

RISH CON - Hz

FREQUENCY TRANSDUCER

Application :

The **RISH CON - Hz** transducer is used for frequency measurement. The output signal is proportional to measured frequency and is either load independent DC Current or load independent DC Voltage.

Salient Features :

- ≈ Fully onsite programmable input range.
- ≈ Available in **Single or Dual output type**.
- ≈ **Onsite selectable output type**.(DC current / DC voltage)
- ≈ Accuracy class **0.2** (IEC / EN 60688).
- ≈ Seven Segment **LCD Display**.
- ≈ **Rs485(Modbus)** Communication.
- ≈ Wide Auxiliary power supply. Accept any input between 60V-300V AC/DC or 24V-60V AC/DC.
- ≈ Output Response Time < 300 ms.
- ≈ Fast and easy installation on DIN RAIL or onto a wall or in a panel using optional screw hole bracket.
- ≈ Connection Terminal : Conventional Screw type.



Fig. 1 RISH CON - Hz

Display Module(Optional):

Optional 7 segment LCD display with backlit & keypad. For displaying measured parameters & onsite configuration of Input/output

Rs485 Communication(Optional):

Optional RS485 communication is available. For reading measured parameters & onsite configuration of input/output.

Product Features:

Measuring Input:

Sine wave or distorted wave form of nominal input voltage with fundamental wave.

Analog Output (Single or dual):

Isolated analog output which can be set onsite to either voltage or current output.

Accuracy:

Output signal accuracy **Class 0.2** as per International Standard **IEC / EN 60688**.

Programmable Input/Output:

The Transducer can be programmed onsite using front key & display or through programming port (COM) or through RS 485.

LED Indication:

LED indication for power on and output type.
(Current output : Red LED, Voltage output : Green LED)

Symbols and their meaning:

X	Input Frequency
X0	Start value of input
X1	Elbow value of input
X2	End value of input
Y	Output DC Voltage / DC Current
Y0	Start value of output DC Voltage / DC Current
Y1	Elbow value of output DC Voltage / DC Current
Y2	End value of output DC Voltage / DC Current
R _N	Rated value of output burden
U _N	Nominal input voltage



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

RISH CON - Hz

FREQUENCY TRANSDUCER

Technical Specifications:

Measuring Input X

Frequency Transducer (RISH CON - Hz):

Measuring Ranges	45Hz to 55Hz, 48Hz to 52Hz, 55Hz to 65Hz, 45Hz to 65Hz (min span 4Hz)
Nominal input Voltage(U_N)	$57V \leq U_N \leq 500 V$
Nominal input Voltage burden	< 0.6 VA max
Overload Capacity:	1.2 * U_N continuously, 2 * U_N for 1 second, repeated 10 times at 10 minute intervals (maximum 300V with power supply powered from measuring input).

Measuring Output Y(Single or Optional Dual):

Output type	Load independent DC Voltage , DC Current onsite selectable through DIP switches.
Load independent DC output	0...20mA / 4...20mA OR 0...10V.
Output burden with DC current output Signal	$0 \leq R \leq 15V/Y2$
Output burden with DC voltage output Signal	$Y2/(2 \text{ mA}) \leq R \leq \infty$
Current limit under overload R=0	$\leq 1.25 * Y2$ with current output $\leq 100 \text{ mA}$ with Voltage output
Voltage limit under R= ∞	< $1.25 * Y2$ with voltage output $\leq 30 V$ with current output
Residual Ripple in Output signal	$\leq 1\% \text{ pk-pk}$
Response Time	300 ms

Auxiliary Power Supply:

AC/DC Auxiliary Supply	60V... 300 VAC-DC $\pm 5\%$ or 24V... 60VAC-DC $\pm 10\%$
AC Auxiliary supply frequency range	40 to 65 Hz
Auxiliary supply consumption	

60V...300 VAC-DC	$\leq 8VA$ for Single output $\leq 10VA$ for Dual output
24V...60 VAC-DC	$\leq 5 VA$ for Single output $\leq 6 VA$ for Dual output



