

Digimatic Scale Units



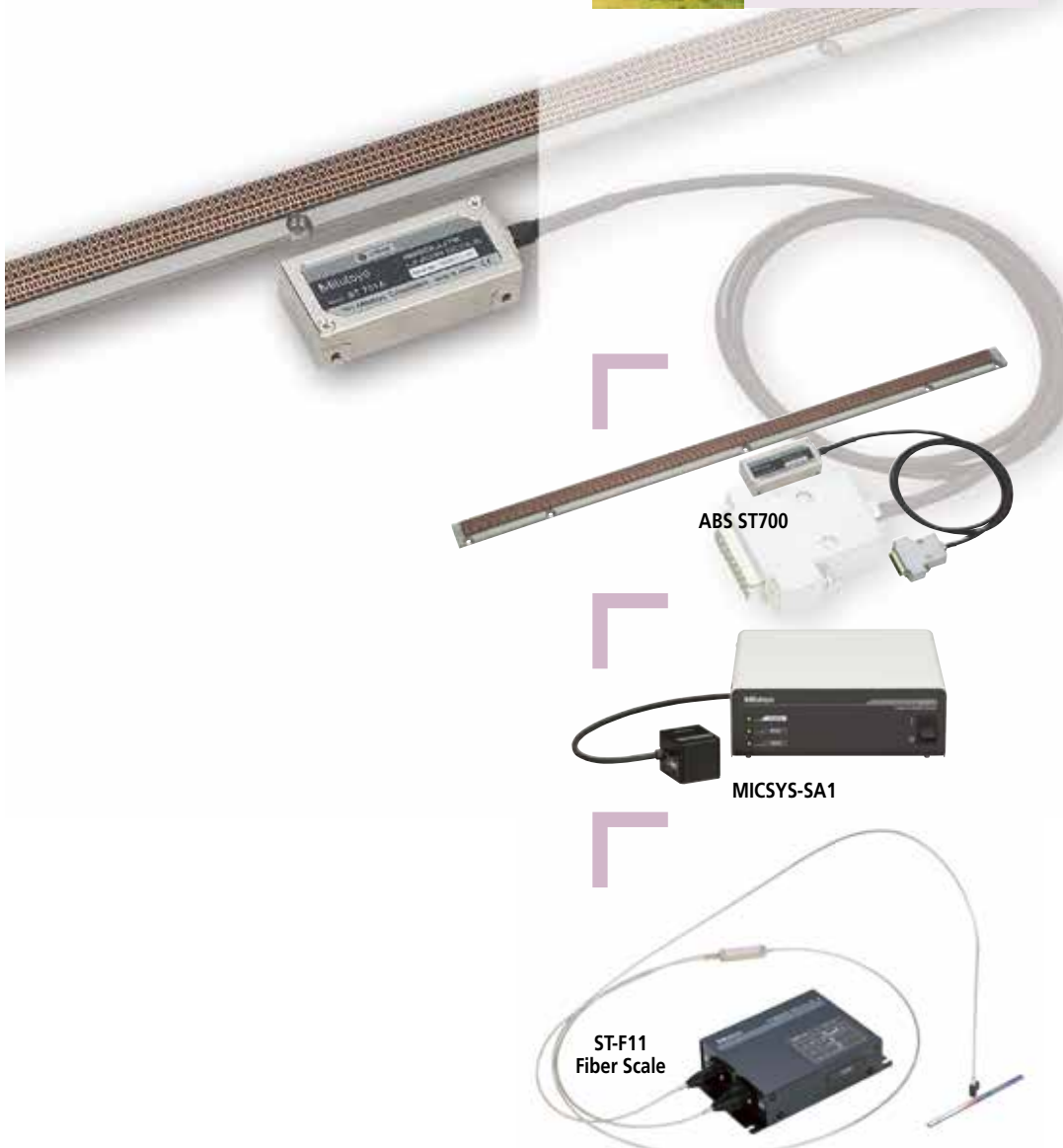
Linear Scales



2D Image Correlation Encoder

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ABS ST700

MICSYS-SA1

ST-F11
Fiber Scale



ABS AT500-S

ABS AT500-H

SD ABSOLUTE Digimatic Scale Units

SERIES 572

ABSOLUTE™



IP66

Horizontal single-function type (Water-proof type)
572-602 SD-20G



Horizontal single-function type
572-202-20 SD-20DX



Horizontal multi-function type
572-461 SD-15E



Vertical single-function type
572-303-10 SDV-30D

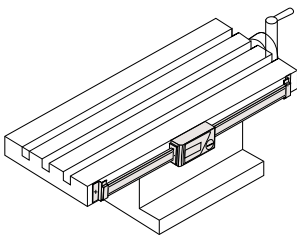


Vertical multi-function type
572-561 SDV-15E

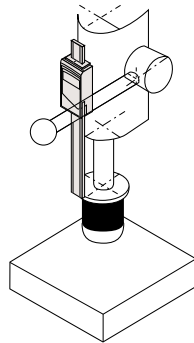
- SD series facilitates mounting on jigs, tools, and small machine tools to enable accurate positioning.
- Built-in absolute scale including the ABS point requires no zero-set every time the power is turned on. In addition, reliability has improved thanks to elimination of overspeed errors.
- Horizontal or vertical display according to the scale mounting direction.
- The dust resistance and the environmental resistance of the display has improved. The **SD-G** series offers dust/water protection level IP66.
- Long battery life for easier maintenance.
- **EC** counters are available as external display units.
- Equipped with an output port to transfer measurement data. This allows implementation in control systems and gaging systems.

