masibus


# 9000C

## Improved Specifications

## Signal Isolator

### Single (SOP) & Dual (DOP) Output
### Aux (AP) & Loop (LP) Powered

Slim. Isolated. Reliable

Masibus 9000C Signal Isolator is slim yet rugged 4 wire and 2 wire isolator used for reliable isolation and attenuation of industry standard field signals. 9000C is available in single or dual output models, also with aux or loop powered.

9000C has higher noise rejection ratio that ensures accurate and noise free signal conditioning. Its slim DIN rail mount design occupies less space and reduces cost of overall installation.

DOP (AP) model also acts as signal distributor. A typical application could be where the signal has to be distributed for indication on local panel, field control room, main control room or DCS system. The Isolator provides good protection to sensitive system parts against voltage spikes etc.

Model 9000C (AP) has built-in Transmitter Power Supply (TPS) to drive 2Wire field transmitters. An exceptional feature of extended universal power supply for the range of 20V to 265V DC or AC makes 9000C suitable for any Aux power supply available in field and thus providing easy to stock and easy to install.

9000C 'M' version model is further enhanced with switch selectable I/O configuration for I/O ranges 0/4-20mA, 0/1-5V and 0-10V. This feature allows user to have freedom to change 0/4-20mA, 0/1-5V and 0-10V I/O types, using side DIP switches available on the device and with minor calibration using front accessible trim-pots, depending upon field requirements, truly one model for all signals and all applications.

With 9000C (LP) Version, overall wiring can be reduced delivering same performance and overall power consumption can be reduced.

Dedicated 9000C 'H' model with HART pass through feature (AP only) compatible with 2 wire transmitter, allows HART signals to pass through both ways, for online configuration and diagnostics of HART transmitters.

Masibus' 9000C model offers excellent accuracy and stability for reliable operation in hostile environments and full isolation safely separates input channel, each output channel and the power supply.

## Features

- Available in Aux Powered (AP) and Loop Powered (LP) options
- Slim DIN rail mount design of 12.5mm for single output and 17.5mm for dual output
- Rugged & accurate 4 wire and 2 wire Isolator
- Switch option for 0/4-20mA, 0/1-5V and 0-10VI/O selection
- Extended universal power supply range: 20V to 265V DC or AC (AP Model)
- Full three port isolation
- Up to 2 outputs with short circuit protection
- High CMRR and NMRR
- Negligible long term drift
- CE certified model option
- High output load driving capability
- Wide zero & span adjustment limits
- Front calibration facility via multi turn trimpots
- HART pass through model

## Applications

- Field interface device
- Isolation of field signals
- Distribution of signals
- Translation of signals
- Factory automation SCADA
- DCS
- Impedance matching of transmitters and receiver instruments
- Powering of field transmitters

# TECHNICAL SPECIFICATIONS

## Input

| | |
|---|---|
| Input Type | Voltage / Current |
| Input Range | 'L' Version: 4-20mA<br>'S' Version: 4-20mA<br>'M' Version: 0/4 to 20mA, 0/1 to 5V, 0 to 10VDC (DIP switch selection)<br>'H' Version: 4-20mA, HART Pass |
| Input Impedance | |
| Current Input | ≤100 Ω (LP)<br>≤10 Ω (AP) |
| Voltage Input | ≥1 MΩ |
| Temperature Coefficient | ≤100 ppm/°C |
| CMRR | >100 dB |
| NMRR | >70 dB |

## Output

| | |
|---|---|
| Output Type | Voltage / Current |
| LP Model | 'L' Version: 4-20mA |
| AP Model | 'S' Version: 4-20mA<br>'M' Version: 0/4 to 20mA , 0/1 to 5V, 0 to 10VDC (DIP switch selection)<br>'H' Version: 4-20mA HART Pass on o/p-1, 4-20mA Standard on o/p-2 |
| Response Time | ≤50ms |
| Accuracy | ± 0.1% of FS |
| Output Load (LP) | RLoad = [(Loop Supply Voltage – 10)/0.021]Ω |
| Output Load (AP) | mA: ≤750Ω@20mA (SOP Model)<br>≤550Ω@20mA (DOP/HART Pass Model)<br>V: Current≤5 mA<br>(e.g. for 0-5V: 5V/5mA ≥ 1 KΩ) |
| Output Loop Status LED | Green (AP, "S" version only) |
| **Transmitter Power Supply (AP only)** | 24VDC (±10%) @20mA (SOP)<br>22VDC (±10%) @20mA (DOP) |