RISH CON - Hz

FREQUENCY TRANSDUCER

Safety:

Protection Class	II (Protection Isolated, EN 61010)
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 61010-1) 5500V, Input versus outer surface 3700V, Input versus all other circuits 3700V, Auxiliary supply versus outer surface and output 490V, 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. 0.4kg

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	2000m max

Ambient tests:

EN 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
EN 60 068-2-7	Shock
Acceleration	3*50g 3 shocks in each direction
EN 60 068-2-1/-2/-3	Cold, Dry, Damp heat
IEC 61000-4-2/-3/-4/-5/-6 EN 55 011	Electromagnetic compatibility.



RISH CON - Hz

FREQUENCY TRANSDUCER

ON LED	Aux.supply healthy condition	Green LED continuous ON
O/P1 LED	Output1 voltage selection	Green LED continuous ON
	Output1 Current selection	Red LED continuous ON
O/P2 LED	Output2 voltage selection	Green LED continuous ON
	Output2 Current selection	Red LED continuous ON

Electrical Connections:

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

Dimensions

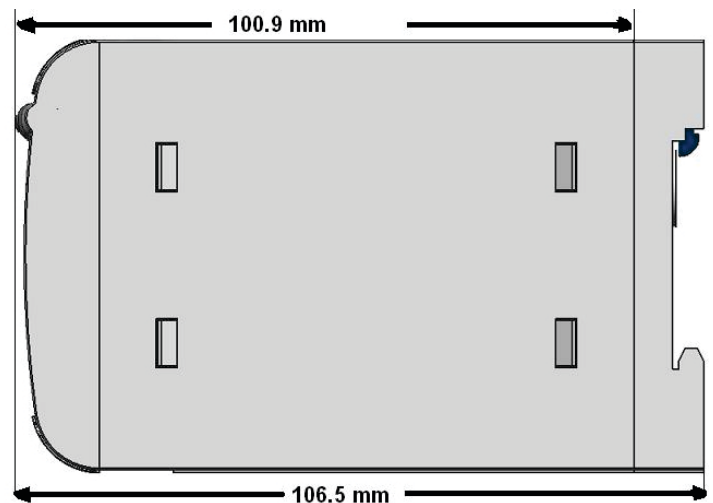
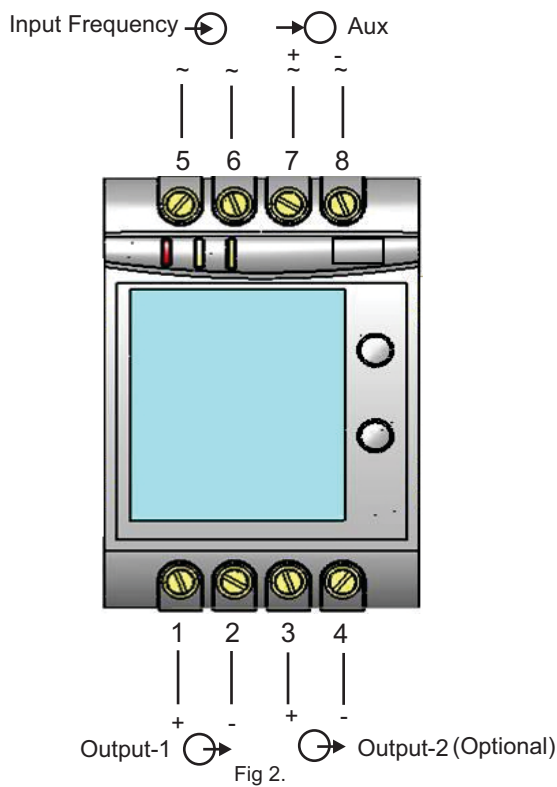
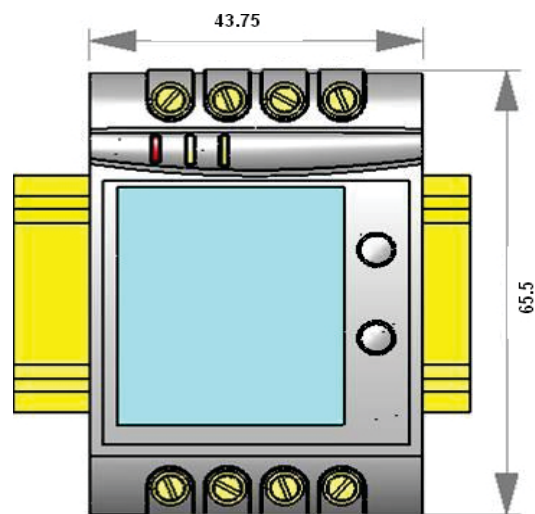