Applications

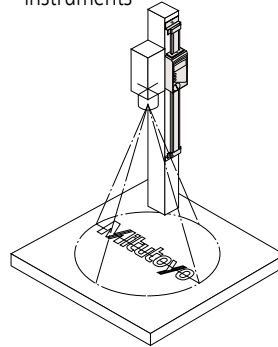
Machine table position



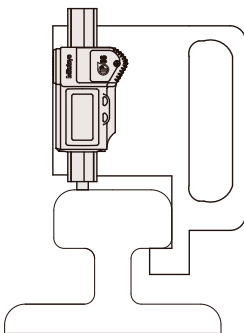
Drilling machine stroke position



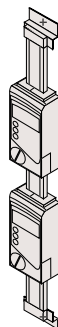
Focus setting on optical instruments



Special applications



As a measurement jig for outdoor use (SD-G)



Detector head mechanism

Functions

- **ABS** (Absolute) measurement function
 - **INC** (Incremental) measurement function
 - Zero-setting function
 - Presetting function (2 preset values can be set. Not available for **SD-G**, **SD-D**, **SDV-D**)
 - Double reading function (Available only for **SD-F** or **SDV-F**)
 - Direction switch function
Not available for **SD-G**, **SD-D**, **SDV-D**, **SD-F**, **SDV-F**
 - Hold function*
 - Measurement value composition error alarm
 - Low battery alarm
 - Output function
- * To activate the hold function when using **SD-D** or **SDV-D**, an optional hold unit is required. Simultaneous activation with the output function is not available. **SD-G** are also available to special order.
- * These units use 1.5V silver oxide cells for the power supply. Therefore, when the units are directly fixed to the frame of a machine tool that requires a high voltage, malfunction such as display digit fluctuations and errors may occur. The countermeasure examples are described in the user manuals provided.

Please contact Mitutoyo for other special orders.

