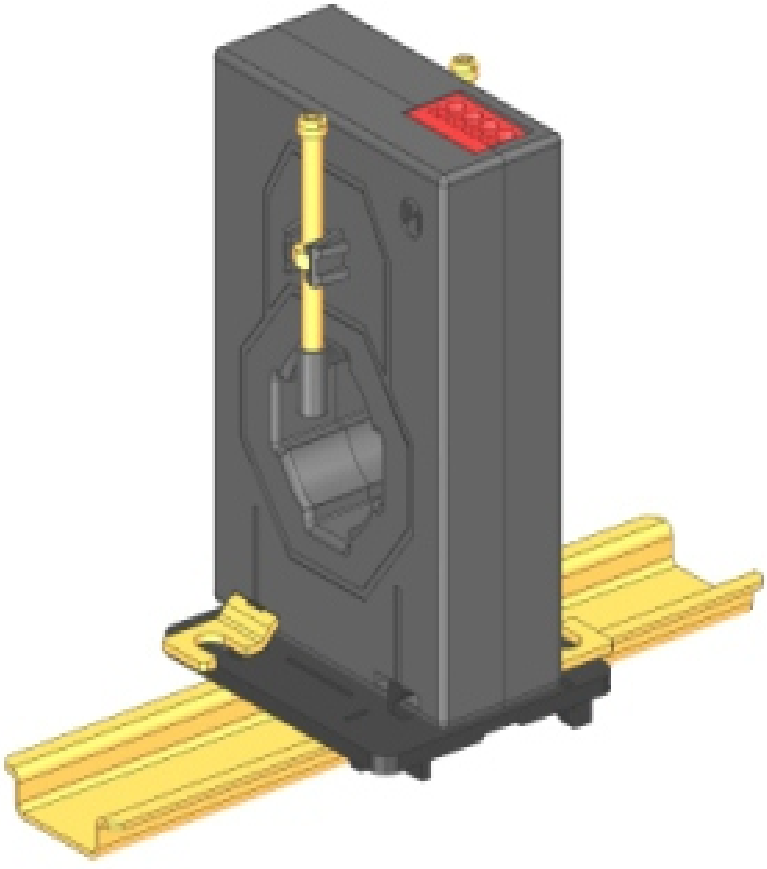
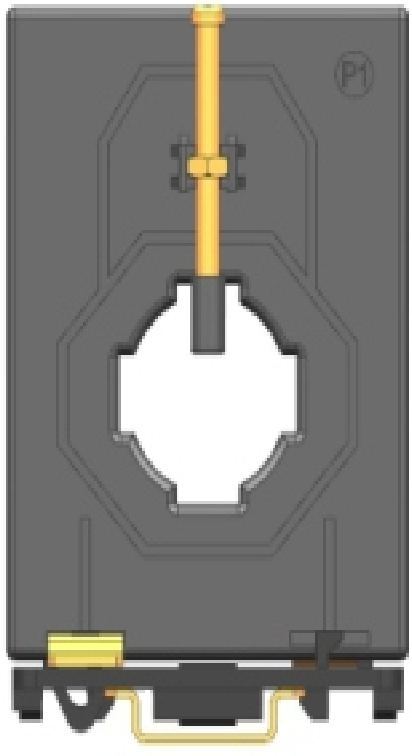
# User Manual

## Operating Instructions for RISH CTDucer 50...750 A AC



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Rish CTDucer is a very reliable, efficient and robust current transformer for measurement of AC current. It provides 4 … 20 mA or 0 … 20mA DC output.

