



NAV3xx Laser Measurement Technology

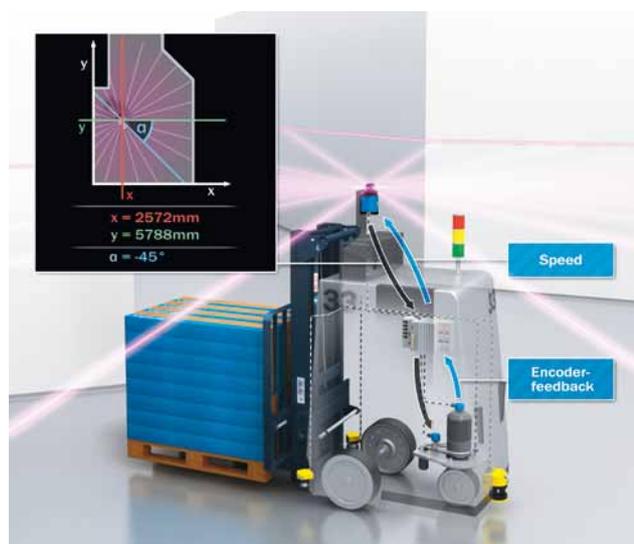
Navigating the route to improved productivity

NAV3xx – move more with intelligent sensors

SICK 3rd generation navigation sensors combine the best in measurement, navigation and position detection. The high computing power as well as the individual configuration of automated guided vehicles allow for outstanding performance, even without reflector marks.

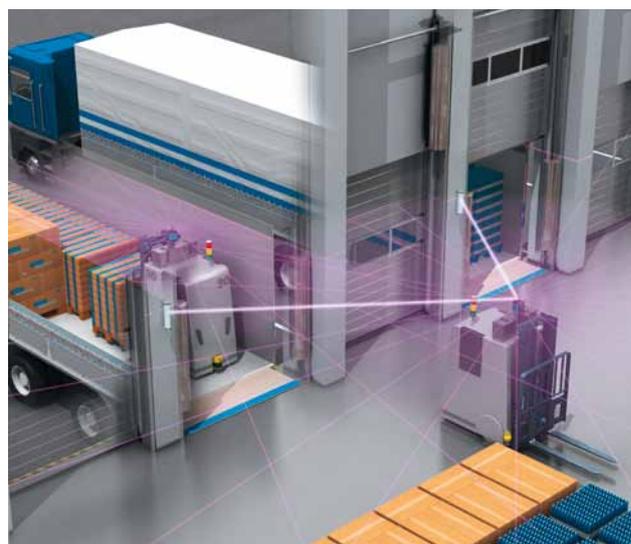
The unique combination of spatial contour and reflector measurement enables applications that have not previously been possible. This ensures savings, not only from a financial perspective, but also in terms of time. The NAV3xx can also save time due to its very high computing power, which allows the AGVs to be positioned quickly and precisely.

The sensing range of 70 m is also impressive and it is thus very well suited to challenging applications with automated guided vehicles in the transport and logistics sector.



Cost-effectiveness through adaptation

The NAV350 performs the complex position detection using reflectors, with which the user has the freedom to adapt the control to the vehicle requirements. The NAV300 provides relative reflector data and the calculation of the position is performed by the vehicle computer.



Mixed-mode navigation

The NAV3xx can process contour and reflector data with high speed and precision. This enables guided track-controlled vehicles to move in areas in which it is not possible to install reflector marks.



Intelligent and sophisticated

Even in systems with a high number of vehicles, the fully automatic, guided track-controlled transport vehicles benefit from the high computing power and reliability of the NAV350.



Navigation on new paths

With the help of contour-based navigation, new applications, such as fully automatic loading and unloading of trucks, have become possible for the first time.

