

# Nivo M+ Series Total Stations



## Datasheet



## Simply Reliable Value

### Key Features

- 2", 3" and 5" angle accuracies
- Intuitive onboard field software
- 50,000 point storage
- Reflectorless measurement up to 500m (1,640 ft)
- Hot swappable batteries
- Laser pointer
- USB port for convenient data transfer
- Bluetooth
- Optional laser plummet

## Nivo M+ Series

The Nivo M+ instruments are compact, lightweight and ultra-rugged for use on any work site in all dust, dirt and weather conditions. The fast, long range EDM measures in both prism and reflectorless modes with both being available at the same time and initiated with a single key press.

The Nikon Nivo M+ Series Total Stations feature legendary Nikon optics which effectively let in more light for brighter, sharper images in even the lowest of light conditions. The easy to learn and use Nikon onboard software offers simple data and file management, Quick Codes for easy one-button data collection of point features and a complete set of powerful CoGo functions.

All Nivo M+ models support Bluetooth communications to external devices such as data collectors and have a USB port for portable data transfer via USB stick. In addition, all models come standard with coaxial laser pointers and a traditional optical plummet - which can be upgraded to a laser plummet.

**The Nikon Nivo M+ is built tough for all occasions.**

# Nikon Nivo M+ Series Total Stations

## Distance Measurement

- Range with Nikon specified prisms (Good conditions)<sup>i</sup>
  - With reflector sheet 5 cm x 5 cm (2 in x 2 in)
    - Nivo<sup>2.M+</sup>: 1.5 m to 270 m (4.9 ft to 886 ft)
    - Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup>: 1.5 m to 300 m (4.9 ft to 984 ft)
  - With single prism 6.25 cm (2.5 in)
    - Nivo<sup>2.M+</sup>: 1.5 m to 3,000 m (4.9 ft to 9,843 ft)
    - Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup>: 1.5 m to 5,000 m (4.9 ft to 16,404 ft)
- Range reflectorless mode<sup>ii</sup>

Nivo <sup>2.M+</sup>	Good <sup>d</sup>	Normal <sup>iv</sup>	Difficult <sup>v</sup>
KGC <sup>iii</sup> (18%)	350 m (1,148 ft)	250 m (820 ft)	200 m (656 ft)
KGC <sup>iii</sup> (90%)	500 m (1,640 ft)	400 m (1,312 ft)	250 m (820 ft)
Nivo <sup>3.M+</sup> , Nivo <sup>5.M+</sup>	Good <sup>d</sup>	Normal <sup>iv</sup>	Difficult <sup>v</sup>
KGC <sup>iii</sup> (18%)	280 m (920 ft)	250 m (820 ft)	200 m (656 ft)
KGC <sup>iii</sup> (90%)	500 m (1,640 ft)	500 m (1,640 ft)	300 m (984 ft)
- Shortest possible range: 1.5m (4.9 ft)
- Accuracy<sup>vi</sup> (Precise mode)
  - ISO17123-4
    - Prism:  $\pm(2+2 \text{ ppm} \times D)$  mm
    - Reflectorless:  $\pm(3+2 \text{ ppm} \times D)$  mm
- Measuring interval<sup>vii</sup>

Prism mode	Precise mode	Normal mode
Nivo <sup>2.M+</sup>	1.6 s	0.8 s
Nivo <sup>3.M+</sup> , Nivo <sup>5.M+</sup>	1.5 s	0.8 s
Reflectorless mode <sup>viii</sup>		
Nivo <sup>2.M+</sup>	2.1 s	1.2 s
Nivo <sup>3.M+</sup> , Nivo <sup>5.M+</sup>	1.8 s	1.0 s
Least count	1 mm (0.002 ft)	10 mm (0.02 ft)

## Angle Measurement

- ISO 17123-3 accuracy (horizontal and vertical): 2"/0.6 mgon Nivo<sup>2.M+</sup>
  - 3"/1 mgon Nivo<sup>3.M+</sup>
  - 5"/1.5 mgon Nivo<sup>5.M+</sup>
- Reading system: Absolute encoder
- Circle diameter: 62 mm (2.4 in)
- Horizontal/Vertical angle: Diametrical Nivo<sup>2.M+</sup>, Nivo<sup>3.M+</sup>
  - Single Nivo<sup>5.M+</sup>
- Minimum increment: Degree: 1/5/10"
  - Gon: 0.2/1/2 mgon
  - MIL6400: 0.005/0.02/0.05 mil

