#### **Autonics**

### **DISPLAY UNIT**

# **D5Y/D5W SERIES**

# INSTRUCTION MANUAL



Thank you very much for selecting Autonics products. For your safety, please read the following before using.

#### ■ Safety Considerations

XPlease observe all safety considerations for safe and proper product operation to avoid hazards. XSafety considerations are categorized as follows.

**∆Warning** Failure to follow these instruc ions may result in serious injury or death.

▲Caution Failure to follow these instructions may result in personal injury or product damage.

★ The symbols used on the product and instruction manual represent the following symbol represents caution due to special circumstances in which hazards may occur

#### **⚠** Warning

- 1. 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 fire, personal injury, or economic loss
- 2. Install on a device panel to use.
- Failure to follow this instruction may result in electric shock or fire.
- Do not connect, repair, or inspect the unit while connected to a power source.
   Failure to follow this instruction may result in electric shock or fire. 4. Check 'Connections' before wiring.
- Failure to follow this instruction may result in fire.

  5. Do not disassemble or modify the unit.
- Failure to follow this instruction may result in electric shock or fire

#### **⚠** Caution

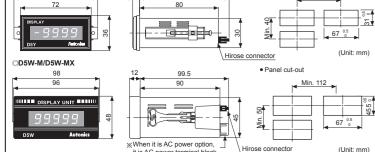
- When connecting the power input of D5W-MX, use AWG 24(0.20mm²) to AWG 15(1.65mm²) cable or over and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.
   Failure to follow this instruction may result in fire or malfunction due to contact failure.

  2. Use the unit within the rated specifications.
- Failure to follow this instruction may result in fire or product damage
- Use dry cloth to clean the unit, and do not use water or organic solvent. Failure to follow this instruction may result in electric shock or fire.
- 4. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.
   Failure to follow this instruction may result in fire or product damage.

#### ■ Model

Model	Display digit	Size	Input	Power supply			
D5Y-M	99999 (5 digit)	DIN W72×H36mm	Static, Dynamic, 4/5 Bit serial, Serial(16/20/25 Bit)	12-24VDC			
D5W-M				12-24VDC			
D5W-MX	(o digit)			110/220VAC 50/60Hz×1			
×1: AC power is only for D5W and it is optional.							

#### Dimensions



\*Hirose connector pin header model: HIF3BA-26PA-2.54DS \*Hirose connector socket is not included with this unit. Contact hirose connector vendors for socket and cable.[Socket: HIF3BA-26D-2.54R]

\*\*" mark indicates pin no.1 of hirose connector.



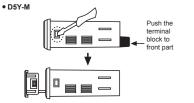
Push the lock part on the side to the direction ①

and then push the terminal block to the direction @

• D5Y-M

\_\_ Min. 91

#### ■ Case Detachment



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

EBe careful in order not to be wounded.

Please turn off the power before detaching the case.

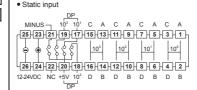
\*\*The above specifications are subject to change and some models may be discontinued without notice.

\*\*Be sure to follow cautions written in the instruction manual and the technical descriptions

#### Specifications

Model		D5Y-M	D5W-M	D5W-MX		
Power supply		12-24VDC		110/220VAC 50/60Hz		
Allowable voltage range		90 to 110% of rated voltage				
Current consumption		1.1W		2VA		
Size		DIN W72×H36mm	DIN W96×H48mm			
Display method		7Segment LED Display				
Display digit		4 digit(or 4 ½ digit including sign bit), 5 digit				
Max. response CLOCK		100Hz to 5kHz(Except for Static input type)				
Input level		High: 5V-24VDC , Low: 0-1.2VDC				
Input logic		Positive logic (PNP), Negative logic (NPN)				
Input		Static, Dynamic, 4/5 Bit serial, Serial(16/20/25 Bit)				
Insulation resistance		100MΩ(at 500VDC megger)				
Dielectric strength		2000VAC 50/60Hz for 1 minute				
Noise resistance		±1kV the square wave noise(pulse width: 1µs) by the noise simulator				
Vibration -	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 1 hour				
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 10 minutes				
Shock	Mechanical	300m/s²(Approx. 30G) in X, Y, Z directions for 3 times				
	Malfunction	100m/s²(Approx. 10G) in X, Y, Z directions for 3 times				
Environ	Ambient temperature	-10 to 50°C, Storage: -25 to 65°C				
-ment	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH				
Unit weight		Approx. 75g	Approx. 165g	Approx. 267g		
<u></u> <u></u>	ment resistance is ra	ated at no freezing or conde	nsation.			

#### Connections



• 4/5 Bit serial input 25 23 21 19 17 15 13 11 9 7 5 3 1 BCD 26 24 22 20 18 16 14 12 10 8 6 4 2 12-24VDC NC +5V 102

-25-23-21-19-17-15-13-11-9-7-5-3-1 \$\$\$\$\$ 26 24 22 20 18 16 14 12 10 8 6 4 2 LATCH D B 12-24VDC NC +5V 10<sup>2</sup> LATCH CLOCK %In case of static input, 5 digit cannot be used because of

Dynamic input

12-24VDC NC +5V 10

Serial input

• Power terminal for AC power option of D5W series 1 2 3 4 5 6 7 8 SOURCE

Min. 3.5mm

external terminal. %To display 5 digit in dynamic, 4/5 bit serial, serial input, display range is 0 to 99999 and it cannot display minus sign. Therefore, the applied signal to the external MINUS sign input terminal (pin no.21) is ignored.