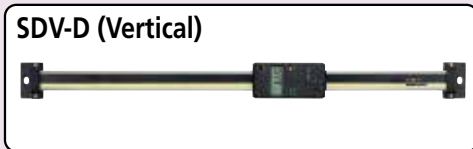
System Diagram

[Scale units]

Single-function type with high dust/water resistance



Single-function type



Multi-function type



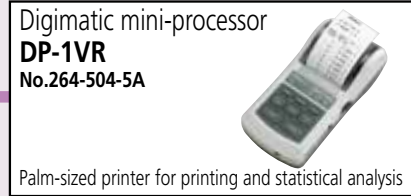
Multi-function type



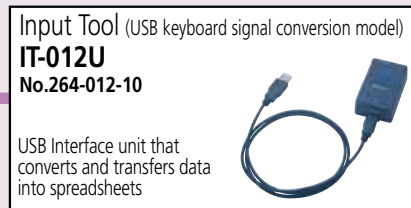
[Display units]



Tolerance judgment output^{*1}



RS-232C/USB output



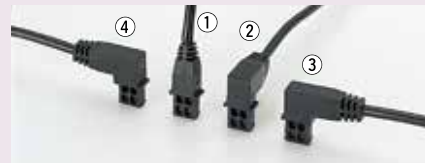
USB keyboard signal conversion

* Connection to an RS-232C conversion type (**IT-007R**) or a PS/2 keyboard signal conversion type (**IT-005D**) input tool is also available.

Connecting cable with the water-proof type output switch^{*2} 40"/1m : No.05CZA624
80"/2m : No.05CZA625

Connecting cable with the output switch 1m : No.959149
2m : No.959150

Connecting cable without the output switch



① 40"/1m : No.905338
80"/2m : No.905409

② 40"/1m : No.905689
80"/2m : No.905690

③ 40"/1m : No.905691
80"/2m : No.905692

④ 40"/1m : No.905693
80"/2m : No.905694

Connecting cable 40"/1m : No.936937
80"/2m : No.965014

- * 1: Select the tolerance judgment output or digimatic output when setting the parameters.
- * 2: Connecting cable with the water-proof type output switch can be used only for **SD-G** or Water-proof Digital Caliper **CD-15/20/30PM** equipped with external output function.
- * 3: Connecting of **SD** series and **DP-1VR/MIG-UUSB/IT-012U** is also available without passing through the EC counter.
In this case, connect these units and **SD** series with the cables used for the connection with the **EC** counter.

