

General Specifications

Model SDBT(Style S)
Distributor

YEW SERIES 80

GS 01B04T01-02E

■ GENERAL

The Model SDBT Distributor supplies power to a two-wire transmitter and converts the 4 to 20 mA DC transmitter signal current to two 1 to 5 V DC and one 4 to 20 mA DC (for SDBT-21 type only) output signals.

Isolation between input/output and distributor power supply is provided ("loop isolation"); isolation between input and output ("field isolation"); is specification.

Current limiting (to protect against transmitter wiring short circuits) is provided, and a square root characteristic is optional.

With the VJ77 Parameter Setting Tool you can do the following:

- Read/write all parameters at once
 - Save read parameters to a file
 - Copy parameters to other devices
- For SDBT-21x with style code R or S.

■ STANDARD SPECIFICATIONS

Input Signal

Input: Used with 24 V DC, 4 to 20 mA, 2-wire transmitter (one point)

Lead-wire Resistance (between transmitter and distributor):

$$\text{Maximum}(\Omega) = \frac{(20^* - E_T - E_B) V}{0.02 A}$$

Note*: Distributor minimum(no-load) output voltage – Maximum no-load voltage drop.

E_T : Transmitter maximum on-load voltage drop

E_B : Maximum on-load voltage drop of safety barrier.

Square Root Characteristic

Computation: $E_0 = 2\sqrt{E_1 - 1} + 1$

E_0 : Output Signal from computation function, E_1 : Input Signal

Low-cut Function: At E_1 is less than 1 %, the output is proportional to input.

Output Signals

Output: 1 to 5V DC (two points),
4 to 20 mA DC (one point, SDBT-21 type only)

Load Resistance: At least 2k Ω (1 to 5 V DC output),
up to 750 Ω (4 to 20 mA DC output)

Isolation

Loop Isolation Type: Input signal is not isolated from output signals. Input signal and output signals are isolated from distributor power source.

Field Isolation Type: Input signal is isolated from output signals. Input signal and output signals are isolated from distributor power source.



BRAIN Communication Function

Only field isolation type can be used.

Monitoring of input/output value, adjustment of input/output and configuration by a PC (VJ77), JHT200 Handy Terminal* or BT200 BRAIN Terminal*.

- *: When connecting a PC (VJ77) or the JHT200 Handy Terminal, the adapter for modular-jack (model E9786WH) is required. When using the BT200 BRAIN Terminal of YOKOGAWA Electric Corporation, the communication cable of 5-pin connector type (model F9182EE) and the adapter for modular-jack (model E9786WH) are required.

■ MOUNTING AND APPEARANCE

Mounting: Rack mounting.

Wiring

Signal Wiring: ISO M4 size (4mm) screws on terminal block.

Power and Ground Wiring

100 V version: JIS C 8303 two-pin plug with earthing contact (IEC A5-15, UL458)

Cable length: 300 mm

Power supply terminal type (option code /TB)

220 V version: CEE 7 VII (CENELEC standard) plug (option code /A2ER).

Cable length: 300 mm

Power supply terminal type (option code /A2TB)

External Dimensions: 180 (H)× 48 (W)× 300 (D)

Depth behind panel (mm)

Weight: 1.7 kg (including rack-mounting case)

■ STANDARD PERFORMANCE

Accuracy: $\pm 0.2\%$ of span ($\pm 0.5\%$ of span for version with square root characteristic)
 Transmitter Supply Voltage(from distributor):
 25.0 V DC to 25.5 V DC (provided with a current limiter to keep the current between 25 and 35 mA).

Maximum Power Consumption:

Model and Suffix Code	24 V DC	100 V AC	220 V AC
SDBT-11 type	60 mA	5.4 VA	8.4 VA
SDBT-21 type	115 mA	7.5 VA	9.0 VA

■ POWER SUPPLY AND ISOLATION

Power Supply Rated Voltage:

100 V version:

24-110 VDC = , -10 % , +10 % , 150 mA

100-120 VAC ~ , -10 % , +10 % , 50/60 Hz , 10.0 VA

220 V version:

135-300 VDC = , -10 % , +10 % , 25 mA

200-240 VAC ~ , -10 % , +10 % , 50/60 Hz , 12.0 VA

Power Supply Input Voltage: AC/DC both usage

100 V version: DC drive 20 to 130 V, no polarity

AC drive 80 to 138 V, 47 to 63 Hz

220 V version: DC drive 120 to 340 V, no polarity

AC drive 138 to 264 V, 47 to 63 Hz

Insulation Resistance

Between I/O terminals and Ground:

100 M Ω / 500 V DC

Between Power and Ground:

100 M Ω /500 V DC

Dielectric Strength

Between I/O terminals and Ground:

500 V AC for 1 minute

Between Input terminal and Output terminal:

500 V AC for 1 minute

Between Power and Ground:

1000 V AC for 1 minute (100 V version)

1500 V AC for 1 minute (220 V version)

■ NORMAL OPERATING CONDITIONS

Ambient Temperature: 0 to 50 °C

Ambient Humidity: 5 to 90 % relative humidity
 (non-condensing)

Operating environment: Area free of hydrogen sulfide gas and other corrosive gases and dust and where the device is not exposed to sea breeze or direct sunlight.