-25-23-21-19-17-15-13-11-9-7-15-3-1

26 24 22 20 18 16 14 12 10 8 6 4 2

LATCH BCD

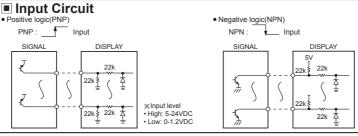
sign input terminal (pin no.21) is ignored.

Kegardless of input logic, connect external DP terminal (pin no.17, 18, 19) or external MINUS sign input terminal (pin no.21) to +5V (pin no.20) and it displays decimal point and prince pine.

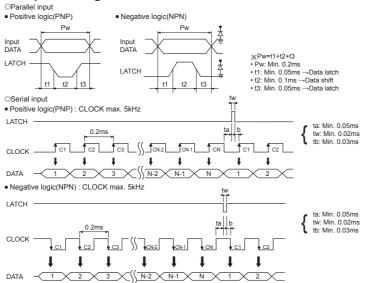
# ※Above terminal connection diagrams's number set by pin no.1 of hirose connector. Please note that "\(\triangle\)" mark indicates pin no.1 of hirose connector.

\*Use teminals of size specified below.

a b

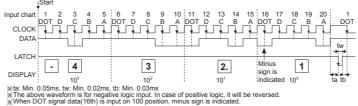


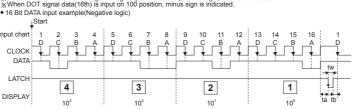
#### Input Timing



#### ■ Time Chart (4-digit)

Serial input(Serial connection)

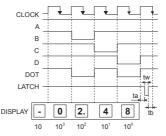




xta: Min. 0.05ms, tw: Min. 0.02ms, tb: Min. 0.03ms \*\*The above waveform is for negative logic input. In case of positive logic, it will be reversed.
\*\*DATA is fixed when CLOCK is changed from high to low and held when LATCH is changed from high to low
\*\*DATA hold term is before next LATCH is changed from high to low.

# 04/5 Bit serial input(Serial connection)





kta: Min. 0.05ms, tw: Min. 0.02ms, tb: Min. 0.03ms The above waveform is for negative logic input. n case of positive logic, it will be reversed. 

terminal, it displays minus sign (Inner selection switch SW4 →ON) (Initial selection Switch SWY——ON)
(Wising external DP terminal and MINUS terminal, it displays decimal point and minus sign. 
(Inner selection switch SW4—OFF)

«The above example of DISPLAY is for non-using zero

blanking function. If using zero blanking function, the "0" of 10<sup>3</sup> position is not displayed. (Inner selection switch SW3 →ON)

Inner selection switch

Static input

Ovnamic input

4/5 Rit serial innut

It is to remove "0" indication which is no meaning

Minus sign/DOT(Decimal point) input terminal

EX)When data value is "10"(4 digit)

• Zero blanking function is applied:

lon-using zero blanking function

Jsing DOT terminal(pin no. 5)

Using external DP(pin no. 17, 18, 19, 20)

Positive logic

Negative

D5Y-M

DEW M

Input mode

SW1 SW2

OFF OFF

ON ON ON

Zero blanking function

OFF

ON OFF

×Zero blanking function

10 10<sup>3</sup> 10<sup>2</sup> 10<sup>1</sup> 10<sup>0</sup> \*Pw: Min 0.2ms t1: Min 0.05ms t2: Min 0.10ms t3: Min 0.05ms

0 2 4. 8

SW4 → ON, SW5 → OFF

\*\*The above waveform is for negative logic input. In case of posi logic, it will be reversed.

\*\*Ero 4 digit, external 104 LATCH input terminal is not available. ※If DOT siganl is inputted on 100 position by external DOT terminal, it displays minus sign.(Inner selection switch SW4 →ON) XI Ising external DP terminal and MINLIS terminal, it displays

XUSING EXERTING DETERMINED THE METHOD STATEMENT AND S

Input logic

Input mode

※Factory default: SW1→OFF, SW2→OFF, SW3→ON, SW4→OFF

ON OFF

· Display digit

external terminal

turn ON the power

LATCH input signal

Zero blanking function Minus sign/DOT(Decimal point

SW5→OFF, SW6→Negative logic, SW7→OFF

※In case of static input, 5 digit cannot be used because of

XIf changing inner selecting switch when power is ON,

it does not operate as a changed mode. If the mode is

changed when power is ON please turn OFF and their

positive logic(PNP). If connecting D5Y/W, use it after setting SW6

to NPN and soldering(ON) the semi-contact(SW7) of inner PCB

logic in SW6

set logic in SW6

5 digit(0~99999)

4 digit(-9999~9999)

