The transducer RISH CON - CA/CV (Fig.1) converts a sinusoidal AC Current or AC Voltage 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 0.2
  as per International Standard IEC/EN 60 688.

- Auxiliary Power Supply:
  1)40 V-300 V AC/DC.
  or
  2)24 V-60 V AC/DC.

- Output Response Time < 250 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/ Voltage input signal , sine wave.

Auxiliary Power Supply:
1)40 V-300 V AC/DC.
or
2)24 V-60 V AC/DC.

Analog Output:
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.

Symbols and their meanings:

X = Input AC Voltage / AC Current.
Y = Output DC Voltage / DC Current.
H/L = Power supply.
F_N = Nominal Frequency.
R_u = Rated value of output burden.
U_N = Nominal input voltage.
I_N = Nominal input current.

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 output amplifiers transforms the measuring signal into an impressed
output signal Y.
The circuit is supplied with Auxiliary supply H or L.

Fig. 1. Transducer RISH CON - CA/ CV.

Fig. 2. Block Diagram.
Technical Specifications:

Measuring Input X:

Voltage Transducer (RISH CON - CV):
Final value of Nominal input
Voltage $U_N$ (X2, AC RMS) $63.5V \leq U_N \leq 500V$.
Nominal Frequency $F_N$ 50 or 60 Hz.
Nominal input Voltage burden $< 0.6VA$ 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) $1A, 5A$.
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:

Output type Load independent DC Voltage/Current.

Load independent DC output (Y2) 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 $0 \leq R \leq 15V/Y2$

Output burden with DC voltage output
Signal $Y2/(2mA) \leq R \leq \infty$

Current limit under overload R=0 $\leq 1.6^*Y2$ with Current output.
$\leq 25mA$ with Voltage output.

Voltage limit under R=$\infty$ $\leq 1.6^*Y2$ with Voltage output.
$\leq 25V$ with Current output.

Residual Ripple in Output signal $\leq 1\%$ pk-pk.
Response Time $< 250ms$.

Auxiliary Supply H/L:

Rated operating voltage(for high Aux. supply H) 40...300 V AC/DC
Rated operating range of frequency(for high Aux. supply H) 45...50...60...65 Hz
Power consumption(for high Aux. supply H) $< 4VA$
Rated operating voltage(for low Aux supply L) 24...60 V AC/DC ±10%
Rated operating range of frequency(for low Aux. supply L) 40...50...60...400Hz
Power consumption(for low Aux. supply L) $< 3VA$.
**Accuracy:** (Acc. to IEC/EN 60 688)

<table>
<thead>
<tr>
<th>Reference Value</th>
<th>Output End Value Y2 (Voltage or Current)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuracy class</td>
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</tr>
</tbody>
</table>

**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:** Rated Value ±1%
- **Auxiliary supply frequency:** Rated Value ±1%

**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:** ±0.2% /10°C
- **Influence of Variations:** As per IEC/EN 60 688 standard.

**Output characteristics:**

- $X_0 = \text{Start value of input}$
- $X_2 = \text{End value of input} = U_n / I_n$
- $U_n = \text{Nominal input voltage}$
- $Y_0 = \text{Start value of output}$
- $Y_2 = \text{End value of output}$
- $I_n = \text{Nominal input current}$
RISH CON - CA/CV
CURRENT / VOLTAGE TRANSDUCER

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
Insulation Voltage 50Hz,1min. ( EN 61 010-1)
5500V, Input versus outer surface.
3700V, Input versus all other circuits.
3700V, Auxiliary supply versus input and output circuits.

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. 0.12kg

Connection Terminal:

Connection Element Conventional Screw type terminal with indirect wire pressure
Permissible cross section ≤ 4.0 mm² single wire or 2 x 2.5 mm² fine wire

Environmental:

Nominal range of use 0 °C...23 °C... 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 Electromagnetic compatibility.
EN 55 011
RISH CON - CA/CV
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Electrical Connections:

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<th>Connection</th>
<th>Terminal details</th>
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<tr>
<td>Auxilliary Power supply</td>
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<td></td>
<td>~, - 6</td>
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<tr>
<td>Measuring output</td>
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<td>- 2</td>
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Fig. 3. RISH CON - CV/CA Connection Diagram.

Dimensions:

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

Note: All Dimensions are in mm.
## Ordering Information:

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<thead>
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<th>Sr.No.</th>
<th>Transducer parameter</th>
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### Examples:

**RISH **con** - CV - AVG - 14 - F - V - 01 - H**
RISH **con** - CV is Voltage transducer, input range is 0...500V, output is Voltage with range 0...10V, Power supply is 40...300 V AC/DC.

**RISH **con** - CA - AVG - 05 - F - I - 02 - L**
RISH **con** - CA is Current transducer, input range is 0...5A, output is Current with range 4...20 mA, Power supply is 24...60 V AC/DC.

**RISH **con** - CV - AVG - 06 - F - I - 01 - L**
RISH **con** - CV is Voltage transducer, input range is 0...230V, output is Current with range 0...20mA, Power supply is 24...60 V AC/DC.