RISH Ducer TV 808, 2 channels Isolating amplifier unipolar / bipolar

Fig. 1. Isolating amplifier ***RISH*** Ducer TV 808 in housing S 17 clipped onto a top - hat rail or screw hole mounting brackets pulled out.

Features and Benefits

- **Electric Isolation between input, output and power supply, prevents falsified measurement due to spurious potentials.**
- **Flexibility provided by more than 250 different input and output combinations selected by simply positioning soldered jumpers, helps in reduced stocking.**
- **Precesses unipolar / bipolar and live zero signals provision for raising burden and signal conversion Green LED signals device in operating condition.**
- **High Electrical Insulation between input and output - 2.3 kV, and power supply versus all other circuits - 3.7 kV**
- **Provision fo either snapping the isolating amplifier onto top - hat rails or securing it with screw to a wall or panel.**

For electrically insulating, amplifying and converting DC signals

Application

The purpose o the isolating amplifier ***RISH*** Ducer TV 808 (Fig.1) is to electrically insulate and output signals, respectively to amplify and / or change the signal level or type (current or voltage) of the input signals.

The amplifier fulfils all the important requirements and regulations concerning electromagnetic compatibility EMC and safely (IEC 1010 resp. EN 61 010). It was developed and is manufactured and tested in strict accordance with the quality assurance standard ISO 9001.

The device has two channels and provides two independent isolating amplifiers in an extremely small space. The user has a wide choice of input and output ranges and can set the desired one with the aid of soldered jumpers and potentiometers.

A version with one input and two outputs is available that enables two electrically insulated outputs to be obtained from a signal input signal.

Function

Isolating Amplifier ***RISH*** Ducer TV808, finds its application for isolation amplification and conversion of DC signals. ***RISH*** Ducer TV 808 isolates the DC signal to prevent falsified readings due to interference at input. ***RISH*** Ducer TV808 amplifies unipolar / bipolar input by easy. Onsite, simple positioning of soldered jumpers to raise the burden capacity.

Standard

Electromagnetic compatibility:	The standards DIN EN 50 081 - 2 & DIN EN 50 082 - 2 are observed
Protection (acc. to IEC 529 resp. EN 60 529):	Housing IP 40 Terminals IP 20
Electrical standards:	Acc. to IEC 1010 resp. EN 61 010
Operating voltages:	< 300 V between all insulated circuits
Contamination level:	2
Overvoltage category	
acc. to IEC 664:	III for power supply II for measuring input and measuring output
Double insulation:	– Power supply versus all other circuit – Measuring input versus measuring output
Test voltage:	Power supply versus : – all 3.7 kV, 50 Hz, 1 min Measuring inputs Versus : – measuring outputs 2.3 kV, 50 Hz, 1 min. Measuring inputs 1 Versus : – measuring inputs 2 2.3 kV, 50 Hz, 1 min. Measuring inputs 1 Versus : – measuring outputs 2 2.3 kV, 50 Hz, 1 min.

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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 Ducer TV 808, 2 channels Isolating amplifier unipolar / bipolar

Standard version

Inputs and outputs set to 0 ... 20 mA. Any of the standard ranges given in the Section "Technical data, measuring inputs" are simply selected by positioning soldered jumpers. The fine adjustment is accomplished using the potentiometers "Zero" and "Span" .

Table 1: Standard version with 2 inputs and 2 outputs

Standard range		Power supply	Order No.
Inputs 1 and 2	Outputs 1 and 2		
0…20mA	0…20mA	24… 60 V DC/AC	128 802
		85…230 V DC/AC	128 810

Table 2: Standard version with 1 input and 2 outputs

Standard range		Power supply	Order No.
Input 1	Outputs 1 and 2		
0…20mA	0…20mA	24… 60 V DC/AC	128 828
		85…230 V DC/AC	128 836

Please complete the Order Code 808 - 12 .. .... according to "Table - 4 : Ordering information" for versions with user - specific input and / or output ranges.

