



İMAJ TEKNİK
ELEKTRİK ELEKTRONİK MALZ. SAN. VE TİC. LTD. ŞTİ



SONY

LASERSCALE™

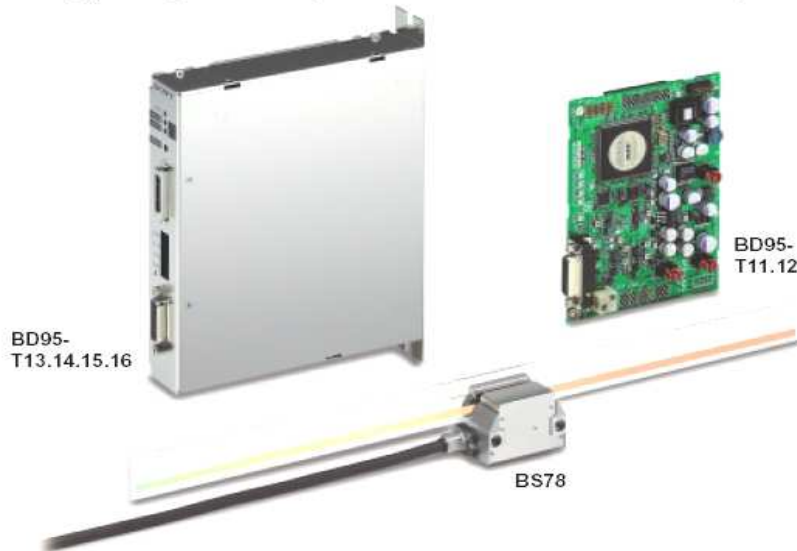
Scale Unit

BS78

Interpolator

BD95-T11.12.13.14.15.16

Compact LASERSCALE with a zero point boosting a resolution of 0.14nm
Capable of high accuracy and high speed measuring
supporting the next generation semiconductor design rule.



BD95-
T13.14.15.16

BD95-
T11.12

BS78

Scale unit BS78

High-resolution scale with signal wavelength of 0.1379 μm that out-performs light wave interferometer systems

High stability that is not affected by humidity, air pressure, and air disturbances

Newly designed optics used in zero point
Half in volume with zero point comparing to previous model

Zero point accuracy $\pm 0.1\mu\text{m}$

Accuracy: $\pm 0.04\mu\text{m}$ or better (for a measuring of 40 mm.)

Complete non-contact design
Return error is theoretically eliminated

Measuring length: 40 to 420mm covered by 9 models (-R/-RS)
10 to 420mm covered by 10 models (-N/-NS)

Please consult our sales for vacuum environment application and / or magnetism free application.

Interpolator BD95-T11.12.13.14.15.16

A single-chip IC and newly designed circuitry

High resolution: 0.14nm

High response speed: 400mm/s

DC offset, gain, phase automatic conditioning

AB quadrature output (T13, T14, T15, T16)

32 bit binary output with clock synchronized (T11)

32 bit binary output by data request input (T12, T14, T16)



These products are manufactured at our Isehara Plant that is certified to ISO9001 Quality Management System and ISO14001 Environmental Management System.

*Designs and appearances are subject to change without prior notice.

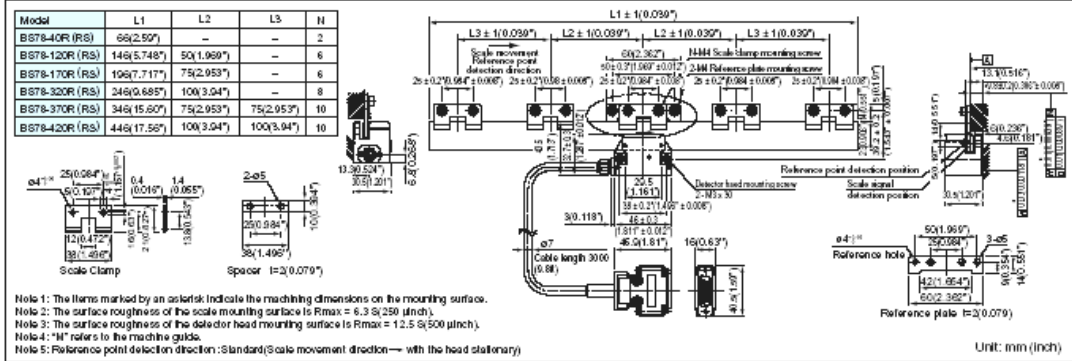
Sony Precision Technology Inc.