ABSOLUTE Digimatic Scale Units

SERIES 572

SPECIFICATIONS

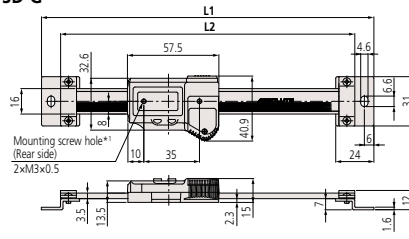
Type	Unit spec.	Order No.	Model	Range	Resolution	Accuracy	Repeatability	Battery life
Horizontal single-function type (Water-proof type)	Metric	572-600	SD-10G	0-100mm	0.01mm	0.03mm	Approx. 13000 hours	
		572-601	SD-15G	0-150mm				
		572-602	SD-20G	0-200mm				
	Inch/Metric	572-613	SD-4"/10G	0-4"/0-100mm	0.0005"/0.01mm	0.03mm/.001"		
		572-614	SD-6"/15G	0-6"/0-150mm				
572-615	SD-8"/20G	0-8"/0-200mm						
Horizontal single-function type	Metric	572-200-20	SD-10DX	0-100mm	0.01mm	0.03mm	Approx. 20000 hours	
		572-201-20	SD-15DX	0-150mm				
		572-202-20	SD-20DX	0-200mm				
		572-203-10	SD-30D	0-300mm				
	Inch/Metric	572-210-20	SD-4"DX	0-4"/0-100mm	0.0005"/0.01mm	0.03mm/.001"		
		572-211-20	SD-6"DX	0-6"/0-150mm				
		572-212-20	SD-8"DX	0-8"/0-200mm				
		572-213-10	SD-12"D	0-12"/0-300mm				
Horizontal multi-function type	Metric	572-460	SD-10E	0-100mm	0.01mm	0.03mm	Approx. 5000 hours	
		572-461	SD-15E	0-150mm				
		572-462	SD-20E	0-200mm				
		572-463	SD-30E	0-300mm				
		572-464	SD-45E	0-450mm				
		572-465	SD-60E	0-600mm				
		572-466	SD-80E	0-800mm				
	572-467	SD-100E	0-1000mm					
	Inch/Metric	572-470	SD-4"E	0-4"/0-100mm	0.0005"/0.01mm	0.03mm/.001"		
		572-471	SD-6"E	0-6"/0-150mm				
		572-472	SD-8"E	0-8"/0-200mm				
		572-473	SD-12"E	0-12"/0-300mm				
		572-474	SD-18"E	0-18"/0-450mm				
		572-475	SD-24"E	0-24"/0-600mm				
		572-476	SD-32"E	0-32"/0-800mm				
572-477		SD-40"E	0-40"/0-1000mm					
Horizontal multi-function type (equipped with double reading function)	Metric	572-480-10*	SD-10F	0-100mm	0.01mm	0.03mm	Approx. 5000 hours	
		572-481-10*	SD-15F	0-150mm				
		572-482-10*	SD-20F	0-200mm				
		572-483-10*	SD-30F	0-300mm				
		572-484-10*	SD-45F	0-450mm				
		572-485-10*	SD-60F	0-600mm				
		572-486-10*	SD-80F	0-800mm				
	572-487-10*	SD-100F	0-1000mm					
	Inch/Metric	572-490-10*	SD-4"F	0-4"/0-100mm	0.0005"/0.01mm	0.03mm/.001"		
		572-491-10*	SD-6"F	0-6"/0-150mm				
		572-492-10*	SD-8"F	0-8"/0-200mm				
		572-493-10*	SD-12"F	0-12"/0-300mm				
		572-494-10*	SD-18"F	0-18"/0-450mm				
		572-495-10*	SD-24"F	0-24"/0-600mm				
		572-496-10*	SD-32"F	0-32"/0-800mm				
572-497-10*		SD-40"F	0-40"/0-1000mm					
Vertical single-function type	Metric	572-300-10	SDV-10D	0-100mm	0.01mm	0.03mm	Approx. 20000 hours	
		572-301-10	SDV-15D	0-150mm				
		572-302-10	SDV-20D	0-200mm				
		572-303-10	SDV-30D	0-300mm				
	Inch/Metric	572-310-10	SD-4"D	0-4"/0-100mm	0.0005"/0.01mm	0.03mm/.001"		
		572-311-10	SD-6"D	0-6"/0-150mm				
		572-312-10	SD-8"D	0-8"/0-200mm				
572-313-10	SD-12"D	0-12"/0-300mm						
Vertical multi-function type	Metric	572-560	SDV-10E	0-100mm	0.01mm	0.03mm	Approx. 5000 hours	
		572-561	SDV-15E	0-150mm				
		572-562	SDV-20E	0-200mm				
		572-563	SDV-30E	0-300mm				
		572-564	SDV-45E	0-450mm				
		572-565	SDV-60E	0-600mm				
		572-566	SDV-80E	0-800mm				
	572-567	SDV-100E	0-1000mm					
	Inch/Metric	572-570	SDV-4"E	0-4"/0-100mm	0.0005"/0.01mm	.001"/0.03mm		
		572-571	SDV-6"E	0-6"/0-150mm				
		572-572	SDV-8"E	0-8"/0-200mm				
		572-573	SDV-12"E	0-12"/0-300mm				
		572-574	SDV-18"E	0-18"/0-450mm				
		572-575	SDV-24"E	0-24"/0-600mm				
		572-576	SDV-32"E	0-32"/0-800mm				
572-577		SDV-40"E	0-40"/0-1000mm					
Vertical multi-function type (equipped with double reading function)	Metric	572-580-10*	SDV-10F	0-100mm	0.01mm	0.03mm	Approx. 5000 hours	
		572-581-10*	SDV-15F	0-150mm				
		572-582-10*	SDV-20F	0-200mm				
		572-583-10*	SDV-30F	0-300mm				
		572-584-10*	SDV-45F	0-450mm				
		572-585-10*	SDV-60F	0-600mm				
		572-586-10*	SDV-80F	0-800mm				
	572-587-10*	SDV-100F	0-1000mm					
	Inch/Metric	572-590-10*	SDV-4"F	0-4"/0-100mm	0.0005"/0.01mm	.001"/0.03mm		
		572-591-10*	SDV-6"F	0-6"/0-150mm				
		572-592-10*	SDV-8"F	0-8"/0-200mm				
		572-593-10*	SDV-12"F	0-12"/0-300mm				
		572-594-10*	SDV-18"F	0-18"/0-450mm				
		572-595-10*	SDV-24"F	0-24"/0-600mm				
		572-596-10*	SDV-32"F	0-32"/0-800mm				
572-597-10*		SDV-40"F	0-40"/0-1000mm					