Technical Data

Measuring inputs

DC current:

Standard ranges

0 … 0.1 mA	0.2 … 1 mA	– 0.1 … + 0.1 mA
0 … 0.2 mA	1 … 5 mA	– 0.2 … + 0.2 mA
0 … 0.5 mA	2 … 10 mA	– 0.5 … + 0.5 mA
0 … 1 mA	4 … 20 mA	– 1 … + 1 mA
0 … 2 mA		– 2 … + 2 mA
0 … 5 mA		– 5 … + 5 mA
0 … 10 mA		–10 … +10 mA
0 … 20 mA		–20 … + 20 mA

Limit values

0 ... 0.1 to 0 ... 40 mA
also live - zero,
start value > 0 to ≤ 50 % final value
or span 0.1 to 40 mA
between -40 and 40 mA
also bipolar asymmetrical
R_i = 15

DC voltage:

Standard ranges

0 … 0.06 V	0.2 … 1 V	– 0.1 … + 0.1 V
0 … 0.1 V	1 … 5 V	– 0.2 … + 0.2 V
0 … 0.2 V	2 … 10 V	– 0.5 … + 0.5 V
0 … 0.5 V	4 … 20 V	– 1 … + 1 V
0 … 1 V		– 2 … + 2 V
0 … 2 V		– 5 … + 5 V
0 … 5 V		–10 … +10 V
0 … 10 V		–20 … +20 V
0 … 20 V		
0 … 40 V		

Limit values

0 ... 0.06 to 0 ... 40
also live - zero,
start value > 0 to ≤ 50 % final value
or span 0.06 to 40 V
between -40 and 40 V
also bipolar asymmetrical
R_i = 100 k

Overload : DC current continuously 2 - fold
DC voltage continuously 2 - fold

Measuring outputs

DC currents :
Standard ranges
0 ... 20 mA, 4 ... 20 mA, ± 20 mA
Limit values
0... 1 to 0 ... 20 mA
0.2 ... 1 to 0 ... 20 mA
- 1 ... 0 ... + 1 to -20 ... 0 ... + 20 mA

Burden voltage : 12 V

External resistance : R_{ext} max. [k] = $\frac{12\ V}{I_{AN}\ [mA]}$

I_{AN} = Output circuit full - scale value

DC voltage :
Standard ranges
0 ... 10 V, 2 ... 10 V, ± 10 V
Limit values
0 ... 1 to 0 ... 10 V
0.2 ... 1 to 2 ... 10 V
-1 ... 0 ... + 1 to -10 ... 0 ... + 10V

Burden : R_{ext} min. [k] $\frac{U_{AN}\ [V]}{5\ mA}$

U_{AN} = Output circuit full - scale value

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Current limiter at R_{ext} max.: : Approx. 1.1 x I_{AN} for current output

Voltage limiter at $R_{ext} = \infty$: : Approx. 13 V

Residual ripple in output current: : < 0.5% p.p.

Response time: : < 50 ms

Power supply H

AC/DC power pack (DC and 45...400 Hz)

Table 3: Nominal voltages and tolerances

Nominal voltage U_N	Tolerance
24 ... 60 V DC / AC	DC – 15 ... + 33% AC ± 15%
85 ... 230 V [1] DC / AC	

Power input: : ≤ 1.6 W resp. ≤ 3.4 VA

Accuracy data (acc. to DIN/IEC 770)

Basic accuracy: : Limit error + 0.2 %
Including linearity and reproducibility errors

Reference conditions:

Ambient temperature : 23^0C ± 2 K

Power supply : 24 V DC ± 10% & 230 V AC ± 10%

Output burden : Current : 0.5 · R_{ext} max.
Voltage : 2 · R_{ext} min.

Influencing factors:

Temperature : < ± 0.1% per 10 K

Burden influence : <± 0.1% for current output
<± 0.2% for voltage output
if R_{ext} < 2 · R_{ext} min.

[1] For power supplies >125 V, the auxiliary circuit should include an external fuse with a rating ≤ 20 A DC.