BS78	
Measuring length	10(NNS),40,70,120,170,220,270,320,370,420mm / 0.39"(NNS),1.57",2.75",4.72",6.69",8.66",10.62",12.59",14.56",16.53"
Overall length	58mm / 2.28"(Measuring length 10mm/0.39") Measuring length + 25mm / 1.02"(Measuring length 40mm / 1.57 to 420mm / 16.53")
Max. travel length	Measuring length + 2mm / 0.07"(Measuring length 10mm / 0.39") Measuring length + 10mm / 0.39"(Measuring length 40mm / 1.57 to 420mm / 16.53")
Accuracy	NS type, RS type
	N type, R type
Reference point accuracy	± 0.1µm (Only R / RS type)
Return error	In principle, No Return error. Regard it as 2 counts or less, of resolution of connecting detector
Repeatability	In principle, No error. Regard it as 1 count or less, of resolution of connecting detector
Temperature coefficient	-0.7 × 10 ⁻⁶ / °C
Light source	Semiconductor laser
Radiation power	DHHS class 1
Detection type	Diffraction grating scan type
Operating temperature	+10 to +30 °C (No condensation)
Storage temperature	-10 to +50 °C (humidity less than 60%)
Weight (kg / lbs)	0.4 / 0.4 / 0.41 / 0.42 / 0.43 / 0.44 / 0.45 / 0.46 / 0.47 / 0.48 (0.88 / 0.88 / 0.9 / 0.92 / 0.94 / 0.97 / 0.99 / 1.01 / 1.03 / 1.05)

Model Names : The model name indicates the measuring length and scale type.
Example : BS78-220N

Measuring length ↑

N : Normal type without reference point
NS : High-precision type without reference point
R : Normal type with reference point
RS : High-precision type with reference point



BD95		BD95-T11	BD95-T12	BD95-T13	BD95-T14	BD95-T15	BD95-T16
Resolution		Approx. 0.14 nm		Approx. 34.5 nm (4 divisions) or approx. 17.2 nm (8 divisions)		Approx. 17.2 nm (8 divisions) or approx. 8.6 nm (16 divisions)	
Max. response speed		400 mm/s		400 mm/s (with 4 divisions) 275 mm/s (with 8 divisions)		275 mm/s (with 8 divisions) 120 mm/s (with 16 divisions)	
Output signal		32-bit binary data (LSD0 to LSD31) Reference point signal (REF) LASERSCALE signal (SIN/COS) Scale data updating signal (CLKOUT) Error and alarm signals (ERROR, SPALM, LVALM)	32-bit binary data (LSD0 to LSD31) Reference point signal (REF) LASERSCALE signal (SIN/COS) Error and alarm signals (ERROR, SPALM, LVALM) Data ready signal (READY)	AB quadrature 1 with / without pitch compensation (compliant with EIA-422) AB quadrature 2 without pitch compensation (compliant with EIA-422) Alarm (compliant with EIA-422)		LASERSCALE signal (SIN/COS) 32-bit binary data (-T14, -T16 only)	
Input signal		Scale data zero clear signal (LSDCLR) Scale data reference point zero clear (REFCLR) Clear error/alarm signal (ALMCLR) Reset signal (RESET)	Scale data zero clear signal (LSDCLR) Scale reference point data zero clear (REFCLR) Clear error/alarm signal (ALMCLR) Reset signal (RESET) Data request signal (DRQ)	Max. response speed exceeded Low laser signal level (cable broken or disconnected) LEDs (Turn on independently for speed alarm and level alarm) Output signal: Output when either a speed or level alarm occurs. Switching between automatic reset and holding is possible		DC offset, Amplitude level, Phase Frequencies allowing compensation update: Input signals of 180 kHz or less	
Alarm		Max. response speed exceeded Low laser signal level (cable broken or disconnected) When one of the above states occurs, the signal turns to "Low" and LED turns on. (After removing the cause of alarm, the clear input turn alarm signal "High" and turns off LED.)		AB quadrature 1 only A round-off error of 1 resolution occurs.		DC + 24V ± 1V	
Reset		Turning power off and on again, external reset input, or reset switch		Consumption current (when scale is connected)		400 mA (maximum)	
LED indicators		On when power is supplied (green) On when passing reference point (yellow) On when speed alarm occurs (red) On when level alarm occurs (red)		Operating temperature		0°C to 50°C / 32°F to 122°F	
Input signal compensation (On/Off switching is possible)		DC offset, amplitude, phase Frequencies allowing compensation update: Input signals of 50 kHz or less		Storage temperature		-10°C to 60°C / 14°F to 140°F	
Power supply		DC + 5V ± 5% DC + 9V ± 5% DC - 9V ± 5%		Dimensions		172(W)x144(D)x32(H)mm/6.77(W)x5.68(D)x0.25(H)	
Consumption current (when scale is connected)		+5V:0.3A +9V:0.5A -9V:0.2A		Weight		Approx. 0.8 kg / Approx. 1.76 lbs	
Operating temperature		0°C to 40°C / 32°F to 104°F					
Storage temperature		-10°C to 50°C / 14°F to 122°F					
Dimensions		135.0 (W)x98.0 (D)x23.5 (H) mm/5.31(W)x3.85(D)x0.92(H)					
Weight		Approx. 0.2 kg					

*This product uses semiconductor laser (wave length 790nm). It is harmful to the human body through laser beam. Do not look into detecting head.
*When using BD detector with equipment governed by CE Marking or FCC Rules, measures should be taken to ensure conformance with these regulations.



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