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masibus

masibus PDH Programmable Frequency Transducer

INTRODUCTION

The Masibus PDH frequency transducer measures the frequency of both sine wave and distorted waveforms of nominal input voltage with a fundamental frequency and converts this frequency input into a load-independent DC current or voltage output signal, with the output proportional to the measured frequency. It is equipped with two load independent, galvanically-isolated analogue outputs that can be configured for different input range and output curves. The output is usually linked to remote monitoring equipment such as RTU, recorders, PLC's, SCADA systems etc.
Available only in single phase version, externally powered.
Frequency transducers are having its application to interface with RTUs. Masibus make transducers are also available with dual output option. It provides accuracy class 0.2 with up to 3 KV isolation.

SPECIFICATIONS

Input:

Measuring Frequency Range	40 to 70 Hz
Nominal Input Voltage	57.7 V to 500 V
Burden	<0.3VA at Un
Maximum Overload voltage	1.3 x Un Continuously
	2 x Un for 1 s, with up to 10 repetitions at 10 s intervals

Analogue output

Accuracy Class	0.2 as per IEC60688 standard
No. of Outputs	2
Output type	4-20mA, 0-20mA, 0-10V, 0-5V, 1-5V DC
Maximum load resistance	≤750 Ω for 20 mA, ≥ 2 k Ω for 10 V (for each output)
Response time	<400 ms
Ripple	<0.4% Peak to Peak
Usage Group	I
External magnetic field	0.5 mT
Common Mode Voltage	100 Vrms

Auxiliary Power Supply

Universal Aux. Supply :85-265VAC, 50/60Hz or 100-300VDC

Power Supply

Burden : < 5.5VA (2.2W)
DC Aux. Supply : 20-60VDC
Burden : < 2.2W

Isolation (Withstanding Voltage)

- Between primary terminals* and secondary terminals**: At least 3000 V AC for 1

minute

- Between primary terminals*: At least 3000 V AC for 1 minute Between secondary terminals**: At least 500 V AC for 1 minute * Primary terminals indicate aux power terminals & input terminals.
- Secondary terminals indicate analogue O/P-1 and analogue O/P-2.
- Insulation resistance: 200MΩ or more at 500 V DC between Input/Output/Power/Case and grounding terminal

Environmental

Operating temperature	0…10 … 23….. 35…55ºC
Storage temperature	-40 to 85°C
Relative humidity	25-95% non-condensing
Pre-conditioning	30 min acc. to IEC 60688
Installation Category	CAT III for < 300V AC
Protection Class	II
Pollution Degree	2
Ingress protection	Housing IP40, Terminals IP20

Physical

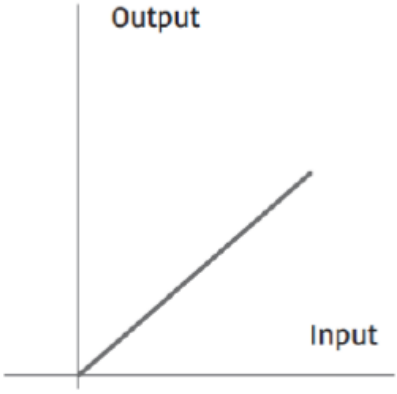
- Mounting Type DIN Rail
- Dimension (in mm) 71H x 61W x 112D
- Case Material ABS
- Weight 0.4 Kg
- Connector type Metal Screw
- Conductor size for terminals ≤ 4 mm2

Communication ports

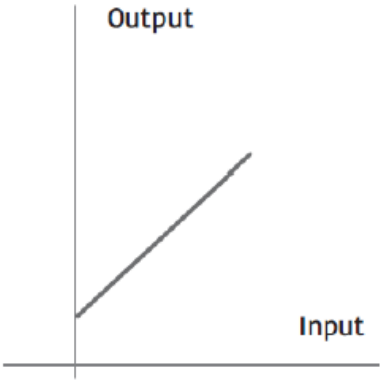
Mini USB type: For on-site configuration