Longtime drift : < ± 0.3% / 12 months

Switch-on drift : < ± 0.2%

Common and transverse mode influence : < ± 0.2%

Output + or – connected to ground : < ± 0.2%

Installation Data

Housing : Housing S 17
See section "Dimensional drawings" for dimensions

Material of housing : Lexan 940 (polycarbonate) flammability class V-0 acc. to UL 94, self-extinguishing, non-dripping, free of halogen

Montage : For snapping onto top - hat rail (35 x 15 mm or 35 x 7.5mm) acc. to EN 50 022
OR
Directly onto a wall or panel using the pull - out screw hole brackets

Position of use : Any

Terminals : DIN / VDE 0609
Screw terminals with wire guards, for light PVC wiring and max. 2 x 0.75mm^2 or 1 x 2.5 mm^2

Permissible vibrations : 2 g acc. to EN 60 068-2-6

Shock : 3 x 50 g
3 shocks each in 6 directions acc. to EN 60 068 - 2 - 27

Weight : Approx. 0.2 kg

Electrical insulation : All circuit (measuring inputs / measuring outputs / power supply) are electrically insulated

Regulations

Electromagnetic compatibility : The standards DIN EN 50 081-2 & DIN EN 50 082-2 are observed

Protection (acc. to IEC 529 resp. EN 60 529) : Housing IP 40
Terminals IP20

Electrical standards : Acc. to IEC 1010 resp. EN 61 010

Operating voltages : < 300 V between all insulated circuits

Contamination level : 2

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Overvoltage category

acc. to IEC 664 : III for power supply
II for measuring input and measuring output

Double insulation :
- Power supply versus all other circuits
- Measuring input versus measuring output

Test voltage : Power supply :
- all 3.7 kV, 50 Hz, 1 min.

Measuring inputs versus :
- measuring outputs 2.3 kV, 50 Hz, 1 min.

Measuring inputs 1 versus :
- measuring inputs 2 2.3 kV, 50 Hz, 1 min.

Measuring outputs 1 versus :
- measuring outputs 2 2.3 kV, 50 Hz, 1 min.

Environmental conditions

Climatic rating : Climate class 3Z acc. to VDI/VDE 3540

Commissioning temperature : –10 to + 55°C

Operating temperature: – 25 to + 55 °C

Storage temperature : – 40 to + 70 °C

Annual mean relative humidity : ≤ 75%

variants

- 252 standard input and output combinations selected by soldered jumpers
- User - specific input and / or output ranges
- Isolating amplifier with one input two electrically insulated outputs.
- Power supply 24 ... 60 V DC / AC or 85 ... 230 V DC / AC

please request our data sheet TV 808 - 11 Le for single - channels versions.

Configuration

1. Standard input ranges

Soldered jumpers are provided for the coarse setting of the input ranges and the fine adjustment is accomplished using the potentiometers "Zero" and "Span".

100 must be added to the designations of the soldered jumpers in the table for channel 1 and 200 for channel 2.

(Example : Input range for input 1 and input 2 = 0 ... 20 mA Jumpers 1, 5, 6 and 11 must be inserted for this range.
- The corresponding jumpers for channels 1 are B 101, B 105, B 106 and B 111.
- The corresponding jumpers for channels 2 are B 201, B 205, B 206 and B 211).