Continuous vibration: (at 5 to 9 Hz) Half amplitude of 1.5 mm or less
 (at 9 to 150 Hz) 4.9m/s² or less,
 1 oct/min for 90 minutes each
 in the three axis directions

Impact: 49 m/s² or less, 11 ms, 3 axes, 6 directions, 3 times each

Installation altitude: 2,000 m or less above sea level

Warm-up time: 15 minutes or more after the power is turned on

■ TRANSPORT AND STORAGE CONDITIONS

Temperature: -25 to 70°C

Temperature change rate: 20°C per hour or less

Humidity: 5 to 95%RH (no condensation)

■ OPTIONS

/NHR: Without rack case (internal unit only)

/FBP: Power supply fuse bypass

/LOCK: Power supply plug with lock

/WSW: With spring washer

/REK: Mount to same line with EK series rack

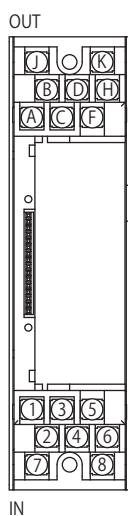
/TB: With power supply terminal

/A2TB: 220V version with power supply terminal

/A2ER: 220V version with power supply plug

■ TERMINAL CONNECTIONS

Terminal arrangement



Terminal Designation	Description
A	+ > Output1(1 to 5 V DC)
B	- >
C	+ > Output3(4 to 20 mA DC)(*1)
D	- >
F	+ > Output2(1 to 5 V DC)
H	- >
J	
K	

Do not connect to the output terminal when the terminal is not in use.

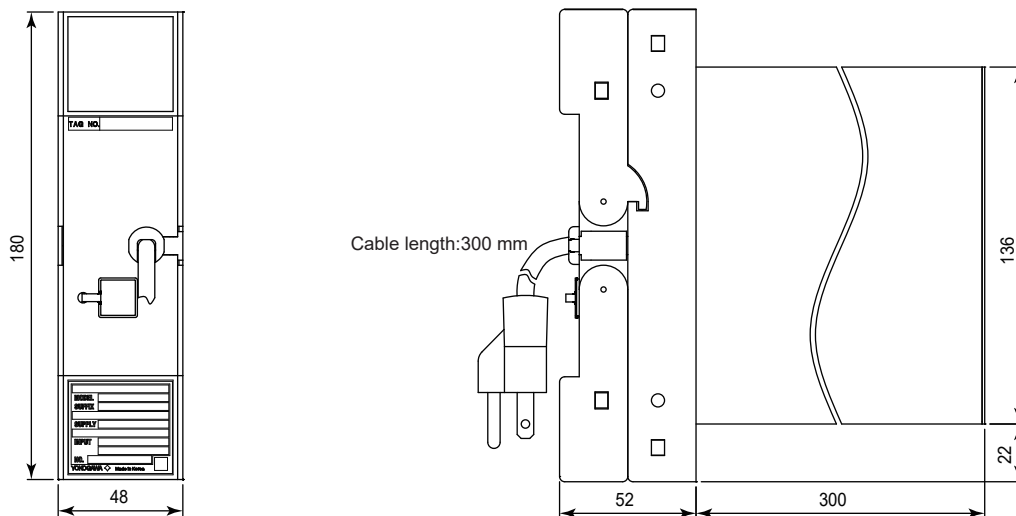
Note1: For SDBT-21 type only.

Terminal Designation	Description
1	+ > Transmitter(Input)
2	- >
3	
4	
5	
6	
7	COM(*2)
8	

Note2: Common for connection of intrinsic safety barrier.