Positive logic(PNP) input

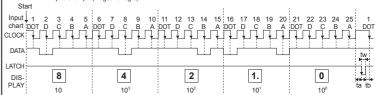
Reverse LATCH signal to set

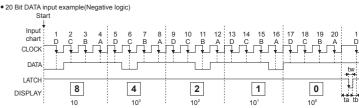
Correspond LATCH signal to

function. If using zero blanking function, the "0" of 103 position is not displayed. (Inner selection switch SW3 —ON)

#### ■ Time Chart (5-digit)

○Serial input(Serial connection)
• 25 Bit DATA input example(Negative logic)





\* ta: Min. 0.05ms, tw: Min. 0.02ms, tb: Min. 0.03ms

The above waveform is for negative logic input. In case of positive logic, it will be reversed

Minus sign cannot be indicated in 5 digit type. [The input of DOT signal on 100 position and MINUS terminal(pin no. 21)

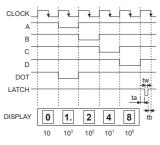
is ignored.]

&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.

#### 04/5 Bit serial input(Serial connection)

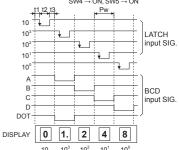
Inner selection switch: SW1  $\rightarrow$  ON, SW2  $\rightarrow$  ON, SW3  $\rightarrow$  OFF, SW4  $\rightarrow$  ON, SW5  $\rightarrow$  ON



ta: Min. 0.05ms, tw: Min. 0.02ms, tb: Min. 0.03ms The above waveform is for negative logic input. In case of positive logic, it will be reversed. Minus sign cannot be indicated in 5 digit type.

The above example of DISPLAY is for non-using zero blanking function. If using zero blanking function, the "0" of 10 position is not displayed. (Inner selection switch SW3 →ON)

ODynamic input(Parallel connection) Inner selection switch: SW1  $\rightarrow$  ON, SW2  $\rightarrow$  OFF, SW3  $\rightarrow$  OFF SW4  $\rightarrow$  ON, SW5  $\rightarrow$  ON



10 10<sup>3</sup> 10<sup>2</sup> 10<sup>1</sup> 10<sup>0</sup> %Pw: Min. 0.2ms, t1: Min. 0.05ms, t2: Min. 0.10ms, t3: Min. 0.05ms The above waveform is for negative logic input. In case of positive logic, it will be reversed.

LATCH input should be later than BCD input, otherwise, it will display the previous DATA.

\*The above example of DISPLAY is for non-using zero blanking function. If using zero blanking function, the "0" of 10 position is part displayed.

not displayed. (Inner selection switch SW3 →ON)

×Minus sign cannot be indicated in 5 digit type

### ■ Input DATA Chart

LATCH

input SIG

input SIG

Display	Α	В	С	D	LATO
0	Н	Н	Н	Н	L
1	L	Н	Н	Н	L
2	Н	L	Н	Н	L
3	L	L	Н	Н	L
4	Н	Н	L	Н	L
5	L	Н	L	Н	L
5	Н	L	L	Н	L
7	L	L	L	Н	L
8	Н	Н	Н	L	L
9	L	Н	Н	L	L
Hold	X	X	X	X	Х

XAbove DATA chart is for negative logic (NPN). In case of positive \*X": Either high or low level can be inpu

#### Decimal Point • DOT (decimal point) and minus sign input is not

Serial input. [SW4 = OFF] Terminal 17-20 : 8 8 8 8 8 18-20 : 8 8 8 8 8 19-20 :8 8.8 8 21-20: 8888

# DOT (decimal point) and minus sign input is Serial input.[SW4 = ON]

OPEN:88888

①When it is dynamic input and 4/5 bit input, it connects with no.5 pin.(Refer to time chart (4 digit).) @When it is serial input, 1 bit of serial data should have DOT and minus sign and the DATA is input. (Refer to time chart (4 digit).)

#### Cautions during Use

2. 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device 8. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.

wire at input signal line.

(Indoors (in the environment condition rated in 'Specifications')

②Altitude max. 2.000m

■ Door Sensors

Area Sensors

■ Proximity Sensors
■ Pressure Sensors ■ Tachometers/Pulse (Rate) Meters

Rotary Encoders ■ Connector/Sockets ■ Senso
■ Switching Mode Power Supplies

■ Control Switches/Lamps/Buzzers

■ Stepper Motors/Drivers/Motion Controllers

■ Field Network Devices

■ Laser Marking System (Fiber, Co<sub>2</sub>, Nd:YAG)
■ Laser Welding/Cutting System

DRW171159AA

#### . Follow instructions in 'Cautions during Use'.

Otherwise, t may cause unexpected accidents

. 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

Do not use near the equipment which generates strong magnetic force or high frequency noise.

This unit may be used in the following environments.

3Pollution degree 2

#### Major Products

■ Photoelectric Sensors ■ Temperature Controllers ■ Fiber Optic Sensors ■ Temperature/Humidity Transducers ■ SSRs/Power Controllers

■ Counters

Timers ■ Panel Meters

■ Display Units

■ I/O Terminal Blocks & Cables

Graphic/Logic Panels