# Standard Specifications Type: MS3716 MS3700

## Slim-shaped Plug-in First-order Delay Converter with Isolated Single/Dual Output

## Overview

MS3716 is a slim-shaped plug-in first-order delay converter with isolated single/dual output to convert DC current/voltage signals, changing the time constant, into various DC signals as selected. (RoHS-conformed)

## Ordering Format

MS3716 -□-□□□

**Type**

**Power Supply**

A: AC 85 ～ 264V
D: DC 24V
P: DC 85 ～ 264V

**Input Signal**

| | |
|---|---|
| A: 4 ～ 20mA DC | 3 : 0 ～ 1V DC |
| B: 2 ～ 10mA DC | 4 : 0 ～ 10V DC |
| C: 1 ～ 5mA DC | 5 : 0 ～ 5V DC |
| D: 0 ～ 20mA DC | 6 : 1 ～ 5V DC |
| E: 4 ～ 20mA DC*1 | 4W: ±10V DC |
| H: 10 ～ 50mA DC | 5W: ± 5V DC |
| Z: Designated DC | 0 : Designated VDC |

*1 Input Resistance 50Ω

**Output-1**

| | |
|---|---|
| A: 4 ～ 20mA DC | 1 : 0 ～ 10mV DC |
| D: 0 ～ 20mA DC | 2 : 0 ～ 100mV DC |
| Z: Designated DC | 3 : 0 ～ 1V DC |
| | 4 : 0 ～ 10V DC |
| | 5 : 0 ～ 5V DC |
| | 6 : 1 ～ 5V DC |
| | 3W: ± 1V DC |
| | 4W: ±10V DC |
| | 5W: ± 5V DC |
| | 0 : Designated VDC |

**Output-2**

**No entry**: None.
Similar to Output-1.

☞When Out-1 is set for Voltage, Out-2 cannot be designated for Current.
☞When both outputs are set for 4～20mA, the Output Load of Out-1 will be less than 550Ω, and that of Out-2 will be 350Ω.

**Option**

**No entry**: None.
／X : Custom Order····Additional cost required.
*Contact us for custom-order requirement.

## Please specify upon ordering

**・Product Model Number (Please specify the upper/lower limit of the first-delay time constant within the range of 0.2～20 sec.)**
**(Example) MS3716-A-AA6 (0.5～10sec)**

Other items to be specified:
・For input "Z": MS3716-A-ZAA(0.2～20sec/Input 8～20mA)
・For output "0": MS3716-A-A60(0.2～20sec/Output 2～5V)


## Specifications

### ●Power Supply Section

| | |
|---|---|
| **Power Supply** | AC85～264V (Rating 100～240V) 47～63Hz<br>DC24V±10%<br>DC85～264V (Rating 100～240V) |
| **Power Sensitivity** | Within ±0.1% of Span for each power supply voltage. |
| **Power Supply Fuse** | 160mA Fuse |

**Maximum Power Consumption**

| Power Supply | AC85～264V | DC24V | DC85～264V |
|---|---|---|---|
| Single Output | 5.0VA max. / 1.4W max. | | / 6.0W max. |
| Dual Output | 6.0VA max. / 1.8W max. | | / 6.0W max. |

### ●Input Section

**Input Resistance**

| | | |
|---|---|---|
| Voltage Input (DC) | 1MΩ | With excitation |
| | 1MΩ | Without excitation |
| Voltage Input (DC) | 4～20mA(Standard) | 250Ω |
| | 2～10mA | 250Ω |
| | 1～5mA | 100Ω |
| | 0～20mA | 250Ω |
| | 10～50mA | 10Ω |

**Input Voltage Allowable**

| | |
|---|---|
| DC voltage input | 30V DC max. continuous (Span 10V max.: Standard) |
| DC current input | 40mA DC max. continuous (4～20mA: Standard) |

| | |
|---|---|
| **Setting Range of First-delay Time Constant** | Please specify the upper and lower limit of the first-delay time constant in the range of 0.2～20 seconds. |
| Time-constant setting trimmer | Rotation by 260° |
| **Setting Accuracy of First-delay Time Constant** | Min.value: Within −30～0% of specified value<br>Max. value: Within 0～+30% of specified value |

