

Nikon SAL-S40N Encoder

The SAL-S40N encoder is a new absolute encoder family introduced by Nikon. It comes with a SAL-S40ASB01 head, an AFU-S40-MPM signal conditioner, cables and connector as shown in Figure 1.

The SAL-S40N is one of the first encoder in its size and class that is offered as an open type encoder. In this configuration, the encoder and scale are separate, allowing customers to build their own unique configuration. SAL-S40N encoder's technology is based on Nikon's successful absolute rotary encoders, which serve many of the industrial robotics and automotive industries.

The SAL-S40N encoder obtains a slightly better than 60 nm resolution and has a 32 mm measurement range.

The SAL-S40N encoder interface specifies and uses its own proprietary A-format interface (#1 market share in Japan). The A-format interface allows simple and quick connections and is supported by NanoWave's MPM300 controller.

Combined with MPM300's USB interface, the A-format interface will greatly minimize development time interfacing an encoder to a PC and other off-the-shelf motion control boards.



Figure 1. Nikon SAL-S40N encoder

STANDARD FEATURES

- Nikon M-series one track absolute encoder technology with 20bit output.
- Battery backup is not necessary to remember position information.
- Easy-to-install reflection type micro head (8.2x12.7x25.0mm).
- Nikon A-format output / industry standard for rotary encoder.
- Directly compatible with MPM300 motion processing unit.

Absolute Encoders for Motion Control

Nikon SAL-S40N absolute linear encoder will provide a perfect solution for systems which require:

- Encoder integration within a compact space
- Uninterrupted motion controller system after power outages due to safety concern etc.

MPM300/OEM also provides direct compatibility to any Nikon A-format absolute encoders.

While MPM300 provides an integrated PID core for fast and easy motion control system integration, it also outputs standard A-Quad-B digital signals, which are compatible with many commercially available encoder counters and motion control boards.

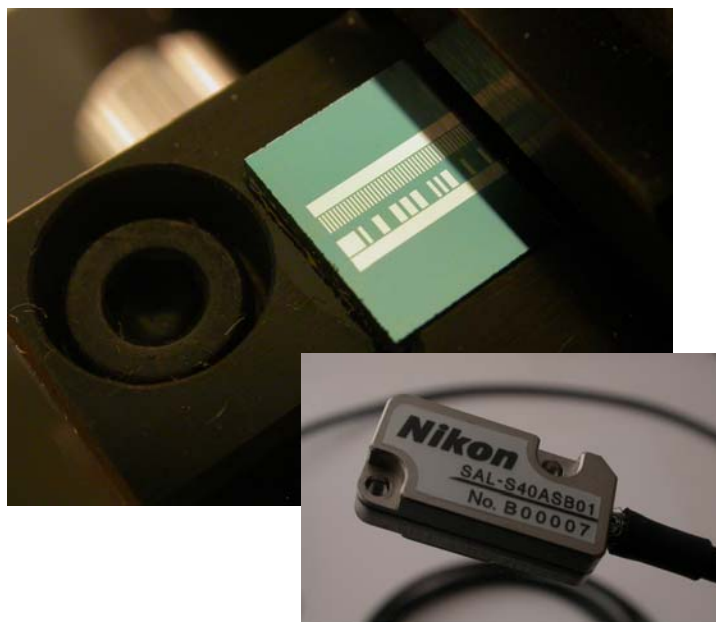


Figure 2. Absolute encoder technology

A Reputation for Excellence

Recognized as a world leader in photolithographic tool manufacturer and its high precision optics design capability, Nikon has established a reputation for high-precision and high reliability industrial products throughout Japan and other Asian countries.

When used as position encoders in motion control systems, SAL-S40N and DigiMicro products fulfill some of the most demanding applications in semi-conductor and other manufacturing processes.

Product Applications

SAL-S40N encoders have a wide variety of industrial and research applications.

- Optical fiber alignment
- Calibration Instruments
- Medical Equipment
- Robotics
- Industrial Automation
- Precision Machining
- Semiconductor Equipment



Contrary to common perception of absolute position encoder, SAL-S40N achieves a high level of installation-error insensitivity, resulting in a surprisingly easy and reliable set-up at the user site.

Its unique absolute position encoder capability coupled with a high speed interface (4Mbps) offered at a highly attractive price, SAL-S40N should be considered as a next generation design component or current encoder upgrade or replacement.

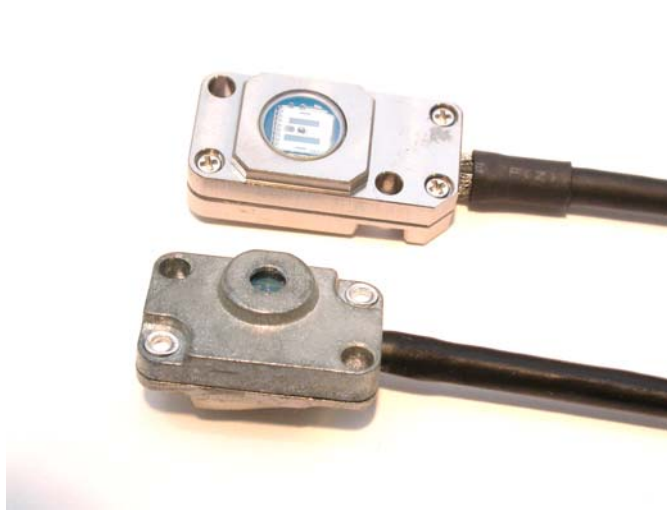


Figure 3 –Comparison of SAL-S40N absolute encoder with another incremental position encoder available in the market.