Navigating the route to improved productivity



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Product description

The NAV laser positioning system provides a variety of features that optimize the navigation of automated guided vehicles (AGV). Free positioning with reflector marks allows maximum flexibility of the AGV thanks to virtual change of track in the vehicle computer. The NAV quickly provides highly precise contour data (distance, angle and reflectivity) and reflector data over 360°. As a result, several measurements on each reflector

are automatically calculated to produce an accurate reflector coordinate, making it possible to calculate the vehicle position in the vehicle computer, even when the environmental conditions change. The combination of contour data and reflector data (mixed mode) enable track-guided vehicles to travel in areas where it is not possible to position reflector marks, such as an automatic truck loading or block storage application.

At a glance

- Outstanding performance through high computing power and individual configuration of the AGVs
- Precise, fast processing of spatial contour and reflector data (mixed mode navigation)
- High sensing range of 70 m (35m/10% remission)
- Unique combination of measurement, navigation and position detection) by the NAV350

Your benefits

- Integrated measurement data evaluation reduces the computing effort in vehicle computers, saving time
- Track guidance without reflector marks increases application flexibility
- The positioning system allows maximum freedom in the design of the vehicle
- Economical, even for small and medium-sized vehicles
- Simple alteration and teach-in of routes gives user more control over the application
- Accurate measurements, even under harsh environmental conditions

→ www.mysick.com/en/NAV

Detailed technical data

Features

	NAV300	NAV350
Field of application	Indoor	
Version	Mid Range	
Light source	905 nm	
Laser class	1, eye-safe	
Field of view	360°	
Scanning frequency	5 Hz ... 15 Hz	8 Hz
Angular resolution	0.1°	
Operating range	0.5 m ... 250 m (70 m on reflectors)	
Max. range with 10 % reflectivity	35 m	

Performance

	NAV300	NAV350
Detectable object shape	Almost any	
Systematic error	± 10 mm (RDI) ± 15 mm (Contour)	± 15 mm (Contour)
Statistical error	± 10 mm (RDI) ± 15 mm (Contour)	± 15 mm (Contour)
Reflector memory	-	12,000
Positioning accuracy	-	± 4 mm
Integrated application	Navigation	

Interfaces

	NAV300	NAV350
Serial (RS-232, RS-422)	I	
Ethernet	I	
Data transmission rate	10 Mbit/s	100 Mbit/s
Protocol	TCP/IP	
CAN-Bus	I	-
Data transmission rate	10 bit/s ... 1 Mbit/s	-
Serial (RS-232)		I
Optical indicators	4 LEDs (status displays)	

Mechanik/Elektrik

	NAV300	NAV350
Electrical connection	1 6-pin terminal block, 15-pin D-Sub HD plug	1 M12 4-pin plug-in connector
Operating voltage	≥ 24 V DC, ± 15 %	
Power consumption	36 W	
Housing	Die-cast aluminum	
Housing color	Light blue (RAL 5012)	
Enclosure rating	IP 65	IP 54
Protection class	III	
Weight	2.4 kg	
Dimensions	115 mm x 120.5 mm x 222 mm	

Ambient data

Ambient operating temperature	0 °C ... +50 °C
Storage temperature	-20 °C ... +80 °C
Permissible relative humidity	85 %, non-condensing
Reflector marks	Stripes: ≥ 80 mm, cylindrical: diameter ≥ 80 mm

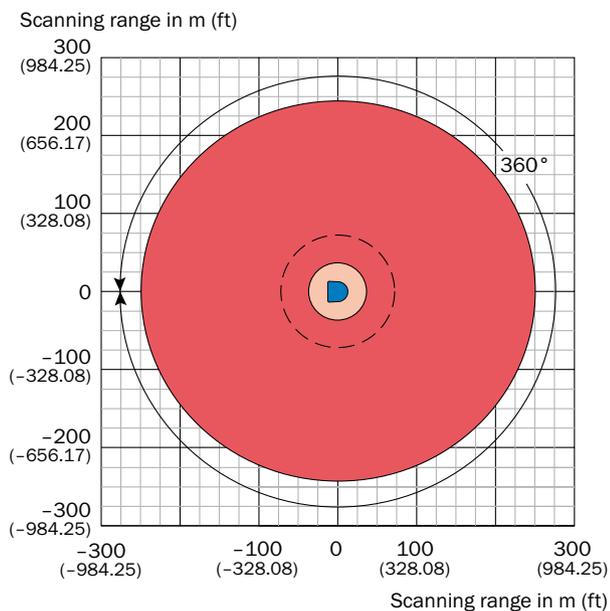
Ordering information

- Version: Mid Range
- Field of application: Indoor
- Angular resolution: 0.1°
- Housing color: light blue (RAL 5012)

