

# SOKKIA

# DXseries

Direct Aiming X-ellence Station

## Entry level Motor Drive Total Station with incredible features.

Auto Tracking  
**Upgradable**



- Auto Tracking Function\*
- Superior Auto Pointing "Direct Aiming Technology"
- Advanced Angle Measurement System
- RED-tech Technology Reflectorless EDM
- LongRange Data Communication
- Dust and Water Protection IP65
- MAGNET™ Field On-Board Application Software
- TSshield™ Advanced Security and Maintenance

\* Auto-Tracking function can be added by Upgrade Kit.

# Entry level Motor Drive Total Station



## Auto-tracking function enhances your productivity and efficiency dramatically

The DX series locks and searches prism constantly, under the smooth control of one person at rover side. The instrument automatically focuses on the target, eliminating manual focusing adjustment, thus increasing measurement speed and enhancing productivity.



### Upgrade Kit

The DX series can be upgraded with USB Upgrade Kit to add Auto Tracking capability.

## New Auto Pointing "Direct Aiming Technology"



**Direct Aiming**

The DX series employed "Direct Aiming Technology" featuring a new intelligent algorithm that automatically aims to the prisms with precisely corrected angle readings. The technology works even in dim or dark conditions where the prism is difficult to be found. Whatever the job requires and wherever operators must go, the DX makes your job done easier and faster still maintaining the accuracy.

## RED-tech Technology Reflectorless EDM

- Reflectorless operation from 30cm to 1,000m\*.
- SOKKIA's traditional pinpoint precision in reflectorless distance measurement.



- Fast distance measurement of 0.9s.
- Coaxial EDM beam and laser-pointer provide fast and accurate aiming.
- Ensures accuracy even with reflective sheets.

\*With Kodak Gray Card white side (90% reflective). Brightness level at object surface:  $\approx 500$  lx.

## Remarkable differences in productivity

### TOPO



Auto tracking function the DX series of improves workflow of one-person TOPO survey drastically. You just hold prism pole and data collector and make swift, uncomplicated survey on numerous points; the steps necessary to complete the job are decreased by more than 30 percent as illustrated below.

#### DX series Auto Tracking

Measure Record

1/3 the step!

#### Manual Total Station

Rough Aiming Focus Horizontal Motion Vertical Motion Measure Record

### Stake-out



The DX series Auto Tracking Feature also brings advantages for one-man stake-out survey. Simply by moving the data collector, you'll be able to find the stake-out points easily and quickly, thus ensuring high productivity and accuracy for your stake out jobs. The difference in productivity can be clearly seen in the chart below.



#### DX series Auto Tracking

Travelling of Prism (Auto-Tracking + Navigation) Measure Stake-Out

Enhance productivity drastically!

#### Manual Total Station

1 Turn the instrument to measurement point  
2 Travelling of Prism  
3 Rough Aiming  
4 Focus  
5 Vertical Motion  
6 Set prism position horizontally  
7 Measure  
8 Repeat the steps from 1 to 6  
9 Stake-Out

## LongRange Data Communication



The DX series features *Bluetooth*® Class1 wireless technology for reliable data communications.

\* Wireless communication range may vary depending on obstruction and other environmental conditions.

# with incredible features.

## ■ Advanced Angle Measurement System

- SOKKIA's original absolute encoders provide long-term reliability in any job site condition.
- The DX series features groundbreaking IACS (Independent Angle Calibration System) technology for extremely reliable angle measurement.



## ■ Rugged and User Friendly Operation

- IP65 dustproof / waterproof ratings.
- Standard usage temperature range -20 to +50°C.
- Star key [★] instantly brings up functions.
- Trigger key lets you take a series of measurements without taking your eye off the telescope.
- Control panel consists of 26-key board with color LCD touch screen display.<sup>\*1</sup>
- USB type A / mini B as well as serial ports.
- Green / Red telescope guide lights provide efficient guidance in a range up to 150m.



- Built-in laser plummet with five brightness levels is equipped for quick instrument setting in all lighting conditions.<sup>\*2</sup>

<sup>\*1</sup> Face 2 is only touch screen display. Control panel configuration may vary depending on region or model.  
<sup>\*2</sup> Option

## ■ MAGNET™ Family MAGNET™

### ● Cloud-based Solutions for Precise Positioning\*

MAGNET™ is a software family that uses the "cloud" for seamless data connection between field and office, in Real-time, when and where you need, for data exchange, communications, asset tracking and more.

\*Cell modem or WIFI is required for data transfer from cloud to MAGNET with your data collector.

### ● MAGNET™ Field

Powerful on-board software that covers full functions for surveying and engineering tasks. MAGNET™ Field handles data collection, stake out, roads and coordinate geometry.