Current [mA]	Soldered jumpers			Voltage [V]	Soldered jumpers		
				0 … 0.06		6, 9, 10, 11	
0 … 0.1	1, 3	7, 10, 11		0 … 0.1		7, 8, 10, 11	
0 … 0.2	1, 3	8, 11		0 … 0.2		6, 8, 9, 11	
0 … 0.5	1, 4	9, 10, 11		0 … 0.5		6, 7, 8, 9, 10	
0 … 1	1, 4	7, 10, 11		0 … 1	2	6, 7, 8, 10, 11	
0 … 2	1, 4	8, 11		0 … 2	2	7, 8, 9, 11	
0 … 5	1, 5	6, 7, 8, 10, 11		0 … 5	2	8, 10	
0 … 10	1, 5	10, 11		0 … 10	1	10, 11	
0 … 20	1, 5	6, 11		0 … 20	1	6, 11	
				0 … 40	1	8	
0.2 … 1	1, 4	8, 10, 11	12, 15	0.2 … 1	2	9, 10, 11	12, 15
1 … 5	1, 4	6, 9	12, 15	1 … 5	2	6, 8, 9, 10	12, 15
2 … 10	1, 5	6, 7, 10, 11	12, 15	2 … 10	1	6, 7, 10, 11	12, 15
4 … 20	1, 5	6, 7, 8, 11	12, 15	4 … 20	1	6, 7, 8, 11	12, 15
– 0.1 … 0 … + 0.1	1, 3	8, 11	13, 14, 16	– 0.1 … 0 … + 0.1		6, 8, 9, 11	13, 14, 16
– 0.2 … 0 … + 0.2	1, 3	7, 9	13, 14, 16	– 0.2 … 0 … + 0.2		6, 7, 9, 10	13, 14, 16
– 0.5 … 0 … + 0.5	1, 4	7, 10, 11	13, 14, 16	– 0.5 … 0 … + 0.5	2	7, 8, 10, 11	13, 14, 16
– 1 … 0 … + 1	1, 4	8, 11	13, 14, 16	– 1 … 0 … + 1	2	7, 8, 9, 11	13, 14, 16
– 2 … 0 … + 2	1, 4	6, 9	13, 14, 16	– 2 … 0 … + 2	2	6, 8, 9, 10	13, 14, 16
– 5 … 0 … + 5	1, 5	10, 11	13, 14, 16	– 5 … 0 … + 5	1	10, 11	13, 14, 16
–10 … 0 … + 10	1, 5	6, 11	13, 14, 16	– 10 … 0 … + 10	1	6, 11	13, 14, 16
–20 … 0 … + 20	1, 5	6, 7	13, 14, 16	– 20 … 0 … + 20	1	8	13, 14, 16

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RISH Ducer TV 808, 2 channels Isolating amplifier unipolar / bipolar

2. Standard output ranges

Soldered jumpers are provided for the coarse setting of the output ranges and the fine adjustment is accomplished using the potentiometers "Zero" and "Span".

Current mA	Soldered jumpers		Voltage V	Soldered jumpers	
	Channel 1	Channel 2		Channel 1	Channel 2
0 … 20	B 120	B 220	0 … 10	B 120 B 122 B 123	B 220 B 222 B 223
4 … 20	B 121	B 221	2 … 10	B 121 B 122 B 123	B 221 B 222 B 223
± 20	——	——	± 10	B 122 B 123	B 222 B 223

3. Specific user output ranges

Units that have been configured for a specific user output range cannot be subsequently reconfigured.