* Available to special order
Note: Response speed is unlimited

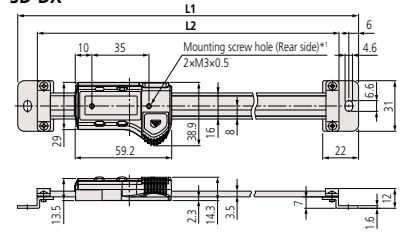
DIMENSIONS

Unit: mm

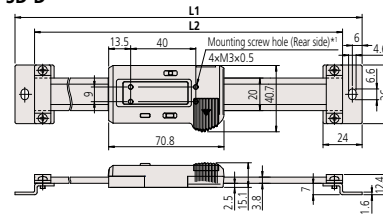
SD-G



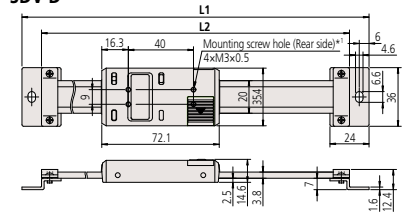
SD-DX



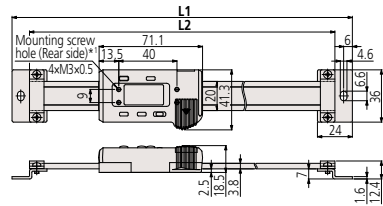
SD-D



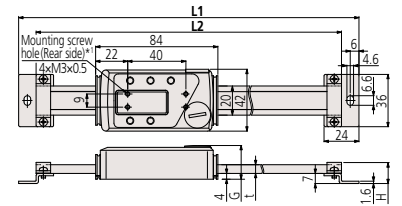
SDV-D



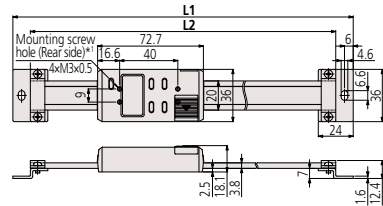
SD-E (to 300mm) / SD-F (to 300mm)



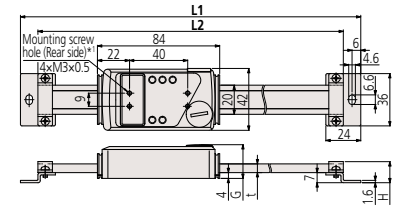
SD-E (450 to 1000mm) / SD-F (450 to 1000mm)



SDV-E (to 300mm) / SDV-F (to 300mm)



SDV-E (450 to 1000mm) / SDV-F (450 to 1000mm)



*1: Refer to the dimension table for details of the depth including the screw on the rear of the display.