EXTERNAL DIMENSIONS

Power supply plug type



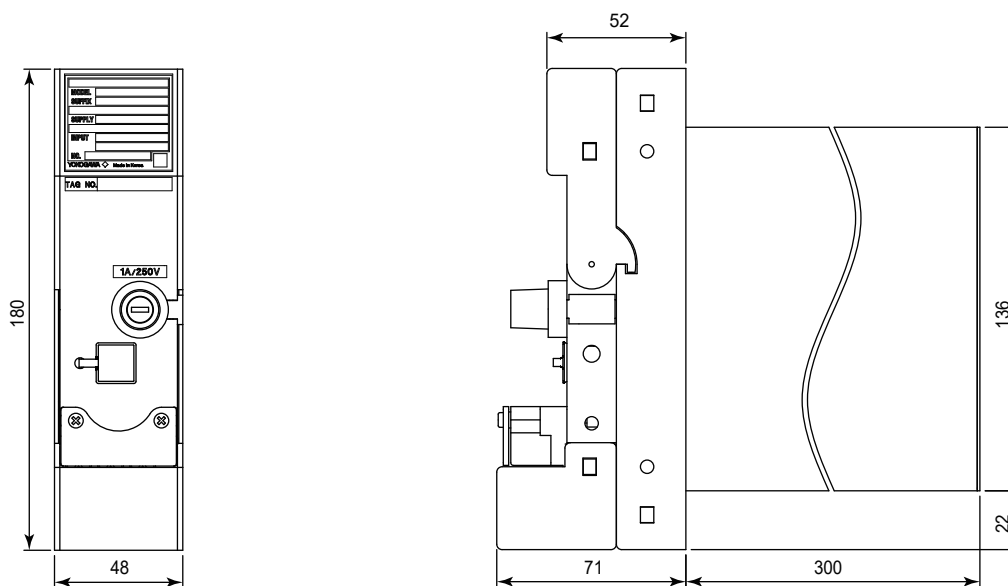
Trigonometry

Unit: mm

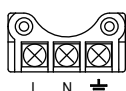
General tolerance = \pm (value of tolerance class IT18 based on JIS B 0401-2016) / 2

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Power supply terminal type(option /TB or /A2TB)



Power supply terminal block



Power and Ground Terminal connection
(Connection screw: M4)

Symbol	Description
L	+ > Power supply
N	
\perp	Ground

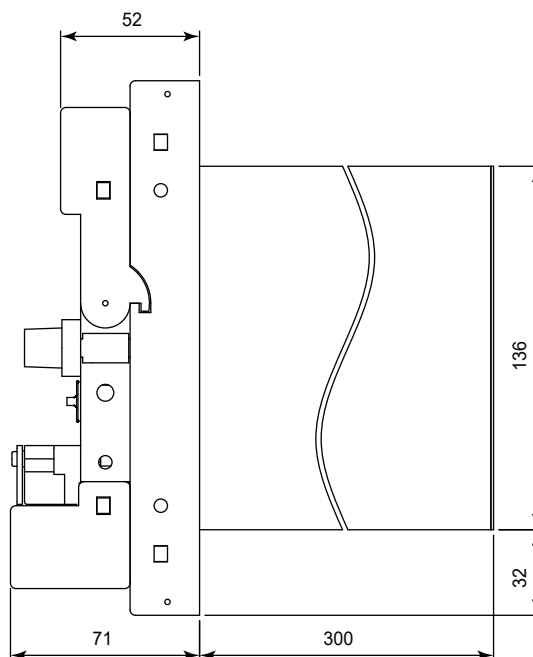
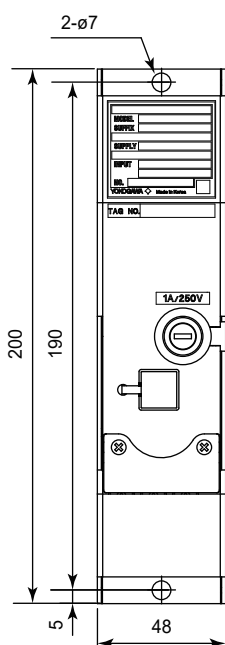
Trigonometry

Unit: mm

General tolerance = \pm (value of tolerance class IT18 based on JIS B 0401-2016) / 2

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Power supply terminal type(option /REK)



Power supply terminal block



Power and Ground Terminal connection (Connection screw: M4)

Symbol	Description
L	+ > Power supply
N	- > Power supply
⏏	Ground

Trigonometry
Unit: mm

General tolerance = ±(value of tolerance class IT18 based on JIS B 0401-2016) / 2

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■ MODEL AND SUFFIX CODES

Model	Suffix Codes	Option Codes	Descriptions
SDBT			Distributor
Isolation	-11 -21		Loop isolation only Field (plus loop) isolation
Square Root Function	0 1		Not provided Provided (for SDBT-21)
Style Code	*S		Style S
Option Codes ^(*) ⁽²⁾		/NHR /FBP /LOCK /WSW /REK /TB /A2TB /A2ER	Without rack case Power supply fuse bypass Power supply plug with lock With spring washer Mount to same line with EK series rack With power supply terminal 220V version with power supply terminal 220V version with power supply plug

*1: /LOCK, /REK, /TB, /A2TB, and /A2ER cannot be specified together.

*2: /FBP, /A2TB, and /A2ER cannot be specified together.

■ ORDERING INSTRUCTIONS

Specify the following when ordering:

Model and suffix codes and option codes, if necessary.

■ 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.

- **Warranty period of firmware**

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