Standard accessories

1. Operating instructions
2. Pull out clamp S 17 (For operating the housing)
3. Front Labels

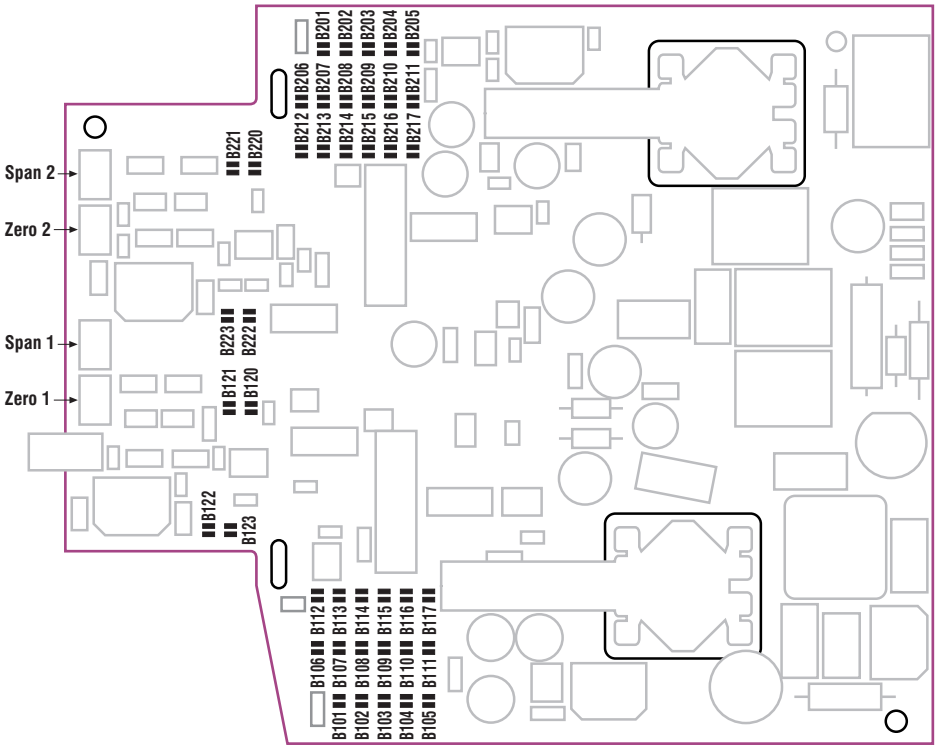

Fig. 2. Position of the soldered jumpers B … and the potentiometers “Span” and “Zero”.

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Isolating amplifier unipolar / bipolar

Dimensional Drawings

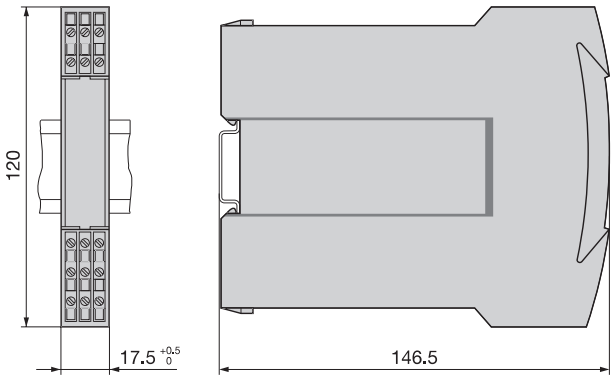


Fig. 3. ***RISH*** *Ducer* TV 808 in housing S 17 clipped onto a top - hat rail (35 x 15 mm or 35 x 7.5 mm, acc to EN 50 022).

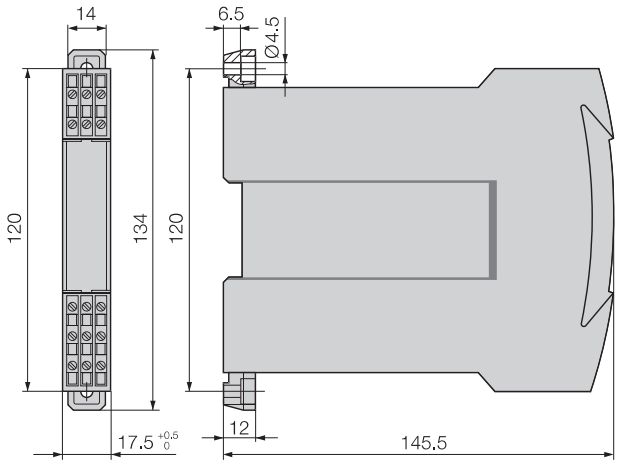
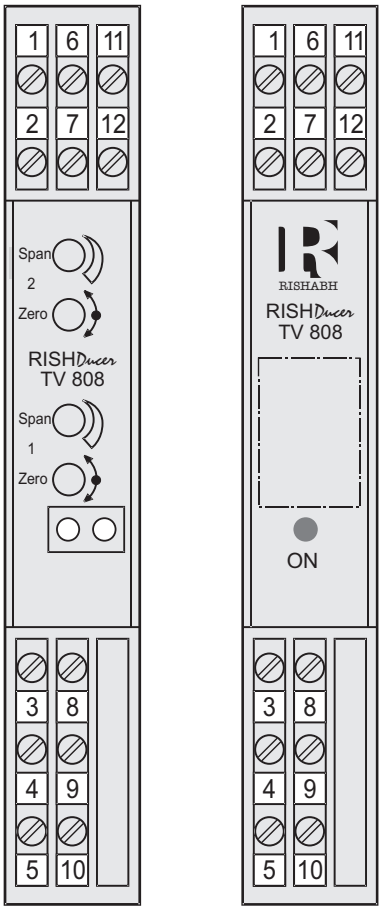


Fig. 4. ***RISH*** *Ducer* TV 808 in housing S 17, screw hole mounting brackets pulled out.