Fig 3.



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

RISH CON - Hz

FREQUENCY TRANSDUCER

Programming (Figs. 4 and 5)

Programming of transducer can be done in three ways :

- 1) Programming Via Front LCD & two keys.
- 2) Programming Via optional RS485(MODBUS) communication port (Device address,Password,communication parameter,Output Type & simulation mode can be programmed).
- 3) Programming Via Programming port available at front of RISH CON Transducers using (optional) PRKAB601 Adapter.

Programming Via Programming port (COM)

A PC with RS 232 C interface along with the programming cable PRKAB601 and the configuration software are required to program the transducer.

The connections between

“PC ↔ PRKAB 601 ↔ Rish CON Transducer.

The power supply must be applied to Transducer before it can be programmed.

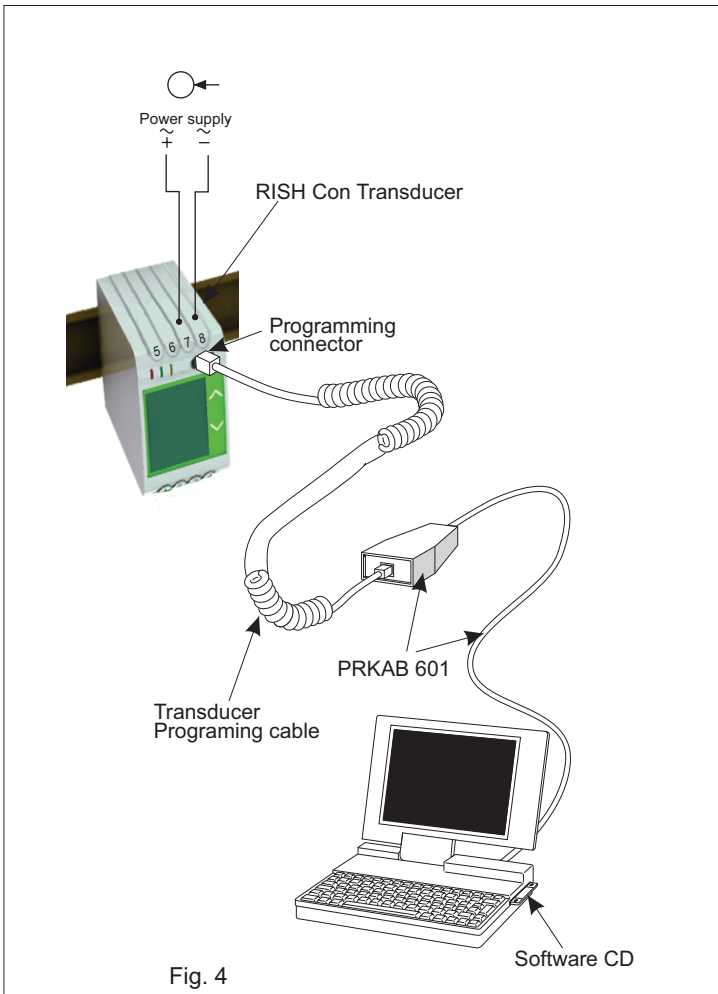


Fig. 4

The Configuration software is supplied on a CD. The programming cable PRKAB601 adjusts the signal level and provides the electrical insulation between the PC and RISH CON Transducers.