INPUT – OUTPUT SIGNAL CURVES

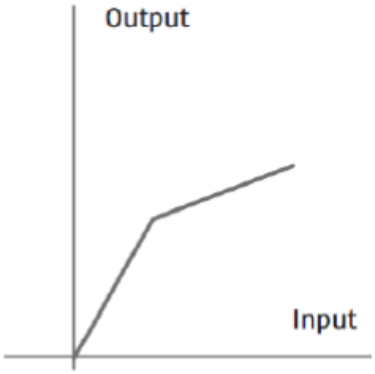
Curve A:
Linear



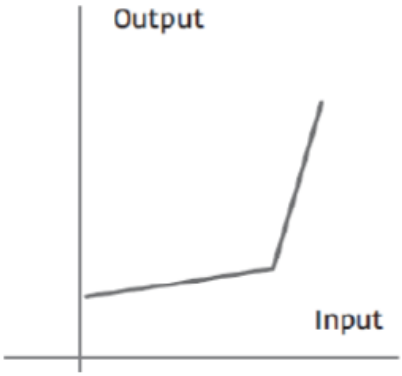
Curve B:
Linear with live zero



Curve C:
Compressed upper region

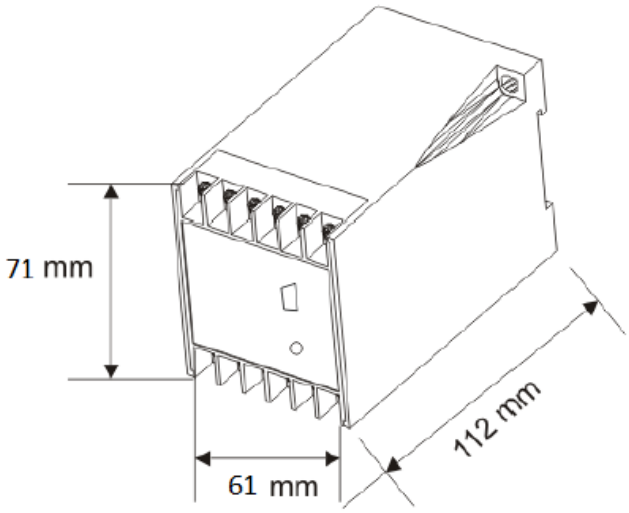


Curve D:
Compressed lower region

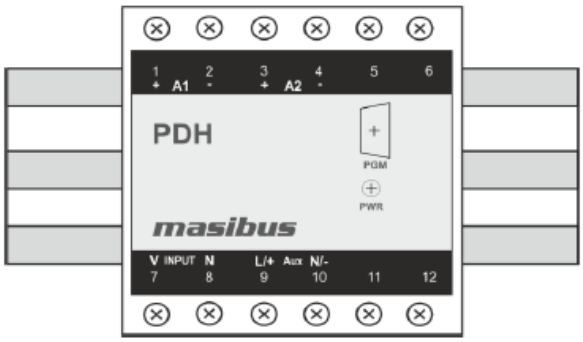


Mechanical Dimensions

Isometric view



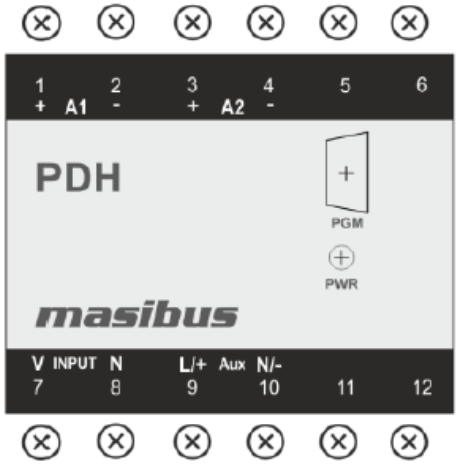
Installation details



SAFETY/WARNING PRECAUSTIONS

- To ensure that the device can be operated safely, and all functions can be used, please read these instructions carefully.
- Installation and Start-up must be carried out by qualified personnel only. The relevant county-specific regulations must also be observed.
- Before start-up it is particularly important to ensure:
- Terminal wiring: check that all cables are correctly according to the connection diagram
- All wiring must confirm to appropriate standards of good practice and local codes and regulations. Wiring must be suitable for voltage, current and temperature rating of the system.
- Unused control terminals should not be used as jumper points as they may be internally connected, which may cause damage to the unit.

TERMINAL CONNECTION



Terminal No.	Description
1 A1 + **2 A1 –**	For Analog Output -1
3 A2 + **4 A2 –**	For Analog Output -2
7 INPUT V **8 INPUT N**	For Voltage Input
9 L/+ **10 N/-**	Aux. Power Supply Input

FRONT PANEL DESCRIPTION

Symbol	Function
PWR	ON when unit is power up with Aux. Supply
PGM	Communication port for Parameter configuration

PTs

Large electrical installations have high voltages which may exceed the direct connection rating of the PDH. In this case, Potential Transformers (PTs)care used to precisely “step down” or reduce the voltage level to suit the Transducer rating. Potential Transformers usually have a full-scale output of 110V/240V ac.

The PTs (Potential Transformers) must be planned, installed and tested by a qualified electrical contractor before wiring the transducer. The accuracy of the measurement also depends on the accuracy of the PTs.

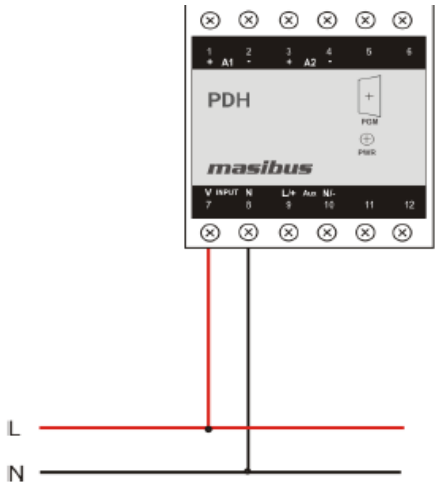
Instrument Class 1 or better PTs are recommended.

