Digital Readout

- ❑ **Standard Type**   **SW-3000 series**
- ❑ **Machine Tool Type**   **SW-4000 series**
- ❑ **Metrology Standard Type**   **DC-3000 series**
- ❑ **Metrology Enhanced Type**   **DC-5000 series**
- ❑ **Single Axis Type**   **WE-100 series**
- ❑ **Linear Scale Exchanger**   **USB-301 series**

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DRO Function guide:

Function	SW-3000	SW-4000	DC-3000	DC-5000	WE-100
Zero setting	●	●	●		●
1/2 calculation	●	●	●	●	●
mm/inch conversion	●	●	●	●	●
INC/ABS conversion	●	●	●	●	●
DIR: Direction setting.	●	●	●	●	●
Error compensation	●	●	●	●	●
Instant power failure memory.	●	●	●	●	●
Self-diagnostic function for calculation error.	●	●	●	●	
Graphic elements construction			●	●	
Record measuring step			●	●	
Rotary encoder settable resolution	●	●	●	●	
RS232 output	●	●	●	●	
Edge detecting			●	●	
Foot switch			●	●	
Display	LED	LED	LED	LCD	LED

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Standard Type Digital Readout

SW-3000 series

MODEL

- **SW3000-2   Two-axis digital readout**
- **SW3000-3   Three-axis digital readout**
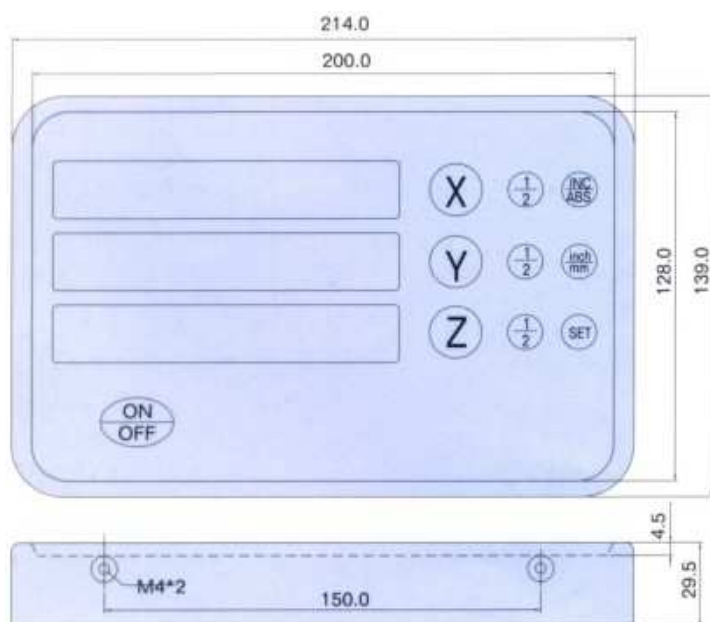
Hardware Specifications

1. Input voltage : DC 8V-30V , 0.08A
2. Linear scale settable resolution (mm) : 0.0001 , 0.0002 , 0.0005 , 0.001 , 0.002 , 0.005 , 0.01 , 0.02 , 0.05 , 0.1 , 0.2 , 0.5 , 1 , 5 , 10
3. Rotary encoder settable resolution (degrees) : 1 ~ 0.0001
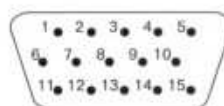4. Aluminum alloy body, excellent capability in EMS (2000V).

Software Functions

1. Zero setting.
2. 1/2 calculation, locate work piece center
3. mm/ inch conversion.
4. INC/ ABS conversion
5. Diameter/ Radius selection.
6. DIR: Setting the coordinate direction.
7. Error compensation:Linear compensation.
8. Instant power failure memory.
9. Self-diagnostic function for calculation error.
10. RS232 output.