SPECIFICATIONS

Model	Range (mm)	Dimensions(mm)					Depth including the screw on the rear of the display	Mass (g)
		L1	L2	t	G	H		
SD-G	100	209	185	—	—	—	Less than 2mm	390
	150	259	235	—	—	—		410
	200	311	287	—	—	—		430
SD-DX	100	209	185	—	—	—		230
	150	259	235	—	—	—		250
	200	311	287	—	—	—		270
SD-30D	300	444	420	—	—	—		370
SD-E SD-F	100	244	220	—	—	—		250
	150	294	270	—	—	—		280
	200	344	320	—	—	—		310
	300	444	420	—	—	—	370	
	450	594	570	6	23.2	14.6	760	
	600	774	750	10	27.2	18.6	900	
	800	974	950	10	27.2	18.6	1710	
SDV-D	1000	1174	1150	10	27.2	18.6	2040	
	100	244	220	—	—	—	Less than 2mm	250
	150	294	270	—	—	—		280
	200	344	320	—	—	—		310
300	444	420	—	—	—	370		
SDV-E SDV-F	100	244	220	—	—	—		250
	150	294	270	—	—	—		280
	200	344	320	—	—	—		310
	300	444	420	—	—	—		370
	450	594	570	6	23.2	14.6		760
	600	774	750	10	27.2	18.6		900
	800	974	950	10	27.2	18.6	1710	
1000	1174	1150	10	27.2	18.6	2040		

Quill Kit with ABSOLUTE Encoder

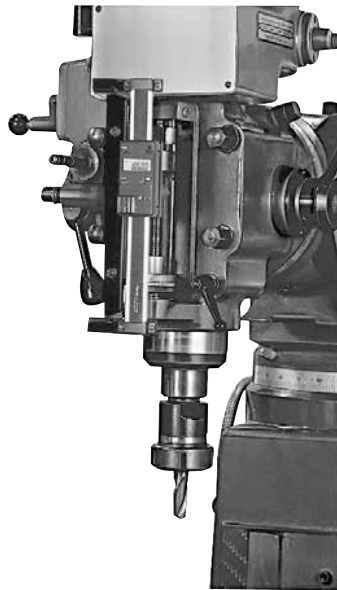
Easy Installation Fits Most Vertical Knee Mills

FEATURES

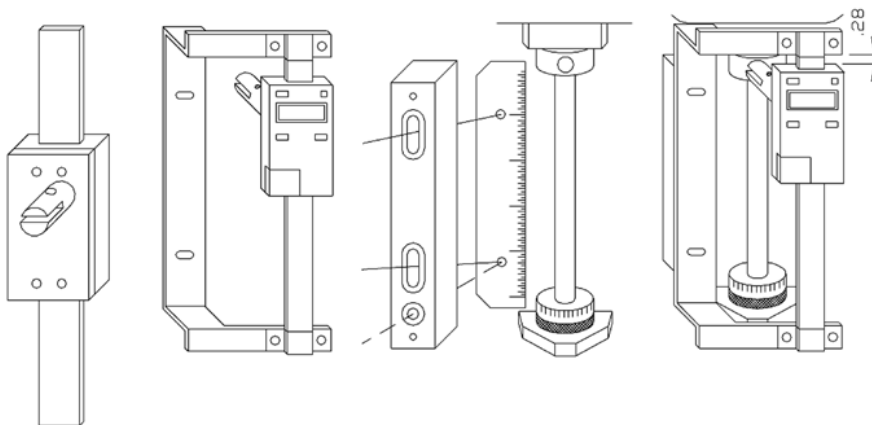
- Easy to read LCD with resolution of .0005"/0.01mm. 0 -5" Travel inch/mm
- Push button controls for inch/mm, Zero-Set and On/Off.
- Powered by a single SR-44 Battery which lasts about 1 year with normal use.
- SPC Output for data transmission to Data Processors or a Remote Display.

SPECIFICATIONS

Order No.	Description
053906B	Digimatic Quill Kit complete with brackets & scale for Bridgeport Type machines.



The Mitutoyo Quill Kit mounted on a vertical mill.