Figure 4 –Example application using Nikon SAL-S40N absolute linear encoder with a micrometer stage.

User Specifications

#	Type	Description		
1	Measurement range	32mm		
2	Resolution	58.59375nm (signal pitch 120um, 2048x interpolation)		
3	Speed	300mm/sec (normal), 256mm/sec (power-on period)		
4	Supported Errors	1 - Over velocity 2 - Status error		

Table 1. Head Specifications

Mechanical Drawing

4. 1. 1 Head

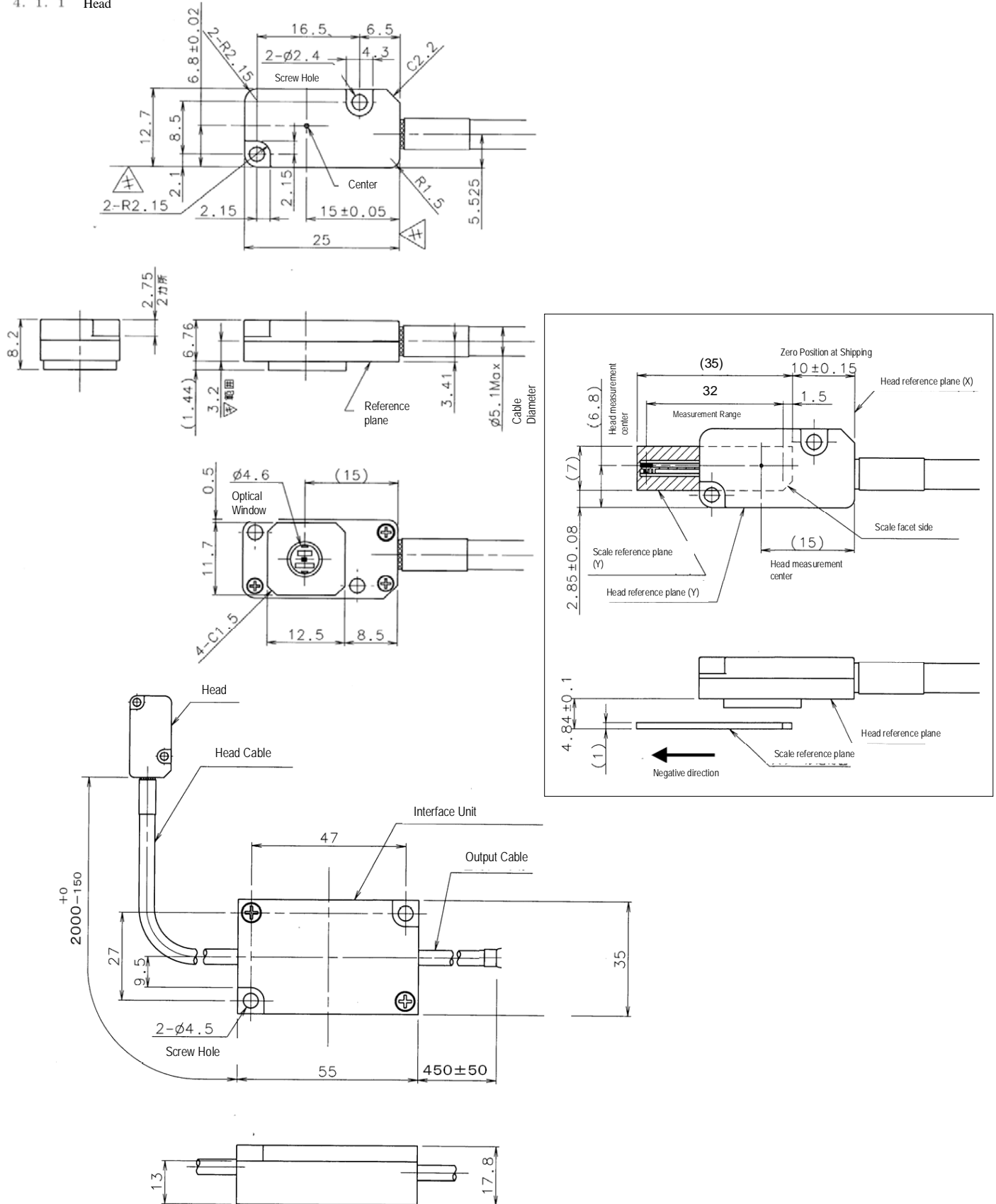




Figure 7 – MPM300/OEM Board



Figure 8 – MPM300 shown with USB cable, and Wall USB power supply.

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NanoWave has also teamed with Nikon Corporation to leverage their advanced encoder technologies and widely respected manufacturing expertise to bring new market opportunities.

For more information on products, services, prices, and deliveries, please visit our website at www.nanowave.com or send any questions to info@nanowave.com

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