Panel Mount 5-digit Display Unit

D5Y / D5W Series
INSTRUCTION MANUAL

Autonics

Thank you for choosing our Autonics product.
Read and understand the instruction manual and manual thoroughly before using the product.
For your safety, read and follow the below safety considerations before using.
For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

Safety Considerations

• Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
• ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. **Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.
03. **Install on a device panel to use.**
Failure to follow this instruction may result in fire.
04. **Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
05. **Check 'Unit Descriptions' before wiring.**
Failure to follow this instruction may result in fire.
06. **Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. **When connecting the power input of D5W-MX, use AWG 24 (0.20 mm²) to AWG 15 (1.65 mm²) cable or over and tighten the terminal screw with a tightening torque of 0.98 to 1.18 N m.**
Failure to follow this instruction may result in fire or malfunction due to contact failure.
01. **Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
02. **Use a dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire or product damage.
03. **Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
Failure to follow this instruction may result in fire or product damage.

Cautions during Use

• Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
• 12 - 24 VDC⎓ model power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
• Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
• Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
Do not use near the equipment which generates strong magnetic force or high frequency noise.
• This unit may be used in the following environments.
- Indoors (in the environment condition rated in 'Specifications')
- Altitude max. 2,000 m
- Pollution degree 2
- Installation category Ⅱ

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

| D | 5 | ❶ | - | M | ❷ |

❶ Size
Y: DIN W 72 × H 36 mm
W: DIN W 96 × H 48 mm

❷ Power supply
No mark: 12 - 24 VDC⎓
X: 110 / 220 VAC∼ 50 / 60 Hz (W size)

Product Components

• Product × 1
• Bracket (for D5Y) × 2
• Insturction manual × 1

Specifications

Model	D5Y-M	D5W-M	D5W-MX
Power supply	12 - 24 VDC⎓		110 / 220 VAC∼ 50 / 60 Hz
Allowable voltage range	90 to 110 % of power supply		
Current consumption	1.1 W		2 VA
Size (W×H)	DIN 72 × 36 mm	DIN 96 × 48 mm	
Display method	7-segment LED Display		
Display digit / display range	4-digit / -9999 to 9999 5-digit [01] / 0 to 99999		
Max. response CLOCK	100 Hz to 5 kHz [01]		
Input level	High: 5 - 24 VDC⎓, Low: 0 - 1.2 VDC⎓		
Input logic	Positive logic (PNP), negative logic (NPN)		
Input method	Static, Dynamic, 4 / 5-bit serial, Serial (16 / 20 / 25-bit)		
Insulation resistance	100 MΩ (500 VDC⎓ megger)		
Dielectric strength	2000 VAC∼ 50 / 60 Hz for 1 min		
Noise immunity	±1 kV the square wave noise (pulse width: 1 μs) by the noise simulator		
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each of X, Y, Z directions for 1 hour		
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each of X, Y, Z directions for 10 min		
Shock	300 m / s² (≈ 30 G) in X, Y, Z directions for 3 times		
Shock (malfunction)	100 m / s² (≈ 10 G) in X, Y, Z directions for 3 times		
Ambient temperature	-10 to 50 °C, storage: -25 to 65 °C (no freezing or condensation)		
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)		
Approval	EHC		
Weight	≈ 75 g	≈ 165 g	≈ 267 g

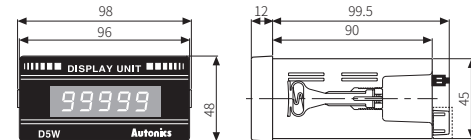01) Except for Static input method

Dimensions

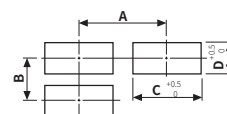• Unit: mm, For the detailed drawings, follow the Autonics website.

■ D5Y
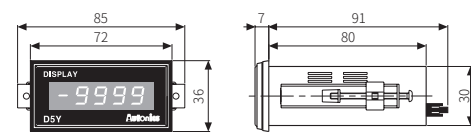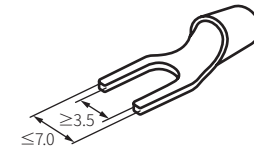

■ D5W

• ⬚: Only for AC power model.

■ Panel cut-out

Model	A	B	C	D
D5Y	≥ 91	≥ 40	67	31
D5W	≥ 112	≥ 50	67	45.5

Cautions for Wiring
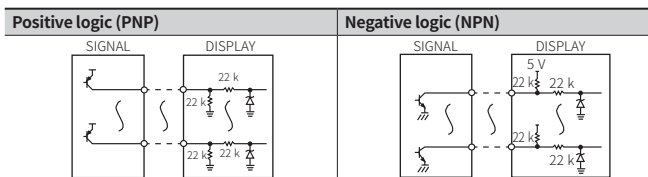
• Unit: mm, Use the shape below for the terminal.

• Contact the manufacturers for socket and cable.