STANDARD 15 PIN D-TYPE ASSIGNMENTS (F)
標準 15 PD 腳位圖(F)

NC:NO CONNECTION
FG:Frame Ground

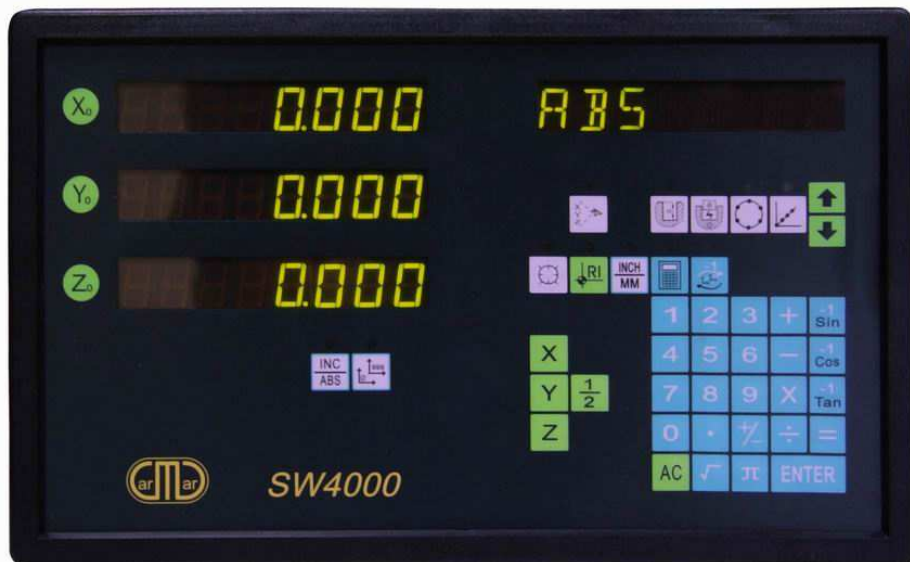| 1	2	3	4	5	6	7	8
+5V	0V	A	B	RI	FG	NC	NC
9	**10**	**11**	**12**	**13**	**14**	**15**	
NC	NC	NC	NC	NC	NC	NC	

UNIT: mm

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Machine Tool Type Digital Readout

SW-4000 series

SW4000 series multi-functional digital readout can be installed in all kinds of machine tools to supply the positioning and metrology functions.

MODEL

- **SW4000-2** Two-axis digital readout
- **SW4000-3** Three-axis digital readout
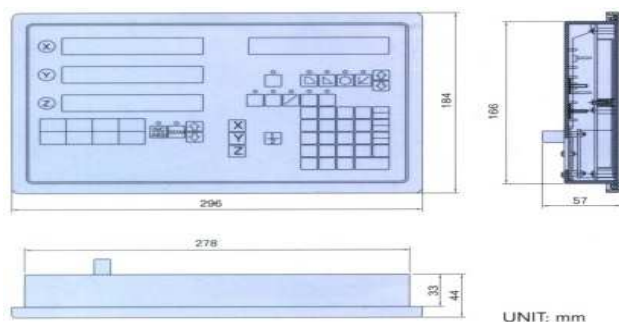- **SW4000-E** EDM designed digital readout

Hardware Specifications
1. Input voltage : AC 90V - 240V
2. Power consumption : Max. 15W
3. Dimension : 295mm x 185mm x 45mm
4. Weight : 1.45 kg
5. Linear scale signals : Orthogonal TTL square wave, frequency $<$ 2 MHZ, Current$>$1 mA
6. Resolution Selection: 0.1μm, 0.2μm, 0.5μm, 1μm, 2μm, 5μm, 10μm, 20μm, 50μm

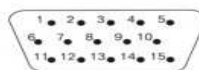| Software Functions |
|---|
| 1. Coordinate zero setting. |
| 2. ½ calculation to locate work piece center. |
| 3. ABS/ INC conversion, Diameter/ Radius selection. |
| 4. Shrink function. |
| 5. DIR: Setting the coordinate direction. |
| 6. RI detection: setting and recalling a datum for machining. |
| 7. Error compensation: linear compensation. |
| 8. ROTARY ENCODER:1$^\circ\sim$0.0001°. |
| 8. Instant power failure memory. |
| 9. Multiple machining functions: (1) Bolt Circle machining (2) R-angle (3) Divide holes on an oblique line (4) Machining on an oblique line |