MAGNET™  
Field

**World's First**  
integrated support service

## TSshield

**The industry first! New function to protect your investment**

TSshield is a standard feature on all new model of SOKKIA total stations. Its advanced communication system provides new opportunities to secure and maintain your instrument.

\*For more detail of TSshield, please refer to the TSshield's leaflet. This service may not be available in some areas.



### Direct Aiming X-ellence Station

| Model   | DX-101AC  | DX-102AC  | DX-103AC  | DX-105AC |
|---|---|---|---|----------|
| <b>Telescope</b>  |   |   |   |          |
| Magnification / Resolving power   | 30x / 2.5"  |   |   |          |
| Length: 168mm (6.6in.), Objective aperture: 45mm (1.8in.) (50mm (2.0in.) for EDM), 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>  |   |   |   |          |
| Display resolutions (selectable)  | 0.5" / 1"<br>(0.0001 / 0.0002gon, 0.002 / 0.005mil)   |   | 1" / 5"<br>(0.0002 / 0.001gon, 0.005 / 0.02mil) |          |
| Accuracy (ISO 17123-3:2001)   | 1"  | 2"  | 3"  | 5"       |
| IACS (Independent Angle Calibration System)   | Provided  |   |   |          |
| Dual-axis compensator / Collimation compensation  | Dual-axis liquid tilt sensor, working range: ±6' / Collimation compensation available   |   |   |          |
| <b>Distance measurement</b>   |   |   |   |          |
| Laser output**  | Reflectorless mode: Class 3R / Prism/sheet mode: Class 1  |   |   |          |
| Measuring range (under average conditions <sup>2</sup> )  | Reflectorless <sup>3</sup>  | 0.3 to 800m (1 to 2,620ft.) / Under good conditions <sup>3</sup> : to 1,000m (3,280ft.)   |   |          |
|   | Reflective sheet <sup>4</sup>   | RS90N-K: 1.3 to 500m (4.3 to 1,640ft.), RS50N-K: 1.3 to 300m (4.3 to 980ft.), RS10N-K: 1.3 to 100m (4.3 to 320ft.)                  |   |          |
|   | 360°prism <sup>6,7</sup>  | 1.3 to 1,000m (4.3 to 3,280ft.) Under good conditions <sup>5</sup>  |   |          |
|   | Mini prisms   | CP01: 1.3 to 2,500m (4.3 to 8,200ft.), OR1PA: 1.3 to 500m (4.3 to 1,640ft.)   |   |          |
|   | One prism <sup>8</sup>  | 1.3 to 5,000m (4.3 to 16,400ft.) / Under good conditions <sup>5</sup> : 6,000m (16,680ft.)  |   |          |
|   | Three prisms <sup>8</sup>   | to 8,000m (26,240ft.) / Under good conditions <sup>5</sup> : to 10,000m (32,800ft.)   |   |          |
| Display resolution  | Fine: 0.0001 / 0.001m (0.001 / 0.01ft., 1/16 / 1/8in.) / Rapid: 0.001m / 0.01ft. / 1/8in. Tracking: 0.01m / 0.1ft. / 1/2in.           |   |   |          |
| Accuracy <sup>2</sup> (ISO 17123-4:2001) (D=measuring distance in mm)   | Reflectorless <sup>3</sup>  | (2 + 2ppm x D) mm <sup>9</sup>  |   |          |
|   | Reflective sheet <sup>4</sup>   | (2 + 2ppm x D) mm   |   |          |
|   | Prism <sup>10</sup>   | (1.5 + 2ppm x D) mm   |   |          |
| Measuring time <sup>11</sup>  | Fine: 0.9s (initial 1.5s), Rapid: 0.6s (initial 1.3s), Tracking: 0.3s (initial 1.3s)  |   |   |          |
| <b>Auto-Collimating, Auto-Tracking<sup>12</sup> and Motor</b>   |   |   |   |          |
| Working range <sup>2</sup>  | 360°prism <sup>6,13</sup>   | 2 to 600m (6.6 to 1,960ft.)   |   |          |
|   | One prism <sup>8</sup>  | 1.3 to 1,000m (4.3 to 3,280ft.)   |   |          |
|   | Reflective sheet <sup>14</sup>  | 5 to 50m (16 to 160ft.)   |   |          |
|   | Mini prisms   | CP01: 1.3 to 700m (4.3 to 2,290ft.), OR1PA: 1.3 to 500m (4.3 to 1,640ft.)   |   |          |
| Rotation speed / Auto-Tracking speed <sup>12</sup>  | 70°/s / 15°/s   |   |   |          |
| Motor type  | DC Servo motor  |   |   |          |
| <b>OS, Interface and Data management</b>  |   |   |   |          |
| Operating system / Application  | Microsoft Windows CE 6.0 / MAGNET FIELD   |   |   |          |
| Display / Keyboard  | 3.5inch, Semi-transmissive TFT QVGA color LCD with LED backlight, Touch screen, Automatic brightness control / 26 keys with backlight |   |   |          |
| Control panel location <sup>15</sup>  | On both faces (Face 2 is only touch screen display)   |   |   |          |
| Trigger key   | On right instrument support   |   |   |          |
| Data storage  | Internal memory   | 500MB internal memory   |   |          |
|   | Plug-in memory device   | USB flash memory (max. 8GB)   |   |          |
| Interface   | Serial RS-232C, USB2.0 (Type A / miniB)   |   |   |          |
| Bluetooth modem (option) <sup>16</sup>  | Bluetooth Class 1, Ver.2.1+EDR, Operating range: up to 300m (980ft.) <sup>17</sup>  |   |   |          |
| <b>General</b>  |   |   |   |          |
| Laser-pointer <sup>18</sup>   | Coaxial red laser using EDM beam  |   |   |          |
| Guide light <sup>18</sup>   | Green LED (524nm) and Red LED (626nm), Operating range: 1.3 to 150m (4.3 to 490ft.)   |   |   |          |
| Levels  | Graphic / Circular level  | 6' (Inner Circle) / 10' / 2mm   |   |          |
| Optical plummet   | Magnification: 3x, Minimum focus: 0.3m (11.8in.) from tribrach bottom   |   |   |          |
| Laser plummet (option)  | Red laser diode (635nm±10nm), Beam accuracy: ≤1.0mm@1.3m, Class 2 laser product   |   |   |          |
| Dust and water protection / Operating temperature   | IP65 (IEC 60529:2001) / -20 to +50°C (-4 to +122°F)   |   |   |          |
| Size with handle  | W207 (W) X 190 (D) X 372 (H) mm (W8.1 x D7.5 x H14.6in.)  |   |   |          |
| Weight with battery & tribrach  | Approx. 6.1kg (13.4lb.)   |   |   |          |
| <b>Power supply</b>   |   |   |   |          |
| Battery   | BDC70 detachable battery  | Li-ion rechargeable battery   |   |          |
| Operating time (20°C)   | BDC70   | Approx. 5hours (Fine distance measurement (single) using Auto Pointing, repeated every 30 seconds)                                  |   |          |
|   | External battery (option)   | BDC60: approx. 7hours, BDC61: approx. 14.5hours (Fine distance measurement (single) using Auto Pointing, repeated every 30 seconds) |   |          |