**Range of Products Available**

| | Current Signal | Voltage Signal |
|---|---|---|
| Input Range(DC) | −100～100mA | −300～300V |
| Input Span(DC) | 100μA*1～200mA | 200mV*2～600V |
| Input Bias | −100～100% | −100～100% |
| First-delay Time Constant | 0.2～20sec | |

*When negative input is contained, the span becomes *1200μA～, *2400mV～.
(e.g.) −5～0V⇒Input span 5V, Bias −100%

### ●Output Section

**Maximum Output Load**

| | | |
|---|---|---|
| Voltage Output (DC) | 1V Span min. | 2mA max. |
| | 10mV | 10kΩ min. |
| | 100mV | 100kΩ min. |
| Current Output (DC) | 4～20mA Single output | 750Ω max. |
| | 4～20mA Dual output | Out-1 550Ω max. |
| | | Out-2 350Ω max. |

| | |
|---|---|
| **Zero Adjustment Range** | Approx. ±5% of Span<br>(Adjustable by Trimmer on front panel) |
| **Span Adjustment Range** | Approx. ±5% of Span<br>(Adjustable by Trimmer on front panel) |

## ●Output Section

**Range of Products Available**

| | Current Signal | Voltage Signal |
|---|---|---|
| Output Range (DC) | 0～20mA | -10～10V |
| Output Span(DC) | 4～20mA | 10mV～20V |
| Output Bias | 0～100% | -100～100% |

*For current output smaller than 0.1mA, the accuracy is not guaranteed.
(e.g.1) 4～20mA⇒Output Span 16mA, Bias 25%
(e.g.2) -1～4V⇒Output Span 5V, Bias -20%

## ●Standard Performance

| | |
|---|---|
| Conversion Accuracy | Within ±0.1%/F.S.(@25℃±5℃) |
| Temp Characteristics | Within ±0.2% of Span with every 10℃ variation |
| CMRR | 100dB min.(500V AC, 50/60Hz) |
| Signal Isolation | Between Input - Out1-Out2-Power Supply-Ground |
| Isolation Resistance | 100MΩ min.(@500V DC)<br>Between Input-Out1-Out2-Power Supply-Ground |
| Dielectric Strength | Between Input—[Out1,Out2]—[Power Supply, Ground]<br>:2000V AC, Shut Down Current 0.5mA for 1 minute<br>Between Power Supply - Ground<br>:2000V AC, Shut Down Current 5mA for 1 minute<br>Between Out1 – Out2<br>:500V AC, Shut Down Current 0.5mA for 1 minute |
| Measures against SWC | Conform to ANSI/IEEE C37.90.1-1989 |
| Operating Environment | Temperature: -5～55℃<br>Humidity : 5～90%RH(Non-Condensing) |
| Storage Temp. | -10～60℃ |

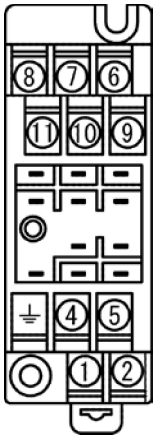
## ●Installation / Physical Specifications

| | |
|---|---|
| Installation | Wall mounting &/or DIN-rail mounting |
| Wiring | M3.5 screw terminal connection<br>(with P.S. terminal cover & screw drop-protection) |
| Screw Tightening Torque | 0.8～1[N・m] Recommendable |
| Outer Dimension | W29×H86×D125mm<br>(incl. set screws & terminal block) |
| Mass | Main body 120g max., Terminal Block 80g max. |

## ●Materials

| | |
|---|---|
| Housing | ABS Resin (UL-94V-0) |
| Terminal Block | ABS Resin (UL-94V-0) |
| Terminal Screws | Iron/Nickel-plated |
| Terminal Surface Treatment | 0.2μm / Gold plated |
| P.C. Board | Glass-Epoxy (FR-4:UL-94V-0) |
| Moisture-proof Coating | HumiSeal Coating<br>:HumiSeal 1A27NS(Polyurethane Resin) |

## Terminal Arrangement / Signal Assignment




| | | |
|---|---|---|
| ① | P(+) | POWER |
| ② | N(−) | |
| ⏚ | GND | |
| ④ | + OUTPUT 1 | |
| ⑤ | − OUTPUT 1 | |
| ⑥ | N.C | |
| ⑦ | + OUTPUT 2 | |
| ⑧ | − OUTPUT 2 | |
| ⑨ | + INPUT | |
| ⑩ | − INPUT | |
| ⑪ | N.C | |

## Block Diagram