Configuring Rish Con Transducer :

To configure RISH CON Transducer Input / output one of the three programming methods can be adapted along with mechanical switch setting (DIP switch setting on PCB for output).

DIP Switch Setting for OUTPUT :

Type of output (current or voltage signal) has to be set by DIP switch (see Fig.5).

For programming of DIP switch the user needs to open the transducer housing & set the DIP switch located on PCB to the desired output type Voltage or Current. Output range changing is not possible with DIP switch setting.

Refer below Fig. 5 for DIP switch setting.

The four pole DIP switch is located on the PCB in the RISH CON Transducer

DIP Switch Setting	Type of Output Signal
	load-independent current
	load-independent voltage

Fig. 5



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

RISH CON - Hz

FREQUENCY TRANSDUCER

Ordering Information: Standard Version :

Dual Output : RISH CON-Hz - F1 - H - O1A1 - O2V1 - D - Z - Z

Single Output : RISH CON-Hz - F1 - L - O1A1 - D - Z - Z

Sr.No.	Transducer parameter	Ordering Code
1	Input Signal	
	Frequency	RISH CON - Hz
	45.....65Hz	F1
	Note: Input frequency can be programmed onsite from 45Hz to 65 Hz but minimum span is 4Hz	
2	Auxiliary Supply	
	High Aux (60V.....300VAC-DC)	H
	Low Aux (24V.....60VAC-DC)	L
3	Output 1 (Standard Ranges)	
	Current = 0.....20 mA	O1A1
4	Output 2 (Standard Ranges)	
	Voltage = 0.....10 V	O2V1
5	With Display	D
6	Without RS- 485	Z
7	Without PRKAB 601	Z

Note:End value of output can not be changed onsite.



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

RISH CON - Hz

FREQUENCY TRANSDUCER

Ordering Information: Optional Versions :

Sr.No.	Transducer parameter	Ordering Code
1	Input Signal	
	Frequency	RISH CON - Hz
	45.....55Hz	F2
	55.....65Hz	F3
	48.....52Hz	F4
	Note: Input frequency can be programmed onsite from 45Hz to 65 Hz but minimum span is 4Hz	
2	Auxiliary Supply	
	High Aux (60V.....300VAC-DC)	H
	Low Aux (24V.....60VAC-DC)	L
3	Output 1	
	Current = 0.....20 mA	O1A1
	Current = 4.....20 mA	O1A2
	Voltage = 0.....10 V	O1V1
	Optional factory set ranges	
	Current = 0.....10 mA	O1A3
	Current = 0.....5 mA	O1A4
	Current = 0.....2.5 mA	O1A5
	Current = 0.....1 mA	O1A6
	Voltage = 0.....5 V	O1V2
	Voltage = 0.....2.5 V	O1V3
	Voltage = 0.....1 V	O1V4
	4	Output 2
Without output 2		O200
Current = 0.....20 mA		O2A1
Current = 4.....20 mA		O2A2
Voltage = 0.....10 V		O2V1
Optional factory set ranges		
Current = 0.....10 mA		O2A3
Current = 0.....5 mA		O2A4
Current = 0.....2.5 mA		O2A5
Current = 0.....1 mA		O2A6
Voltage = 0.....5 V		O2V2
Voltage = 0.....2.5 V		O2V3
Voltage = 0.....1 V		O2V4
5	LCD display module	
	With Display	D
	Without Display	Z
6	RS-485 module	
	With RS-485	R
	Without RS-485	Z
7	PRKAB 601 module	
	With PRKAB 601	PR
	Without PRKAB 601	Z

Optional Version Example:

RISH CON-Hz - F2 - H - O1A1 - O1V1 - O2V1- O2A1 - D - R - PR

RISH CON-Hz is Frequency transducer, 45.....55Hz nominal input signal, High Aux, Output1 = 0...20mA or 0...10V , Output2= 0...10V or 0...20mA, with LCD display module , with RS-485 & with PRKAB 601 cable.

Note:End value of output can not be changed onsite.



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