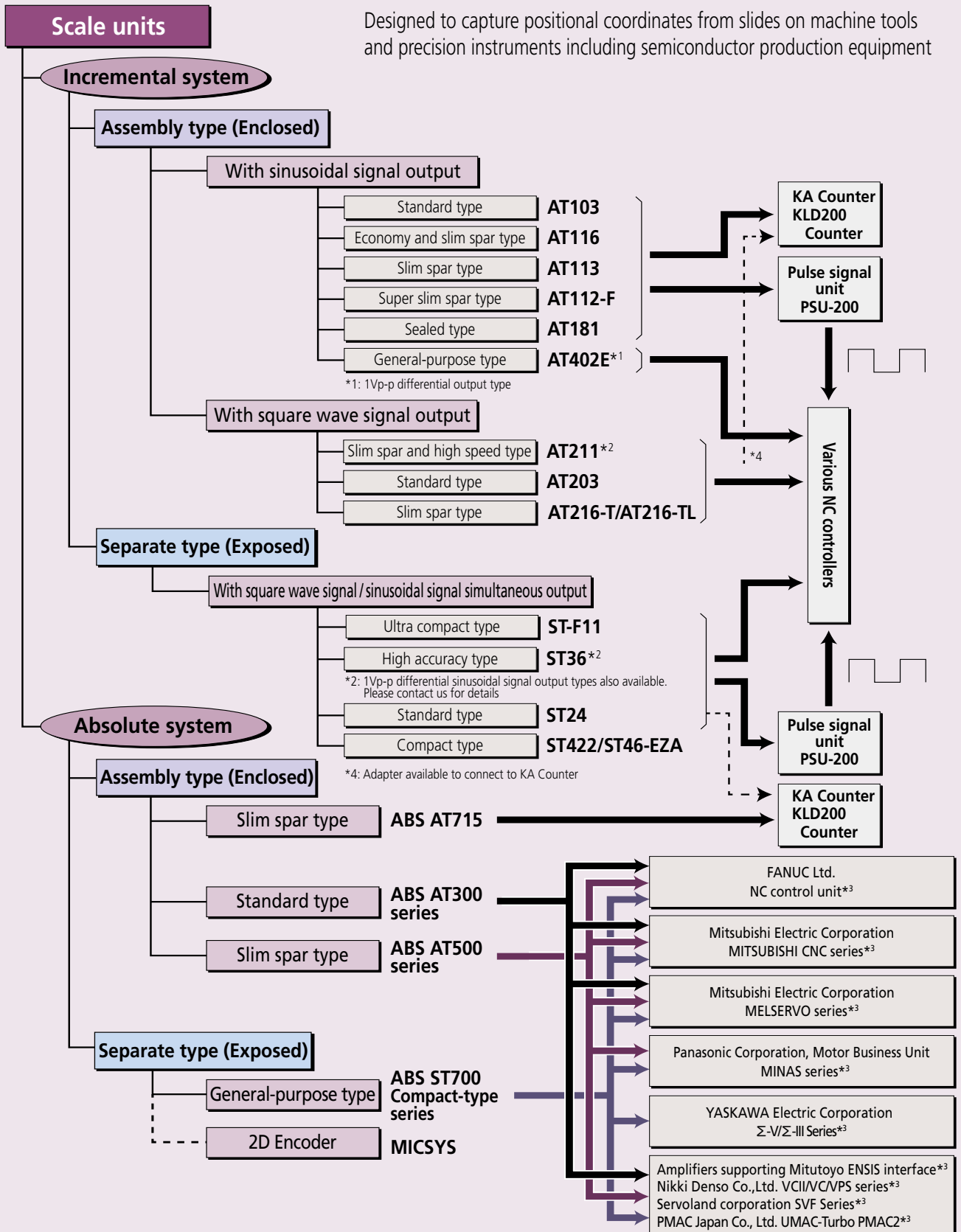
Optional Accessories

- 905338: SPC cable (40" / 1m standard)
- 905409: SPC cable (80" / 2m standard)
- 264-504-5A: DP-1VR data processor, 120V AC
- 02AZD810D: U-Wave-R (wireless receiver)
- 02AZD730D: U-Wave-T/IP67 type (wireless transmitter)
- 02AZD790F: U-Wave connecting cable F
- 02AZE200: U-Wave-T installation brackets kit