Order number:

1. Arc machining , Ramp machining (SW4000-2, SW4000-3)

2. EDM machining (SW-4000-E)

3. Edge detecting, Lathe function (optional)

STANDARD 15 PIN D-TYPE ASSIGNMENTS (F)
標準 15 PD 腳位圖 (F)

NC:NO CONNECTION
FG:Frame Ground

1	2	3	4	5	6	7	8
+5V	0V	A	B	RI	FG	NC	NC
9	10	11	12	13	14	15	
NC	NC	NC	NC	NC	NC	NC	

UNIT: mm

Metrology Standard Type Digital Readout

DC-3000 series

DC-3000 is designed for digital linear scales of measuring system and the video measuring system. Its high efficient two dimensional data processing is available by connecting to optical comparator, the measuring microscope, video measuring system and so on.

MODEL

■ **DC-3000   Three-axis digital readout**
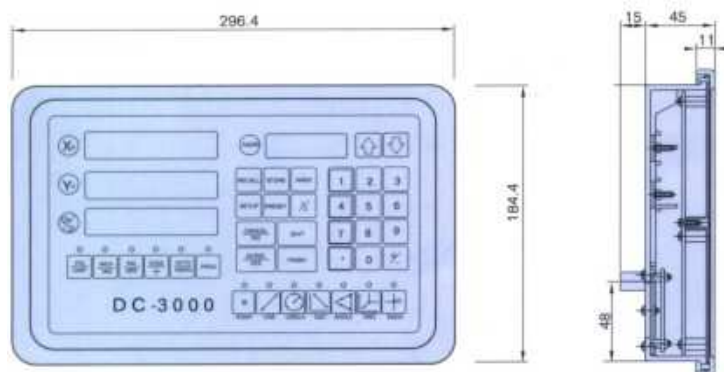
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Hardware Specifications

1. Input voltage : AC 90V - 240V
2. Power consumption : Max. 15W
3. Dimension : 295mm x 185mm x 68mm
4. Weight : 1.49 kg
5. Linear scale signals : Orthogonal TTL square wave, frequency < 2 MHZ,
   Current > 1 mA
6. Settable resolution : 0.1 μ m、0.2 μ m、0.5 μ m、1 μ m、2 μ m、5 μ m、10 μ m

Software Functions

1. Measure, preset and construct the graphic elements such as the point, line, circle, angle, distance, rectangle, thread and so on.
2. Conveniently axis skew and coordinate shift.
3. Quickly data getting by foot-switch and edge detector.
3. Print out user program, graphic elements and displayed three-axis coordinates.
4. Transfer current linear scale positions to PC by RS232.
5. Record the measuring steps and the measure the same work pieces in batch quantity.
6. Various coordinates displaying ways: Polar ,Cartesian, INC and ABS coordinates in Metric units or Imperial units.
7. Linear error correction and segmental linear error correction.
8. Connect with linear scale or rotary encoder with Z-axis.
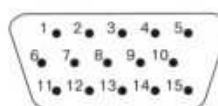9. Store 100 permanent graphic elements and 10 temporary graphic elements.

STANDARD 15 PIN D-TYPE ASSIGNMENTS (F)
標準 15 PD 腳位圖 (F)

NC:NO CONNECTION
13.14:Reserved Pins
FG:Frame Ground

1	2	3	4	5	6	7	8
+5V	0V	A	B	RI	FG	NC	NC
9	**10**	**11**	**12**	**13**	**14**	**15**	
NC	NC	NC	NC	NC	NC	NC	

UNIT : mm

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Metrology Enhanced Type Digital Readout

DC-5000 series

DC-5000 is the enhanced version of DC-3000 with large LCD monitor.