Sub product family	Model name	Part no.
NAV300	NAV300-2232	1043365
NAV350	NAV350-3232	1052928

Operating range diagram

NAV300
NAV350

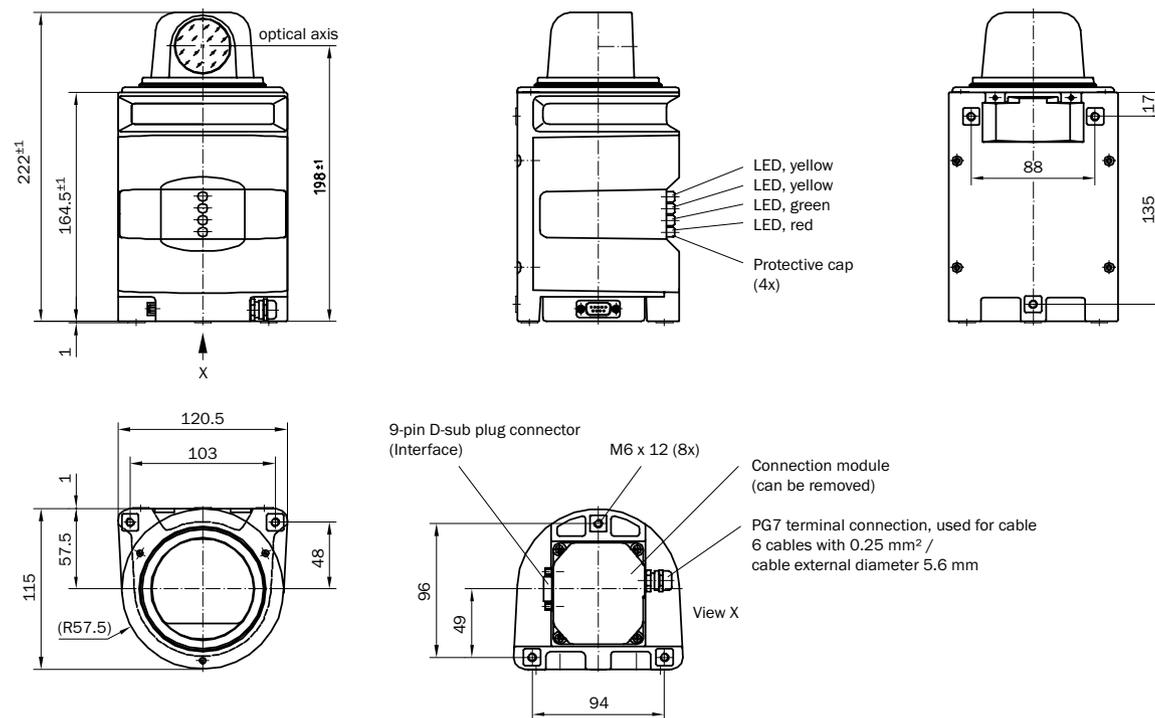


- Scanning range max. 250 m (820.21 ft)
- Scanning range for objects up to 10 % remission 35 m (114.83 ft)
- Scanning range on reflector 70 m (229.66 ft)