## Power Supply

| | |
|---|---|
| AP Model | 20 to 265V DC/AC 50-60Hz, ≤3W |
| LP Model | 10 to 36VDC with reverse polarity protection |

### Isolation

**9000C Aux Powered Model**

Between power to Input and Output
Reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 3KVAC
- (For CE marked 9000C SOP 'S' and 'M' model)
  Galvanic Isolation of 3KVAC for 1 minute (For CE marked and Non-CE model)
- Between Input to Output
  Functional insulation according to IEC/EN 61010-1, rated insulation voltage 1.5KVAC
- (For CE marked 9000C SOP 'S' and 'M' Model)
  Galvanic Isolation of 1.5KVAC for 1 minute (For CE marked and Non-CE model)
- Between Output to Output
  Galvanic Isolation of 1.5KVAC for 1 minute (For Non-CE DOP model)
- **9000C-L Loop Powered Model**
  Galvanic Isolation of 1.5KVAC for 1 minute between Input and Output

## Physical

| | |
|---|---|
| Mounting Type | DIN Rail (35 mm) |
| Terminal Block | UL, CSA standard |
| Terminal Cable Size | 2.5 $mm^2$ |
| Enclosure Material | PA66 |
| IP Rating | IP20 |
| **Size** | |
| SOP Model (in mm) (AP & LP Model) | 12.5(W) x 100.2(H) x 115.2(D) |
| DOP Model (in mm) (AP Model) | 17.5(W) x 100.2(H) x 115.2(D) |
| "H" Version- SOP/DOP Models (in mm) | 17.5(W) x 100.2(H) x 115.2(D) |
| **Weight** | |
| SOP Model (AP & LP Model) | 100 gms approx |
| DOP Model (AP Model) | 130 gms approx |
| "H" Version | 130 gms approx |

## Environmental

| | |
|---|---|
| Operating Temperature | 0 to 55 °C |
| Relative Humidity | 30 to 95% RH (Non-Condensing) |
| Protection | Conformal coating on PCB |

## Directive Conformity

| | |
|---|---|
| Electromagnetic Compatibility Directive 2014/30/EU | *IEC 61326-1 :2012 |
| Low Voltage Directive 2014/35/EU | *IEC 61010-1 :2010 |

*Applicable only for CE marked 9000C SOP Aux Powered 'S' and 'M' Model.

## ORDERING CODE

### AUX-POWERED MODELS

| Model | | Input Type | | No of O/P | | O/P Type | | CE Compliance | |
|---|---|---|---|---|---|---|---|---|---|
| 9000C | S | X | | X | | X | | X | |
| | | C | 4-20mA | 1 | One | 1 | 4-20mA | N | NO |
| | | | | 2 | Two | | | Y | YES* |

| Model | | Input Type | | No of O/P | | O/P Type | |
|---|---|---|---|---|---|---|---|
| 9000C | H | X | | X | | X | |
| | | C | 4-20mA | 1 | One | 1 | 4-20mA |
| | | | | 2 | Two | | |

*CE Compliance is available in SOP (Single Output) models only. It is not applicable for DOP (Dual Output) and HART Pass models.

| Model | | Input Type | | No of O/P | | O/P Type-1 | | O/P Type-2 | | CE Compliance | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9000C | M | X | | X | | X | | X | | X | |
| | | C | 4-20mA | 1 | One | 1 | 4-20mA | 0 | None | N | NO |
| | | D | 0-20mA | 2 | Two | 2 | 0-20mA | 1 | 4-20mA | Y | YES* |
| | | E | 1-5VDC | | | 3 | 1-5VDC | 2 | 0-20mA | | |
| | | F | 0-5VDC | | | 4 | 0-5VDC | 3 | 1-5VDC | | |
| | | G | 0-10VDC | | | 5 | 0-10VDC | 4 | 0-5VDC | | |
| | | | | | | | | 5 | 0-10VDC | | |

### LOOP POWERED MODEL

| Model | | Input Type | | O/P Type-1 | |
|---|---|---|---|---|---|
| 9000C | L | X | | X | |
| | | C | 4-20mA | 1 | 4-20mA |

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