Model		Manufacturer
Hirose connector	HIF3BA-26PA-2.54DS	Hirose Electric
Applied connector socket	HIF3BA-26D-2.54R	

Input Circuit
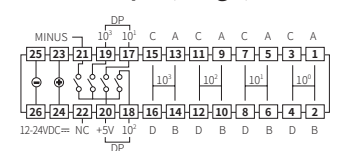
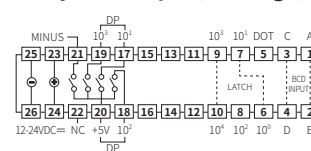| Positive logic (PNP)	Negative logic (NPN)

Connections

• The terminal number is based on the pin no. 1. "△" mark indicates pin no.1 of Hirose connector. Be sure to check it and use.
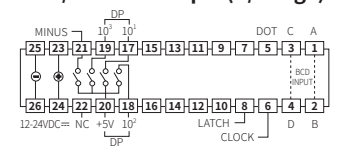• The power terminal varies depending on the power supply model.
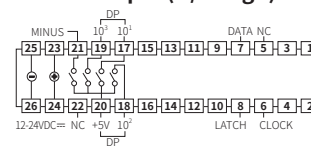
■ Static input (4-digit)
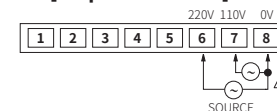

■ Dynamic input (4 / 5-digit)

■ 4 / 5-bit serial input (4 / 5-digit)

■ Serial input (4 / 5-digit)

■ [AC power model] Power terminal

Cautions for Input

■ Serial input

• DATA is fixed when CLOCK is changed from high to low and held when LATCH is changed from high to low.
• DATA hold term is before next LATCH is changed from high to low.
• The 5-digit cannot display the MINUS sign. The applied signal to the MINUS sign input terminal (pin no. 21) is ignored.

■ Parallel input

• LATCH input should be later than BCD input, otherwise, it will display the previous data.
• For 4-digit, the external 10⁴ LATCH input terminal is not available.
• The 5-digit cannot display the MINUS sign. The applied signal to the MINUS sign input terminal (pin no. 21) is ignored.
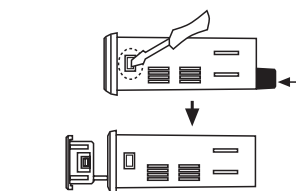
Input Data Chart

• Based on the negative logic (NPN).
• X: Either high or low level can be input.

| Display	A	B	C	D	LATCH
0	H	H	H	H	L
1	L	H	H	H	L
2	H	L	H	H	L
3	L	L	H	H	L
4	H	H	L	H	L
5	L	H	L	H	L
6	H	L	L	H	L
7	L	L	L	H	L
8	H	H	H	L	L
9	L	H	H	L	L
Hold	X	X	X	X	X

Case Detachment

• Be sure to turn off all power of the product before detaching the case.
• Be careful in order not to be wounded when using the tools.

■ D5Y

Push both lock devices with a driver toward the inside, and push the terminal block to the direction of the front part.

■ D5W
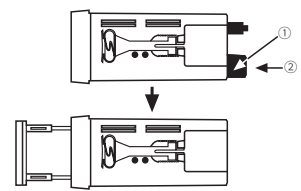
Press the both lock part toward the inside (direction ①), and push the terminal block to the direction of the front part (direction ②).

Internal Selection Switch

• If changing internal selection switch when power is ON, it does not operate as a changed mode. Be sure to turn OFF the power to change the mode. If the mode is changed when power is ON, turn OFF and then turn ON the power.

• Uncover the case to use the internal selection switch. See 'Case Detachment.'
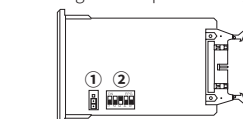
① Input logic selection switch (P1)

◻ Positive logic ◼ Negative logic	Positive logic (PNP) input
◻ Positive logic ◼ Negative logic	Negative logic (NPN) input (Default) [01]

01) BCD output and latch signal of low speed serial output are output to positive logic (PNP).
Set SW6 to NPN and soldering (◼ ON) on the internal PCB solder plate before using it.

| ◼ ON | Input the reverse LATCH signal to set logic in P1. |
| ◻ OFF | Input the same LATCH signal to set logic in P1. |

② Function set switches

No.	Setting value (OFF ◻ ◼ ON)				Function	Default
	Static	**Dynamic**	**4 / 5-bit serial**	**Serial**		
SW1	OFF	ON	ON	OFF	Input mode	Static input (SW1 / 2: OFF)
SW2	OFF	OFF	ON	ON		
	Not used	**Use**				
SW3	OFF	ON			Zero Blanking	Use (ON)
	No. 5	**No. 17 to 21**				
SW4	OFF	ON			Use external terminal : set decimal point	DOT (OFF)
	4-digit	**5-digit** [01]				
SW5	OFF	ON			Select display digit	4-digit (OFF)

01) Except for Static input

Decimal Point Setting

■ DOT (SW4 = OFF)

• The inputs of DOT and MINUS sign are not Serial input.
• The decimal point varies depending on external connection terminal.

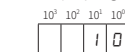| Connection	Display	
Terminal 17-20	88888	10¹
Terminal 18-20	88888	10²
Terminal 19-20	88888	10³
Terminal 21-20	-8888	
OPEN	88888	

■ DP & MINUS (SW4 = ON)

• The inputs of DOT and MINUS sign are applying to 10⁰ position in Serial.
• Dynamic, 4 / 5-bit serial input: input terminal no. 5
• Serial input: 1 bit inputs DATA including DOT or MINUS sign.

Zero Blanking

• This function removes '0' that is no meaning when displaying the data.
• Set SW3 as ON.

■ Using Zero Blanking

• Display e.g.: 10

■ Not using Zero Blanking

• Display e.g.: 10

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