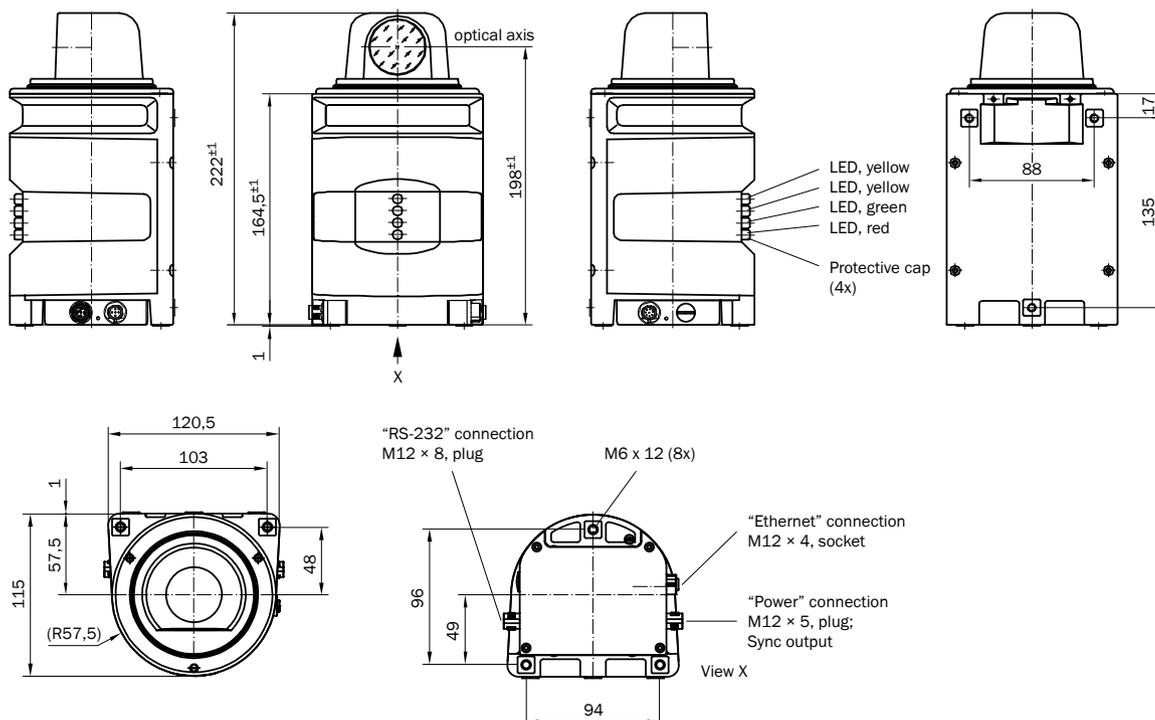
Dimensional drawings

Dimensions in mm

NAV300



NAV350



Accessories

Terminal and alignment brackets

	Brief description	Part no.
	Mounting holder, complete with mounting material and tools	5311055

Power supply units / power cord connectors

	Brief description	Part no.
	Power supply DC 24 V / 10 A	6020875
	Power supply DC 24 V / 4 A	6010362

Optics cloths

	Brief description	Part no.
	Optics cloth	4003353

Programming/Configuration Tool

	Brief description	Part no.
	Scan finder, receiver to localize infrared scans	6020756

Reflectors

	Brief description	Part no.
	Reflective tape (Diamond Grade 983-10), paper 914 mm x 749 mm	5320565

Cleaning agent

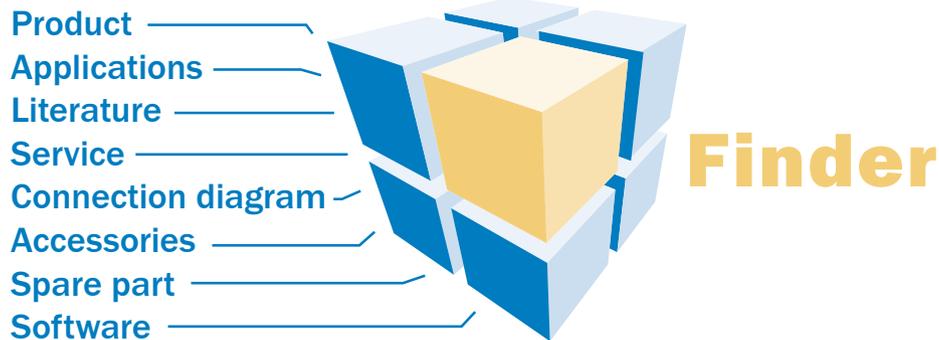
	Brief description	Part no.
	Plastic cleaner and care product, anti-static, 1 liter	5600006