## Telescope

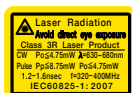
- Tube length: 125 mm (4.9 in)
- Image: Erect
- Magnification: 30x (18x/36x with optional eyepieces)
- Nivo<sup>2.M+</sup> Effective diameter of objective: 40 mm (1.6 in)
- Nivo<sup>2.M+</sup> EDM diameter: 45 mm (1.8 in)
- Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup> Effective diameter of objective: 45 mm (1.8 in)
- Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup> EDM diameter: 50 mm (2.0 in)
- Field of view: 1°20'
- Resolving power: 3"
- Minimum focusing distance: 1.5 m (4.9 ft)
- Laser Pointer: Coaxial Red Light

## Tilt Sensor

- Type: Dual-axis
- Method: Liquid-electric detection
- Compensation range:  $\pm 3.5'$

## Communications

- Communication ports: 1 x serial (RS-232C), 1 x USB (host)
- Wireless communications: integrated Bluetooth



## Power

- Internal Li-ion battery (x2)
  - Output voltage: 3.8 V DC
- Operating time<sup>ix</sup>
  - Nivo<sup>2.M+</sup>
    - approx. 19 hours (continuous distance/angle measurement)
    - approx. 57 hours (distance/angle measurement every 30 seconds)
    - approx. 62 hours (continuous angle measurement)
  - Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup>
    - approx. 10 hours (continuous distance/angle measurement)
    - approx. 26 hours (distance/angle measurement every 30 seconds)
    - approx. 31 hours (continuous angle measurement)
- Charging time
  - Full charge: 4 hours

## General Specifications

- Level vials
  - Sensitivity of circular level vial: 10/2 mm
- Optical plummet
  - Image: Erect
  - Magnification: 3x
  - Field of view: 5°
  - Focusing range 0.5 m (1.6 ft) to  $\infty$
- Display face 1: backlit, graphic LCD (128x64 pixel)
- Display face 2: backlit, graphic LCD (128x64 pixel)
- Laser plummet (optional): 4 levels
- Point memory: 50,000 records
- Dimensions (W x D x H): 149 mm x 145 mm x 306 mm (5.8 in x 5.7 in x 12.0 in)
- Weight (approx.)
  - Nivo<sup>2.M+</sup> Main unit (without batteries) 3.8 kg (8.4 lb)
  - Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup> Main unit (without batteries) 3.7 kg (8.1 lb)
  - Battery: 0.1 kg (0.2 lb)
  - Carrying case: 2.3 kg (5.1 lb)

## Environmental

- Operating temperature range: -20 °C to +50 °C (-4 °F to +122 °F)
  - Nivo<sup>5.MW+</sup>: -30 °C to +50 °C (-22 °F to +122 °F)
- Storage temperature range: -25 °C to +60 °C (-13 °F to +140 °F)
  - Nivo<sup>5.MW+</sup>: -30 °C to +60 °C (-22 °F to +140 °F)
- Atmospheric correction
  - Temperature range: -40 °C to +60 °C (-40 °F to +140 °F)
  - Barometric pressure: 400 mmHg to 999 mmHg/533 hPa to 1,332 hPa/15.8 inHg to 39.3 inHg
- Dust and water protection: IP66

## Certification

- Class B Part 15 FCC certification, CE Mark approval. C-Tick.
- Laser safety IEC 60825-1 am2:2007
- Nivo<sup>2.M+</sup> Prism mode: Class 1 laser
- Nivo<sup>2.M+</sup> Reflectorless / Laser Pointer: Class 3R laser
- Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup> Reflectorless / Prism mode: Class 1 laser
- Nivo<sup>3.M+</sup>, Nivo<sup>5.M+</sup> Laser Pointer: Class 2 laser
- Laser Plummet (optional): Class 2 laser
- Bluetooth type approvals are country specific.

- i Good conditions (good visibility, overcast, twilight, underground, low ambient light).
- ii Measuring distance may vary depending on targets and measuring conditions.
- iii Kodak Gray Card, Catalog number E1527795
- iv Normal conditions (normal visibility, object in the shadow, moderate ambient light).
- v Difficult conditions (haze, object in direct sunlight, high ambient light).
- vi  $\pm(3+3 \text{ ppm} \times D)$  mm -20 °C to -10 °C, +40 °C to +50 °C (-4 °F to +14 °F, +104 °F to +122 °F)
- vii Measuring time may vary depending on measuring distance and conditions. For the initial measurement, it may take a few more seconds.
- viii Measured to KGC 90% at 20 m (65 ft).
- ix Battery life specification at 25 °C (77 °F). Operation time may be shorter in low temperatures or if the battery is not new.

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