Electrical connections

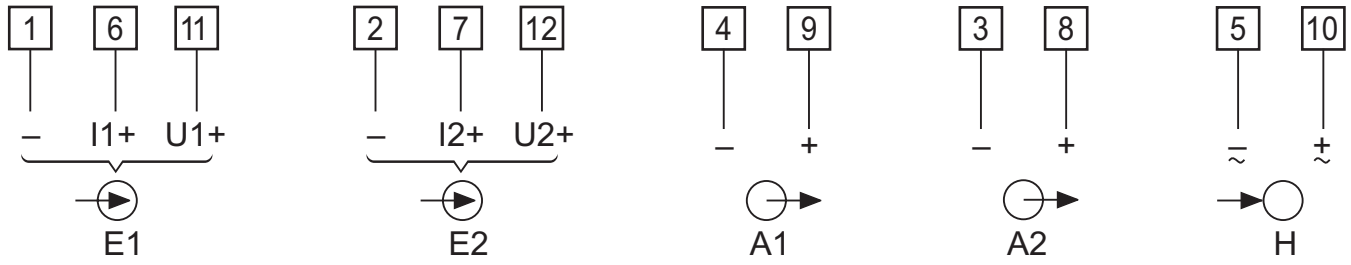
Front



Without transparent cover

With transparent cover

● **ON**
Green LED for device standing by



E1 = Input 1

E2 = Input 2

A1 = Output 1

A2 = Output 2

H = Power supply

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RISH Ducer TV 808, 2 channels
Isolating amplifier unipolar / bipolar

Table No- 4 : Ordering Information (see also Table 1 and 2: "Standard versions")

DESCRIPTION	MARKING
1. Mechanical Design	
Housing S17 for rail and wall mounting	808 - 1
2. Number of channels	
2) 2 channels	2
3. Version / power supply	
1) Standard, 24 ... 60 V DC/AC	1
2) Standard, 85 ... 230 V DC/AC	2
4. Function	
2) 2 inputs, 2 electrically insulated outputs	2
3) 1 inputs, 2 electrically insulated outputs	3
5. Input signal, input 1	
9) Input [V]	9
Z) Input [mA]	Z
Line 9 : [V] 0 ... 0.06 to 0 ... 40 also live - zero, start value > 0 to ≤ 50% final value or span 0.06 to 40 V between - 40 and 40 V (also bipolar asymmetrical)	
Line Z : [mA] 0 ... 0.1 to 0 ... 40 also live - zero, start value > 0 to ≤ 50% final value or span 0.1 to 40 mA between - 40 and 40 mA (also bipolar asymmetrical)	
6. Output signal, output 1	
9) Output [V]	9
Z) Output [mA]	Z
Line 9 : [V] 0 ... 1 to 0 ... 10 0.2 ... 1 to 2 ... 10 -1 ... 0 ... + 1 to -10 ... 0 ... +10	
Line Z : [mA] 0 ... 1 to 0 ... 20 0.2 ... 1 to 4 ... 20 - 1 ... 0 ... + 1 to -20 ... 0 ... + 20 or span 0.1 to 40 mA between - 40 and 40 mA (also bipolar asymmetrical)	
7. Input signal, input 2	
0) Without input 2	0
9) Without input 2 [V]	9
Z) Input [mA]	Z
Ranges possibles see input 1	
8. Output signal, output 2	
9) Out [V]	9
Z) Output [mA]	Z
Ranges possibles see output 1	

Possible special versions, e.g. increased climatic rating on inquiry.

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