

**SOKKIA**

# NET 1200

## 3-D STATION

for 3-D COORDINATE MEASURING SYSTEM **MONMOS**

**The all-new 3-D station opens up a new dimension of precision, range and speed for large structure 3-D measurement.**

**The NET1200 can measure large structures such as ships, tunnels, buildings, bridges, domes, and other large objects in 0.1mm resolutions. Building on its excellent past success the new NET1200 is ready to meet the new challenges of the new century.**

**MONMOS**

3-D STATION NET1200

# Ultra-high performance 3-D

**NET1200 incorporates a new ultra-high performance EDM and reliable absolute encoders. Sokkia has established new standards in all areas - precision, range, speed, ease of operation, mobility and weather-resistance.**

## One-second precision

NET1200 employs original absolute encoders with new algorithms. One-arc-second angle accuracy is equal to 0.5mm (0.02in.) at 100m (330ft.) and 1mm (0.04in.) at 200m (650ft.). By minimizing the angle measurement error, total accuracy of 3-D coordinates has been remarkably improved.

## Ultra-high performance EDM broadens the boundaries of 3-D measurement

Sokkia has developed a new EDM with state-of-the-art digital signal processing and sophisticated optical technologies. It outperforms its predecessors in all fields such as range, speed and precision.

### Higher precision and longer range with reflective sheet targets

The distance accuracy of the NET1200 is  $\pm(0.6 + 2\text{ppm} \times D)\text{mm}$  which is equal to  $\pm 0.8\text{mm}$  (0.03in.) at 100m (330ft.) and  $\pm 1\text{mm}$  (0.04in.) at 200m (650ft.). By using a 50x50mm target, the measuring range has been doubled to 200m (650ft.), which enables 3-D measurement of larger objects. Thanks to this new EDM, the need to constantly relocate the instrument point is reduced, and therefore total precision of 3-D measurement is improved.

### Reflectorless measurement capability

NET1200 incorporates the reflectorless measurement function to measure objects without using any target. So now even points where a target cannot be manually affixed can still be measured. The visible red laser beam enhances the scope of the NET1200 further. Being ultra-narrow it can measure with pinpoint accuracy those points whose complex or convoluted situation had previously hampered accurate measurement. The measuring range is 40m (130ft.) with white surfaces (90% reflective) and accuracy is exceptionally high at  $\pm(1 + 2\text{ppm} \times D)\text{mm}$  - equal to 1.08mm (0.04in.) at 40m (130ft.).

### Long range measurement with prisms

With the Sokkia's AP surveying prism, NET1200 measures up to 2,000m (6,500ft.) with  $\pm(2 + 2\text{ppm} \times D)\text{mm}$  precision. CPS12 high precision prism provides  $\pm(1 + 2\text{ppm} \times D)\text{mm}$  accuracy up to 350m (1,140ft.).

### High-speed measurement

With the reflective sheet or reflectorless, distance is measured every 0.9 seconds (initial 4.8s).



## Ideal telescope

The telescope of NET1200 provides an image unrivalled in both brightness and sharpness. By re-designing the optics and mechanics, the telescope has been made smaller allowing operators wearing hard hats to perform sighting with greater comfort and ease.

## Laser-pointer and target illumination functions for easy aiming

These two new functions greatly facilitate operation in the field.

### Laser-pointer function

The EDM beam is also used as a convenient laser pointer for pinpointing the measuring point. This function also boosts the efficiency of setting-out tasks under considerably low light conditions such as inside a factory building.

### Target illumination

A white LED is built into the upper part of the telescope section. This LED illuminates the direction in which the telescope is aimed allowing the operator to easily sight a target at long range even in poor light. You can select "on" or "blinking", and the brightness can be adjusted to suit the environmental conditions.



# station NET1200



NET1200  
3-D Station



SDR4000  
Control Terminal



## MONMOS

### Weather-proof compact body

Thanks to its superior IP66 structure, the NET1200 can be relied upon even in rain, on dusty worksites, and in other harsh working environments. And moreover, what with the new compact body weighing only a mere 5.5kg (12.1 lb.), the unit is much more portable.

### All-in-one carrying case



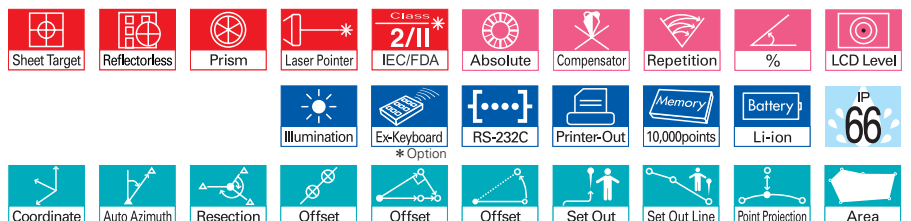
The standard carrying case can hold the SDR4000/4E/4C control terminal in addition to all the standard accessories such as batteries, chargers, operator's manual, and more.

### Long-life detachable battery

One Li-Ion detachable battery supplies power for approx. 6 hours of continuous operation. Two batteries, which provide enough power for one full day of work, are equipped as standard. Recharging time is under 2 hours per battery with the quick charger - included as a standard accessory.

### Operation via control terminal for maximum precision

If the control terminal SDR4000 is connected to NET1200, all operations, with the exception of target sighting, can be performed with the SDR4000. Once the object has been sighted the operator does not have to touch the NET1200 at all so giving the greatest possible precision.



