curve shape of Input	Sine waveform only
Frequency of input variable	45...200Hz ± 0.5%
Influence of Variations	As per IEC/EN 60688 standard

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 connection



H= Power Supply [V]

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

Fig. 6
Standard ranges of IA = 4...20mA, External Resistance Rext-dependent on power supply H (12...30V DC)

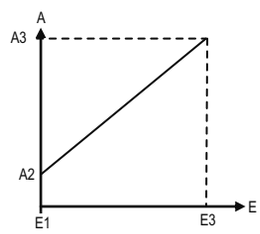


Fig. 7
Characteristics A "Standard and live zero."

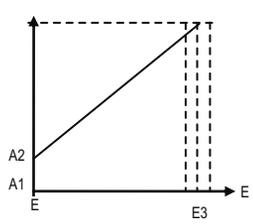


Fig. 8
Characteristics A "Standard" Variable Sensitivity and live zero.

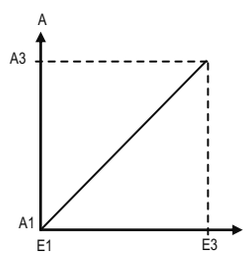


Fig. 9
Characteristics A "Standard"

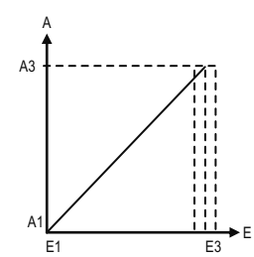


Fig. 10
Characteristics A "Standard Variable Sensitivity". E3 ±5% or ±10%

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

Technical Specifications:

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 60688

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

Ordering Information

Ordering Information	CA11-	X	XX	XX	00000000
Product Type	AC CURRENT TRANSDUCER Class 0.5	A			
Input Current range	Fixed Input : 0…1A		11		
	Fixed Input : 0…5A		51		
Output Range	0 ... 10mA			01	
	0 ... 5mA			02	
	0 ... 20mA			03	
	4 ... 20mA			04	
	0...10V			05	

Order Code Example : CA11-A510300000000

Rish CON- I11 (AC CURRENT TRANSDUCER Class 0.5-Self Aux), Input 0-5A,output 0-20mA

Specifications may change without prior notice

Measure Control Record Analyze Optimize

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