It is useful in :

Data Monitoring & Network Analysis

Measurement of non - sinusoidal and distorted networks

**Features**

Two products in one - single device serves functionality of both current transformer as well as transducer

Measurement of AC current for frequency 50/60Hz

Provides proportional 4 … 20 mA or 0 … 20 mA DC output

High output load resistance up to 1000 ohm

Two models for True RMS and Average type measurement available

Easy and safe electrical connection by means of spring clamp terminal

**Technical Data**

**Input Parameter:**

| | |
|---|---|
| Measuring Range (In) | 0 … 300 A AC or 0 ... 750 A AC (Refer Model Info Table) |
| Input Frequency Range | 50/ 60 Hz |
| Thermal Nominal Continuous Rated Current | 1.2 x In |

**Output Parameter:**

| | |
|---|---|
| DC Current Output | 4…20 mA , 0...20 mA |
| Max. Burden Resistance at Current Output | For $U_H$,<br>$R_B$ 1000 Ω<br>For $U_L$,<br>$R_B$ 750 Ω<br>$R_B$ 1000 Ω ($U_L$ > 24V DC) |
| Current Limit Under Overload | < 30 mA |
| Voltage limit under R= ∞ | <= 25 V |
| Response Time | < 600ms |
| Max. Operating Voltage Um | 0.72 kV, $U_{eff}$ |

**Auxiliary Power Supply Voltage:**

| | |
|---|---|
| Auxiliary Voltage ($U_H$ or $U_L$) | $U_{H....}$230 V AC, -50 / +15 %, 50/60 Hz (external protection via fuse 250 mA / 250 V, fast)<br>OR<br>$U_{L....}$24 V DC, ± 15 % (external protection via fuse 250 mA / 250 V, fast) |
| Current Consumption | For $U_H$,<br>< 15 mA<br>For $U_L$,<br>< 50 mA |

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

| | |
|---|---|
| Reference Value | Output Span |
| Accuracy Class | ± 0.5 % |

**Reference condition for accuracy:**

| | |
|---|---|
| Ambient temperature | 23°C |
| Relative humidity | 45-55 % rH |
| Measured quantity frequency | 50 Hz(Sinusoidal waveform) |
| Supply voltage | For $U_H$,<br>230 V, 50Hz AC supply<br>For $U_L$,<br>24 V DC |
| Burden resistance at output terminals | 500 Ω |

**Additional Error:**

| | |
|---|---|
| Temperature Interference | ± 0.3 % / 10°C |
| Influence of Variation | As per IEC/EN 60688 Standard |
| Influence of EMC<br>(as per IEC 61236-1: 2020) | ± 2 % |

**Safety:**

| | |
|---|---|
| Protection Class | IP20 |
| Installation Category | III |
| Pollution Degree | 2 |
| Isolation Test Voltage (IEC 61010-1) | For $U_H$,<br>3 kV AC , 50 Hz, 60 Seconds<br>Auxiliary supply vs Measuring output<br>For $U_H$ & $U_L$,<br>6.4 kV AC , 50 Hz, 60 Seconds<br>Primary Conductor Vs Measuring Output<br>Housing Vs Measuring output and Auxiliary supply |

**Environmental:**

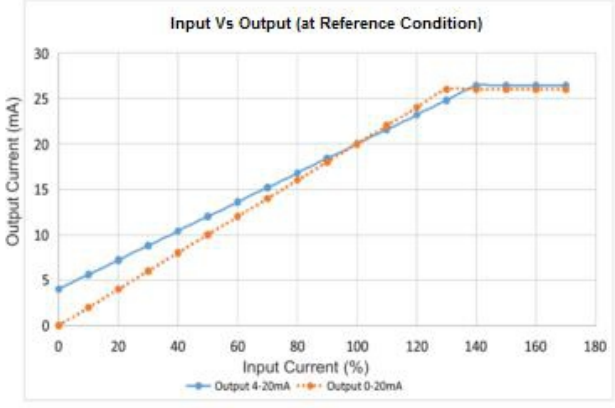
| | |
|---|---|
| Nominal Range of use | 0 … 23°C… 70°C |
| Relative Humidity | 0 … 95 % rH without condensation |
| Storage Temperature | -40 … 90°C |
| Altitude | Up to 2000 m |
| Max. Temperature of Primary Conductor | 100° C |