# NET 1200 SPECIFICATIONS

<b>Telescope</b>		Fully transiting, coaxial sighting and distance measurement optics. Length: 171mm (6.7in.), Objective aperture: 45mm (1.8in.) (EDM: 48mm (1.9in.)), Magnification: 30x, Resolving power: 2.5" or better, Image: Erect, Field of view: 1°30' (26m/1,000m), Minimum focus: 1.3m (4.3ft.), Reticle illumination: 5 brightness levels
<b>Angle measurement</b>		Photoelectrical absolute encoder scanning. Both circles adopt diametrical detection.
Unit (selectable)		Degree / Gon / Mil
Display resolutions (selectable)		0.5" / 1", 0.1 / 0.2mgon, 0.002 / 0.005mil
Accuracy (ISO/DIN 12857-2:1997)		1" / 0.3mgon / 0.005mil
Measuring time		0.5s or less, continuous
Measurement mode	H V	Clockwise / Counterclockwise, selectable. 0 set, Hold, Angle input, Repetition, available. Zenith 0 / Horizontal 0 / Horizontal 0 ± / Slope in %, selectable.
Automatic dual-axis compensator		Dual-axis liquid tilt sensor. Working range: ±3' (±55mgon)
Collimation compensation		On / Off selectable
Fine motion screws		Fine / Coarse 2-speed motion
<b>Distance measurement</b>		Modulated laser, phase comparison method with red laser diode, coaxial optics
Measuring range	With reflective sheet (slope distance)	1.3 to 200m (4.3 to 650ft.) (using 50x50mm sheet)
	Reflectorless*1	1.3 to 40m (4.3 to 130ft.)
	With CPS12 prism	1.3 to 350m (4.3 to 1,140ft.) (under good conditions*2)
	With 1 AP prism	1.3 to 2,000m (4.3 to 6,500ft.) (under good conditions*2)
Display resolutions	Fine mode (selectable)	0.0001m / 0.1mm / 0.001ft. / 0.01in.
	Tracking mode	0.001m / 1mm / 0.01ft. / 0.1in.
Accuracy	With reflective sheet (D=measuring distance, unit: mm)	±(0.6 + 2ppm x D)mm
	Reflectorless*1	±(1 + 2ppm x D)mm
	With CPS12 prism	±(1 + 2ppm x D)mm (4 to 350m) , ±(5 + 2ppm x D)mm (1.3 to 4m)
	With 1 AP prism	±(2 + 2ppm x D)mm (4 to 2,000m) , ±(5 + 2ppm x D)mm (1.3 to 4m)
Measuring time	Fine mode Tracking mode	With reflective sheet or reflectorless: Every 0.9s (initial 4.8s), With prism: every 1.0s (initial 5.2s) Every 0.3s (initial 1.6s)
Measuring mode (selectable)		Fine (single / repeat / average), Tracking
Atmospheric correction / Prism constant correction		Temperature, pressure, ppm input available / -99.9 to +99.9mm (0.1mm steps), 0 fixed in reflectorless mode
Refraction & earth-curvature correction		On (K=0.142 / 0.20) / Off, selectable
Laser output		Reflective sheet / prism mode: Class I/I equivalent (max. 0.22mW) Reflectorless mode: Class 2/II equivalent (max. 0.99mW)
<b>Data storage and transfer</b>		
Internal memory		About 10,000 points
Scale factor setting		0.5 to 2.0
Interface		Asynchronous serial, RS-232C compatible, baud rate: 1,200 to 38,400 bps
Printer output		Centronics compatible (w/optional DOC46 printer cable)
<b>General</b>		
Laser-pointer function		On / Off, selectable
Target illumination		White LED, Blink / On / Off, selectable, Brightness selection available
Display		Alphanumeric/graphic dot matrix LCD, 192 x 80 dots, w/backlight, w/contrast adjustment, on both faces
Keyboard		4 soft keys and 11 keys on both faces
SF14 Wireless keyboard		Optional
Sensitivity of levels		Plate level: 20"/2mm, Circular level: 10"/2mm, Graphic LCD: 3"/outer circle
Optical plummet		Image: Erect, Magnification: 7x, Minimum focus: 0.3m (0.98ft.)
Tribrach		Detachable
Dust and water resistance / Operating temperature		Conforms to IP66 (IEC 60529:1989) / -10 to +50°C (+14 to +122° F)
Instrument height / Size with handle and battery		236mm (9.3in.) from tribrach bottom / W 165 x D 171 x H 341 mm (W 6.5 x D 6.7 x H 13.5 in.)
Weight with handle and battery		Approx. 5.5kg (12.1 lb.)
<b>Power supply</b>		7.2V DC
BDC46A detachable battery		Li-Ion rechargeable battery, 2 BDC46A are included as standard accessories.
	Continuous use per battery	About 6 hours (single measurement every 30 seconds at 25°C (77° F)), (laser-pointer and target illumination off)
	Recharging time per battery	Less than 2 hours with CDC61/62/64
BDC12 external Ni-Cd battery(Option)		Continuous use about 22.5 hours (single measurement every 30 seconds at 25°C (77° F))
Automatic power cut-off		Auto-off time is selectable from 30, 15, 10, 5 minutes or none.

\*1 With white side of a KODAK Gray Card (90% reflective), brightness 5,000lx or less.

Range and/or accuracy may be varied according to measuring objects, observation situations and environmental conditions.

\*2 No haze, visibility about 40km (25 miles), overcast, no scintillation.

## Standard accessories

BDC46A Li-Ion rechargeable battery x 2, CDC61/62/64 quick charger, Lens hood, Lens cap, Tool kit, Wiping cloth, Operator's manual, Carrying case, Shoulder strap



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