MODEL

■ **DC-5000**   **Three-axis digital readout**

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Features
1. 24-bits Counting ASIC with 4 m/second speed at 0.001mm resolution.
2. Systematic anti-jamming in power and signal can reach 2200V or above.
3. Recall the current position after power failing.
4. Show the user more information in one large LCD monitor.
Hardware Specifications
1. Input voltage : AC 90V - 240V
2. Power consumption : Max. 15W
3. Dimension : 295mm x 185mm x 68mm
4. Weight : 1.8 kg
5. Linear scale signals : Orthogonal TTL square wave, frequency $<$ 2 MHZ, Current$>$1 mA
6. Settable resolution : 0.1 μ m、0.2 μ m、0.5 μ m、1 μ m、2 μ m、5 μ m、10 μ m
Software Functions
1. Measure, preset and construct the graphic elements such as the point, line, circle, angle, distance, rectangle, thread and so on.
2. Conveniently axis skew and coordinate shift.
3. Quickly data getting by foot-switch and edge detector.
3. Print out user program, graphic elements and displayed three-axis coordinates.
4. Transfer current linear scale positions to PC by RS232.
5. Record the measuring steps and the measure the same work pieces in batch quantity.
6. Various coordinates displaying ways: Polar ,Cartesian, INC and ABS coordinates in Metric units or Imperial units.
7. Linear error correction and segmental linear error correction.
8. Connect with linear scale or rotary encoder with Z-axis.
9. Store 100 permanent graphic elements and 10 temporary graphic elements.

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Single Axis Type Digital Readout

WE-100 series

WE-100 series single axis digital readout is a general purpose readout for displaying the counting number for one axis signal.

Hardware Specifications
1. Input voltage : DC 7.5- 9V
2. Power consumption : $<$ 5W
3. Dimension : 104mm x 77mm x 35mm
4. Weight : 2.5 kg
5. Linear scale signals : Orthogonal TTL square wave
6. Resolution (mm) : 0.0005, 0.001, 0.005, 0.01, 0.1, 0.5

Software Functions
1. Zero setting.
2. Halving values to locate workpiece center.
3. mm/ inch conversion.
4. INC/ABS conversion.
5. Linear error correction and segmental linear error correction.

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Linear Scale Exchanger

USB-301 series

USB301 Linear scale exchanger is a novel linear scale counter. This exchanger supply the developer with the interfacial device between linear scales with PC by using interface USB driver. The engineers can develop their own Windows application software through the attached interface functions on the driver.

MODEL

■ USB-301   Three-axis exchanger

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Functions
• Plug and play.
• Supply the users with the interface functions for further applications.
• Powered by the USB interface without the need of external power.
• Independent 3-axis linear scale interface with 24 bits reversible counter.
• An external trigger to lock the counter on arbitrary single axis or simultaneous 3-asix.
• External locking trigger delay less than 20 micro-second.
• Counting up or down is adjustable.
• Polarity of A/B phase is selectable when searching RI signal.
• With digital filter to resist on external disturbance.
• Supply DLL function library for VC++ 6.0、Borland C++ and Builder 4.0/5.0 software developing platform.

Hardware Specifications	
Power Supply	+5V supplied by the USB interface without external power.
Power Consumption	Max 150mA/5V when not connected with the linear scales, the typical is 100mA/5V; Max 400mA/5V when connected with the linear scales.
Dimension	150mm x 128mm $\times$ 51mm（with pad） 150mm $\times$ 128mm $\times$ 45mm（without pad）
Requirements on linear scale	A,B,RI single signal input, orthogonal TTL square wave, frequency $<$ 1 MHz, signal current $>$ 1 mA, consumption $<$ 70mA/5V

Computer Configurations
Hardware : The mainboard supports the USB1.1 interface
Operating system : Windows XP and Windows 2000 　　　　　　　　(Chinese Simplified, Chinese Traditional & English are selectable)

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