**Ambient Tests:**

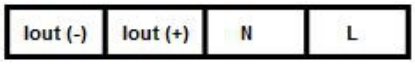
| | |
|---|---|
| Vibration | As per IEC 60068-2-6 Standard |
| Acceleration | ± 2 g |
| Frequency range | 10....150...10Hz, |
| Rate of frequency sweep | 1 octave/minute |
| Number of cycles | 10, in each of the three axes |
| Shock | As per IEC 60068-2-27 Standard |
| Acceleration | 3 x 50g<br>3 shocks in each in 6 directions |

**Applicable Technical Standards :**

| | |
|---|---|
| Electromagnetic Compatibility | IEC 61326-1: 2020 |
| Immunity | IEC 61000-4-2 |
| | IEC 61000-4-3 |
| | IEC 61000-4-4 |
| | IEC 61000-4-6 |
| | IEC 61000-4-8 |
| Emission | CISPR 11 |
| Safety | IEC 61010-1, 2010 |
| Performance | IEC 60688, 2012 |




**Electrical Connections for $U_H$**

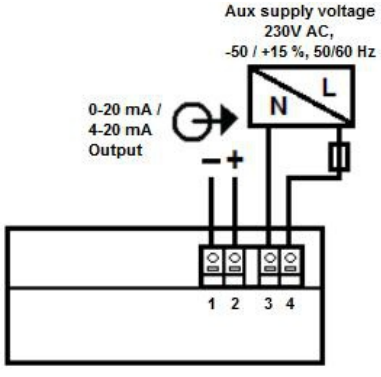



Spring clamp terminal
Connection cross sections: 0.08 … 2.5 mm

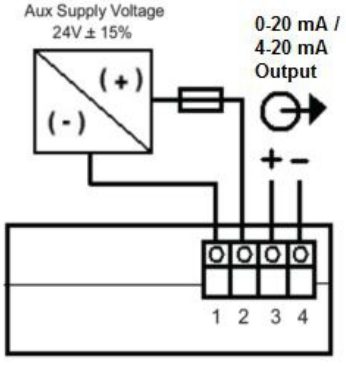
**Electrical Connections for $U_L$**


Spring clamp terminal
Connection cross sections: 0.08 … 2.5 mm

**Connection Diagram for $U_H$**




**Connection Diagram for $U_L$**

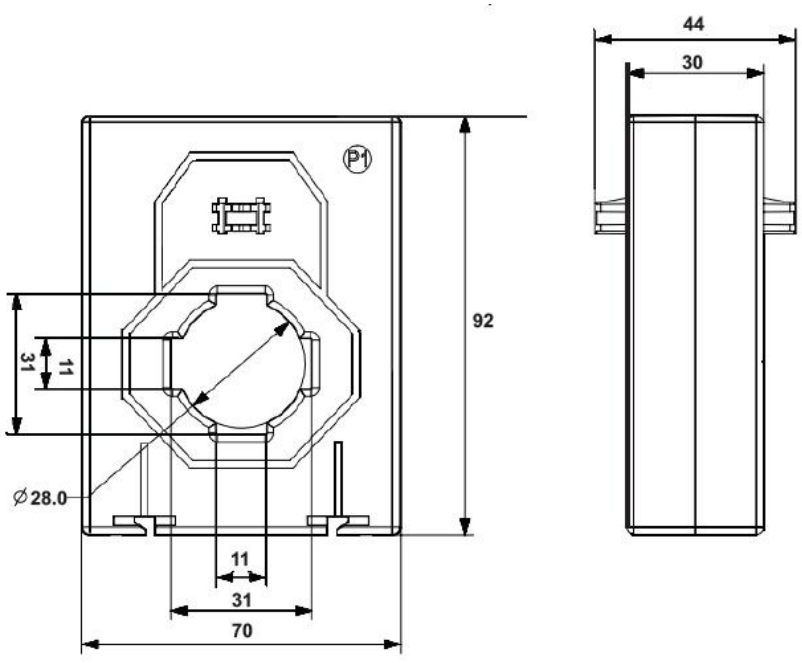


**Dimensions :**

Model 70 x 30 mm

Transformer width: 70 mm
Transformer height: 92 mm
Transformer depth: 44 mm

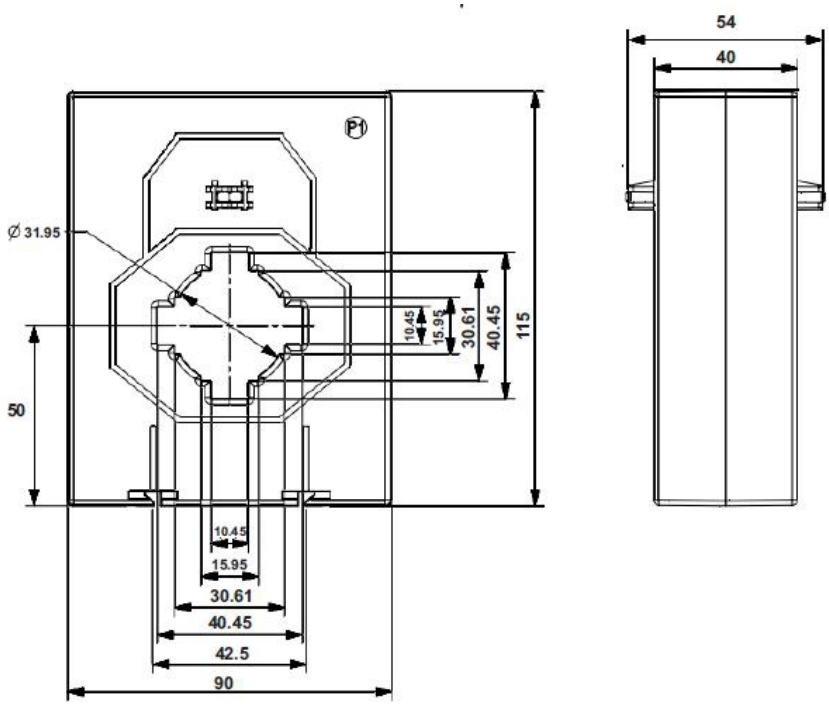
Bus bar: 30 x 10 mm
Round conductor: 28 mm




Model 90 x 40 mm

Transformer width: 90 mm
Transformer height: 115 mm
Transformer depth: 58 mm

Bus bar: 40 x 10 mm
Round conductor: 31.5 mm



