Programmable Isolation Amplifier
Type M3042

► Programmable universal input and output
► 3-way isolation 2500VAC
► Bus system for power supply
► Compact housing
► Modbus

Technical description

The isolation amplifier and line conditioner interfaces and/or converts an analog process signal for computers and industrial control equipment as PLC’s, etc. Also, a computer or control equipment’s analog signal can be adapted to the process environment. Isolation amplifiers are also installed where ground-loop problems require to separate different signal grounds to avoid signal distortion and to convert one signal to another.

Example: To convert and isolate a 4...20mA or 100...500Hz process signal to a 0...10V signal, that is connected to a computer interface.

An additional application is to extract and isolate the measuring signal out of 2-wire transmitter’s power supply. Input, output and supply are isolated against each other.

Signal inputs: DC/AC voltage, DC/AC current, frequency and platin/nickel sensors.

Signal outputs: DC Volt, DC current and Modbus.

The amplifier is field programmable by means of a USB data cable connected to a Laptop. The set-up software is free of charge and is distributed via the Mostec home page at www.mostec.ch. The range of the isolator is also factory set, free of charge.

The isolation amplifier consists of the following building blocks: Input circuit, AD-converter, processor, DA-converter, output stage and the power supply.

The power supply is galvanically isolated from input and output and the voltage range of the supply is 20 to 253VAC/DC.
Technical Data:

Input: programmable
Output: programmable
Input impedance:
- Current input = 0.05% of full scale
- Voltage input 100mV to ±100VDC, others on request
- Current input: ±2mA to ±20mADC, others on request
- Temperature: Pt100 sensor -100...400°C, others on request
- Frequency: 0...10kHz / >5V active (accurate 1%), others on request
- Voltage output: 0...10VDC, others on request
- Output Modbus

Output impedance:
- Current output ≥ 1MΩ
- Voltage output, max. load = 500Ω
- Voltage output < 0.1Ω

Max. output current limit:
- 30mA, short circuit proof (voltage output only)

Special signal range:
- Voltage input: ±100mV to ±100VDC, others on request
- Current input: ±2mA to ±20mADC, others on request
- Temperature: Pt100 sensor -100...400°C, others on request
- Frequency: 0...10kHz / >5V active (accurate 1%), others on request
- Voltage output: 0...10VDC, others on request
- Current output: 0/4...20mA, others on request

Test isolation voltage: 2500VAC/1min. (I/O/P)
Common mode rejection ratio:
- Gain error: Max. 0.05% of full scale
- Zero offset: Max. 0.05% of full scale

Working temperature range: -5...+55°C
Power supply: 20 to 253 VDC or AC, isolated
Power supply load: 2.4W @ 25mA
CE-conformity: fulfilled
Mounting:
- 35mm mounting rail, EN50022-35
- Weight: 120g

Terminals:
- Screw terminals

Terminal description:
1 = +20V (2-Wire)
2 = Sensor Sense (+)
3 = PE
4 = Signal input mA (+), Sensor (+)
5 = Signal input mA/V/ freq. (-)
6 = Signal input V/freq. (+)
7 = Signal output mA (-)
8 = Signal output V (-)
9 = Signal output mA/V (+)
10 = PE
11 = Power Supply AC~/DC(*)
12 = Power Supply: AC~/DC(-)

Warranty:
- 2 years
Options:
- USB programming unit for MOSTEC devices with cable and software
- Customer modifications, special ranges
- Bus connector for power supply (20...120VAC/DC)
Connection examples

Input: 0...10VDC
Output: 0...10VDC
Supply: 24VDC

Input: 0...20mA
Output: 0...1VDC
Supply: 24VDC

Input: 4...20mA / 2-Draht
Output: 4...20mA
Supply: 24VDC

Input: 0...10kHz / 5VDC
Output: 4...20mA
Supply: 230VAC
Connection examples

Input: 0...100°C / Pt100
Output: 0...10VDC
Supply: 230VAC

Input: 0...100°C / Pt100
Output: 0...10VDC
Supply: 230VAC