Plug connectors and cables

	Brief description	Part no.
	Power supply cable, 4 x 0,5 mm ² , shielded, M12 socket, 5-pin (A-type encoded), open end, 5 m ²⁾	6036159
	Power supply cable, 4 x 0,5 mm ² , shielded, M12 socket, 5-pin (A-type encoded), open end, 10 m ²⁾	6036160
	Power supply cable, 4 x 0,5 mm ² , shielded, M12 socket, 5-pin (A-type encoded), open end, 20 m ²⁾	6036161
	Power supply cable and sync, M12 x 5, 5 open wires, 5 m ²⁾	6043440
	Data (RS-232/422) and synchronization input cable, 8-pole, shielded, M12 socket, 8-pin (A-type encoded) / open end, 5 m ²⁾	6036153
	Data (RS-232/422) and synchronization input cable, 8-pole, shielded, M12 socket, 8-pin (A-type encoded) / open end, 10 m ²⁾	6028420
	Ethernet cable, 4-pole, shielded, M12 plug, 4-pin (D-type encoded) / RJ-45 plug, 8-pin, 5 m ²⁾	6034415
	Ethernet cable, 4-pole, shielded, M12 plug, 4-pin (D-type encoded) / RJ-45 plug, 8-pin, 10 m ²⁾	6030928
	Connection cable (RS-232) to PC, 3-wired, with 1 x 9-pin and 1 x 15-pin D-sub socket, 3 m ¹⁾	6032508
	Ethernet cable, 15-pin D-sub socket / RJ45 socket, 3 m ¹⁾	6032509
	Cable for parameter setting Ethernet crossover, 15-pin D-sub socket/RJ45 socket, 10 m ¹⁾	6036683

¹⁾NAV 300²⁾NAV 350

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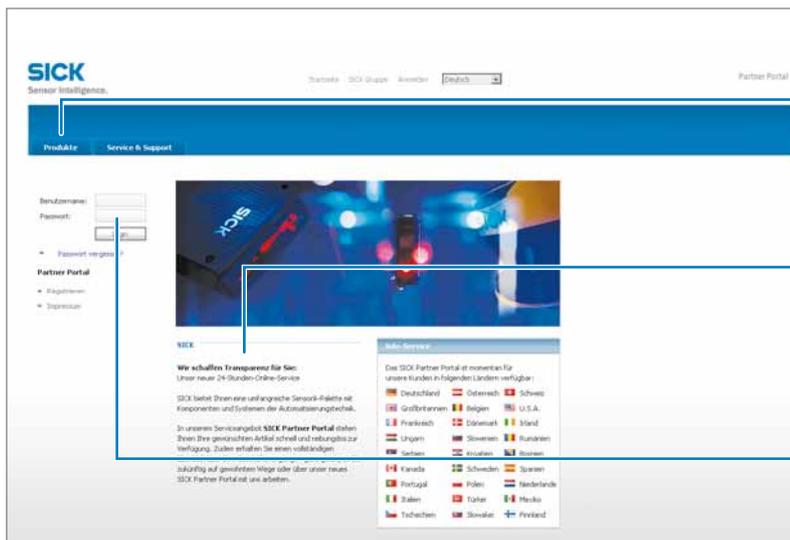
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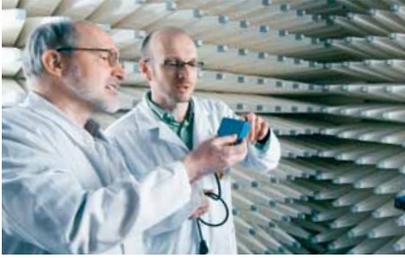
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SICK at a glance



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