\*1 IEC60825-1:Ed.2.0:2007 / FDA CDRH 21 CFR Part 1040.10 and 11 \*2 Average conditions: Slight haze, visibility about 20km (12 miles), sunny periods, weak scintillation. \*3 With Kodak Gray Card White Side (90% reflective). When brightness on measured surface is 30,000 lx. or less. Reflectorless range/accuracy may vary according to measuring objects, observation situations and environmental conditions. \*4 When the measuring beam's incidence angle is within 30° in relation to the reflective sheet target. \*5 Good conditions: No haze, visibility about 40km (25 miles), overcast, no scintillation. \*6 ATP1(S) prism \*7 Figures when both the elevation and depression angles of the laser beam are within 15° and the instrument is facing the 360° prism. \*8 AP01 prism \*9 Measuring range: 0.3 to 200m \*10 AP01 and CP01 prism \*11 Typical, under good conditions. Reflectorless measurement time may vary according to measuring objects, observation situations and environmental conditions. \*12 Auto-Tracking function can be added by Upgrade Kit. \*13 Figures when the Auto Pointing / Auto Tracking beam strikes within elevation and depression angle 15° and the instrument is facing the 360° prism. \*14 When using a reflective sheet for Auto Pointing, the size of sheet (10 to 90 mm) must be selected to correspond to the distance being measured. Use smaller reflective sheets for shorter distances. Figures when the Auto Pointing / Auto Tracking beam strikes within 15° of the reflective sheet target. \*15 Control panel location may vary depending on region or model. \*16 Usage approval of Bluetooth wireless technology varies according to country. Please consult your local office or representative in advance. \*17 No obstacles, few vehicles or sources of radio emissions/interference in the near vicinity of the instrument, no rain. \*18 The laser-pointer and the guide light do not work simultaneously.

### Standard Accessories

- DX main unit ●Battery x2 (BDC70) ●Battery charger (CDC68) ●Power Cable ●Lens cap ●Lens hood ●Tool pouch ●Screwdriver
- Lens brush ●Adjusting pin x2 ●Cleaning cloth ●Operation manual ●USB memory ●Laser caution sign-board ●Carrying case
- Carrying strap x2

### Optional Accessory

- Upgrade Kit



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