PT WIRING

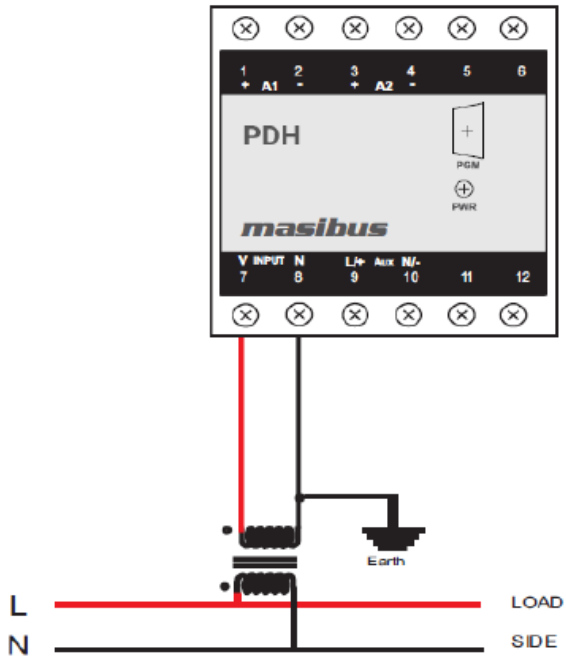
The PTs must have adequate VA rating to support the burden (loading) on the secondary. You may want to support the auxiliary supply burden from one of the PTs. PDH should be conveniently located for easy connections of voltage (PT) signal.

Terminal Wiring Details

1. 1-phase 2-wire direct connection

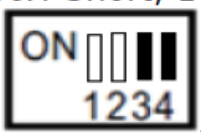


2. 1-phase 2-wire using CT/PT connection



Jumper Setting for Output

Type of output (current or voltage signal) has to be set by the Jumper Setting.
For Setting of Jumper the user needs to open the transducer housing & set the jumper located on PCB to the desired output type Voltage or Current. Output range changing is not possible with jumper setting.
Refer below Fig. for jumper setting.

Jumper Setting	Type of Output Signal
Jumper 3&4 Short, 1&2 Open 	load-independent current
Jumper 1&2 Short, 3&4 Open 	load-independent voltage

TROUBLESHOOTING TIPS

The information in Table-1 describes potential problems and their possible causes. It also describes checks you can perform or possible solutions for each. After referring to this table, if you cannot resolve the problem, contact our sales representative.

Table–1: Troubleshooting

Potential Problem	Possible Cause	Possible Solution

The Power Led OFF after applying control Power to the PDH	The PDH may not be receiving the necessary Power.	Verify that the PDH line (L) and neutral (N) terminals are Receiving the necessary power.
The data being displayed is inaccurate or not what you expect.	Incorrect setup values.	Check that the correct values have been entered for PDH setup parameters (PT ratings, Output setting).
	Incorrect	Check PDH voltage input

	voltage inputs.	terminals to verify that adequate voltage is present.
	PHD is wired improperly.	Check that all PTs are connected correctly and that they are energized. Check shorting terminals.

UNIT NOT TURNING ON

The problem can be bad connection / power of incorrect rating.

First check, power on terminal of the instrument itself if it is not present then the fault is in power cable.

One must take care while dealing with Power wirings because it may create electrical shock.

UNSTABLE READING

Check for loose connections.

- First verify that all conventional instrumentation norms have been followed for wiring. Check for ripple on power supplies of Input section and Output sections. If power supplies have ripples, input voltage may be low or there is some failure on power supply card.

  OUTPUT NOT MATCHING WITH THE EXPECTED VALUE
- It is a normal tendency to doubt the instrument performance when the Output is not

matching the expected value. Kindly make sure that the output is incorrect with respect to input signal, before attempting any re-calibration.
Account for measuring instrument's inaccuracies, lead errors and calibration errors.
Care must be taken when measuring Output signal.
An ordinary 3½ digit multimeter is used it can show reading which deviates from what the instrument is showing as the accuracy of the multimeter may not be as good as the that of the instrument. So use calibrating instrument of accuracy better than 0.1% for purpose of calibration.

- If these troubleshooting tips do not solve your problem then, please contact technical support at either nearest area office or Main Head Office as given on the first page.
- For operation manual please visit www.masibus.com Specifications are subject to change without notice due to Continuous improvements.
  Masibus Automation And Instrumentation Pvt. Ltd. B-30, GIDC Electronics Estate, Sector-25, Gandhinagar-382044, Gujarat, India.

Tel: +91 79 23287275-77 Web: www.masibus.com

Documents / Resources

	masibus PDH Programmable Frequency Transducer [pdf] Instruction Manual PDH Programmable Frequency Transducer, PDH, Programmable Frequency Transducer, Frequency Transducer, Transducer

References

- User Manual

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Frequency Transducer, masibus, PDH, PDH Programmable Frequency Transducer, Programmable Frequency Transducer, Transducer

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