General **Specifications**

Model DS1 Potentiometer Converter (Free Range Type)

NTXUL

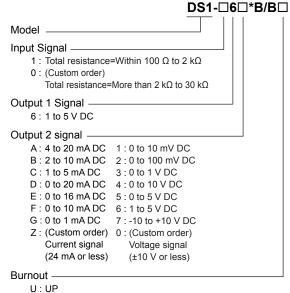
GS 77J05S01-01E

General

The DS1 is a nest-mounting type DCS-supported potentiometer converter is used in combination with an instrument such as a control valve which outputs the change in resistance of potentiometer. It converts the change in resistance into isolated DC current or DC voltage signals.

• Setting the total resistance of the potentiometer, zero/ span adjustment, burnout selection, and I/O monitoring can be easily performed from the host system or the parameter setting tool (VJ77) via the communication interface card.

Model and Suffix Codes



D: DOWN

N: OFF

Power supply: 24 V DC±10%

Ordering Information

Specify the following when ordering.

- Model and suffix codes: e.g. DS1-16A*B/BU
- Total resistance :e.g. 2000 Ω
- Input range :e.g. 0 to 1000 Ω

When the burnout is not specified, the product is manufactured as /BU.

■ Input/Output Specifications

Input signal: Potentiometer resistance change (3-wire type)

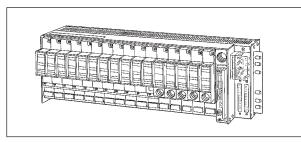
Total resistance: 100 to 2000 Ω

Measuring span: 80 to 2000 Ω

(50% of the total resistance or more)

Zero elevation: 50% of total resistance or less Allowable leadwire resistance: 150 Ω or less per wire (Each resistance of the 3 lines should be

equal.)



Burnout detective current: 0.1 µA Output 1 signal: 1 to 5 V DC

Output 2 signal: DC current or DC voltage signal (DC current can be outputted from either the front terminals 3-4 or the connector.)

Allowable load resistance:

DC current output	Allowable load resistance	DC voltage output	Allowable load resistance
4 to 20 mA	750 Ω or less	0 to 10 mV	250 kΩ or more
2 to 10 mA	1500 Ω or less	0 to 100 mV	250 kΩ or more
1 to 5 mA	3000 Ω or less	0 to 1 V	2 kΩ or more
0 to 20 mA	750 Ω or less	0 to 10 V	10 kΩ or more
0 to 16 mA	900 Ω or less	0 to 5 V	2 kΩ or more
0 to 10 mA	1500 Ω or less	1 to 5 V	2 kΩ or more
0 to 1 mA	15 kΩ or less	-10 to +10 V	10 kΩ or more

Output adjustment: ±10% of span (Zero/Span) In the case of the output specification code 7, it is ±5% of span.

Standard Performance

Accuracy rating:

Burnout:

Output 1: ±0.1% of span

Output 2: Relative error between output-1 and 2 is

within ±0.2%.

Accuracy is not guaranteed for output level less than 0.5% of the span of a 0 to X mA output range type.

Response speed: 200 ms, 63% response (10 to 90%) Up, Down or Off; the maximum burnout

time is specified as 60 seconds.

Insulation resistance: 100 M Ω or more at 500 V DC between input and output, output and power supply, and input and power sup-

ply.

Withstand voltage: 1500 V AC/min. between input and (output and power supply.)

500 V AC/min. between output and power

supply.

■ Environmental Conditions

Operating temperature range: 0 to 50°C Operating humidity range: 5 to 90% RH (no condensation)

Power supply voltage: 24 V DC±10%

(ripple content 5% p-p or less)

Effect of power supply voltage fluctuations: ±0.1% of span or less for the fluctuation within the operating range of power supply voltage specification.



Effect of ambient temperature change: $\pm 0.2\%$ of span or less for a temperature change of 10°C. Effect of leadwire resistance change: $\pm 0.1\%$ or less for a resistance change of 10 Ω / leadwire Current consumption: 24 V DC 75 mA (4 to 20 mA), 50 mA (1 to 5 V)

Mounting and Dimensions

Mounting method: Nest-mounting (Signals and power supply are connected through back board and connector)

Connection method:

External wiring; connection to M4 screw terminals of the dedicated nest

Connection to I/O card; via dedicated cable (connector)

External dimensions: 130.6(H)×23.6(W)×126(D) mm Weight: Approx. 120 g

■ Standard Accessories

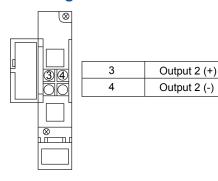
Tag number label: 1 Range label: 1

■ Custom Order Specifications

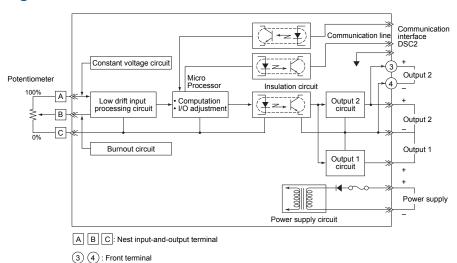
Total resistance	2k Ω to 30 kΩ	
Measuring span	50% or more of the total resistance	
Zero elevation	50% or less of the total resistance	

	Current signal	Voltage signal
Output range (DC)	0 to 24 mA	-10 to +10 V
Span (DC)	1 to 24 mA	10 mV to 20 V
Zero elevation	0 to 200%	-100 to +200%

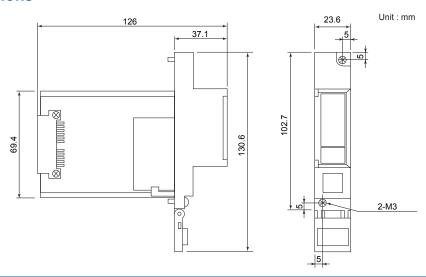
■ Terminal Assignments



■ Block Diagram



■ External Dimensions



■ Basic Conditions and Individual Contracts at the Time of Purchase

The warranty for this product is defined in the basic conditions and individual contracts at the time of purchase. The individual conditions are as follows.

• Firmware warranty conditions

The warranty conditions for the firmware installed in this products are same as that of the hardware.

• Handling of non-conforming products

If Yokogawa verifies a non-conformity of the product that is attributable to Yokogawa within the warranty period, we will deliver an equivalent product.

Yokogawa can not provide a free evaluation of non-conforming products. The investigation of the non-conforming products will be performed at the expense of the customer.