Linear Scales

Linear Scale System Diagram

Designed to capture positional coordinates from slides on machine tools and precision instruments including semiconductor production equipment



KA Counter

SERIES 174 — Standard Type



174-173A
KA-12

- High performance, low cost 2 or 3 axis counter.
- The KA counter has both mill and lathe functions, as well as standard functions.
- RS-232 interface (optional) is available as an external interface.
- Now lighter and takes less space.
- Bright, crisp LED display responds extremely fast.

SPECIFICATIONS

Order No.	174-173A	174-175A
Model	KA-12*1	KA-13
Number of axes to be displayed	1 axis/ 2 axes*1	3 axes
Resolution	(Changeable according to the parameter) When AT100 series is connected: 0.05 to 0.0001mm*2 When AT715 is connected: 0.01 to 0.001mm	
Display	7-segment LCD/ 7 digit	
Power supply voltage	120V AC, 60Hz	
Dimensions	10.3" (W)×3.2" (D)×6.7" (H) / 260 (W)×80 (D)×168 (H) mm	
Output (optional)	RS-232C	
Mass	2.76 lb. / 1.25kg	2.93 lb. / 1.33kg

*1: **KA-12** is available for 1 axis/ 2 axes. The Y-axis can be turned off

*2: Count range when the minimum reading is 0.0005mm/0.0001mm: 9999.99999 to -999.99999

Optional Accessories

- 09CAB217** RS-232C Code out unit
- 12AAA882** RS-232C CONNECTING CABLE
- 64AAB336** RS-232C Footswitch (use w/09CAB217)
- 06ACF941** EXTERNAL CABLE
- 965004** RS-232C EXT. LOAD FOOT SWITCH (use w/ 06ACF941)
- 936553** External Zero Box (use w/ 06ACF941)
- 937328** External Load Box (use w/ 06ACF941)
- 264-504-5A** DP-1VR, 120V AC
- 09EAA094** RS-232C CONNECTING CABLE TO DP-1VR
- 06ACB391** Adapter cable for connecting AT211, AT202, AT212
- 06ACB392** Adapter cable for connecting exposed linear scales such as ST46EZA, etc .
- 06ACB393** Adapter cable for connecting Linear Gages with origin point (542 series)
- 06ACB913** Adapter cable for connecting Linear Gages without origin point (542 series)

KLD200 Counter

SERIES 174 — Special Purpose Type with Limit Signal Output



174-147A
KLD-214

- Counter designed to signal when a linear scale displacement value and a preset limit value coincide.
- Two types of limit settings are available: 2-step (**KLD-212**) and 4-step (**KLD-214**).

SPECIFICATIONS

Order No.	174-146A	174-147A
Model	KLD-212	KLD-214
Number of axes to be displayed	1 axis	
Number of limit values to be set	2	4
Resolution	(Changeable according to the parameter) When AT100 series is connected: 0.05 to 0.0001mm When AT715 is connected: 0.01 to 0.001mm	
Output	RS-232C (provided as standard)	
Display	7-segment LCD/ 7 digit*1	
Power supply voltage	120V AC, 60Hz	
Power consumption	25 VA	
Operating temperature/ humidity range	0 to 45°C/ 20 to 80%	
Dimensions	13.1" (W)×6.42" (D)×8.1" (H) / 332 (W)×163 (D)×204 (H) mm	
Mass	6.62 lb. / 3.0kg	6.84 lb. / 3.1kg

*1: Count range when the minimum reading is 0.001mm: 99999.999 to -9999.999
Count range when the minimum reading is 0.005mm: 99999.995 to -9999.995

Optional Accessories

- External zero-set box (1 axis): **No.936551**
- External load box (1 axis, for the RS-232C output): **No.937326**