**Rish CT Ducer, CT with Transducer options:**

| Type | Primary Current (AC) | Current Output (mA DC) |
|---|---|---|
| RISH CTDucer 70 x 30mm * ( TRMS or Average) | 50 | 4 … 20 mA or 0 … 20 mA |
| | 100 | |
| | 150 | |
| | 200 | |
| | 250 | |
| | 300 | |
| RISH CTDucer 90 x 40 mm (TRMS or Average) | 50 | 4 … 20 mA or 0 … 20 mA |
| | 100 | |
| | 150 | |
| | 200 | |
| | 250 | |
| | 300 | |
| | 400 | |
| | 500 | |
| | 600 | |
| | 750 | |

* Available with lower Aux ($U_L$) Power supply only

**How to do Connections:**

RISH CTDUcer comes with spring loaded connectors. Insert the screw driver in square shaped connector sockets and insert the wire in adjacent round hole and then remove the screw driver. Clamp inside the connector will hold the conductor of wire.

**Mounting :**

Various mounting options like wall mounting, cable mounting,busbar mounting, DIN rail mounting are available.

a) For mounting on busbar use M4 screws and nuts to fit on busbar.
b) DIN rail slots are provided on CTDucer
c) For wall mounting use self lifting clamp strap provided with RISH CTDucer

**Scope of supply :**

1) RISH CTDucer : 1 nos.
2) Test certificate : 1nos.
3) Self lifting clamp strap: 2 nos.
4) Operating instruction manual.

# NOTE

RISHABH

**RISHABH INSTRUMENTS LTD.**
F-31, M.I.D.C., Satpur, Nashik 422 007, India.
Tel. : +91 253 2202162, 2202202,
Fax : +91 253 2351064
Email : marketing@rishabh.co.in
www.rishabh.co.in