

Optoelectronic Sensors for Variable Use Model Nos. A1S30P and A1SS36P

Application

There is hardly another functional principle than the no-contact optoelectronic sensing, which better meets the demands of speed detection in flexible variable use. The target is fast and easily prepared: on a smooth surface, a painted line or dot will serve, or even better, a piece of reflecting tape (U1A006). Just as well, a screw head or blade, a slot or bore hole may serve. The object may be metallic or non-metallic (plastics). No reaction is returned to the object, and therefore, optoelectronic sensing may be applied to small and light parts, at any high speed.

Best results will be achieved with a signal conditioning, as it is part of our portable measuring units MOVIPORT C118 and C156, eliminating scratch and stain effects. But it may apply to permanent installations also, provided the target has a good contrast on a clean surface, and pollution is excluded for the period of use. The high reflective tape U1A006 is strongly recommended for permanent applications.

Under these pre-conditions, the sensor series A1S3... provide very economic and space saving solutions. Otherwise, it is more recommended to use the adjustable sensor series A1S4...with their strong and well shaped output. It perfectly fits our Converter and Alarm series CDE124, D421, D1553. Use of sensor series A1S3... with these units need the adapter cable B1A003.

Frequency range

Low end at approximately 10 Hz, even lower if the profile has a steep front.
High end 16,000 Hz (1 million pulses per minute).

Temperature range

Operational – 25 °C ... + 70 °C.
For extended temperature use the sensor A1S40 with fiber glass extension.

Versions

A1S30P

Fits most applications (see left). The sensor shaft end carries a plug-in connector matching the cable SAK (to C118 or C156), and the adapter B1A003 (to permanent installation units).

Available with two different length of its shaft (see rear side):

Model No. A1S30P95 has L= 95mm (standard),
Model No. A1S30P35 has L = 35 mm

Note: Version A1S30P95 may be inserted into the pulse wheel adapter U1A010.

A1S36P

Specifically designed for use with paper machines and similar harsh ambiance. Its firmly attached cable allows its use under high humidity. It further has increased light intensity, to improve its effect at a poor contrast, such as on felts, for instance.

Available with optional cable length and shaft length (see rear side):

Cable length	Shaft length	Ordering No.
2 meters	95 mm	A1S36P95-2m
5 meters	95 mm	A1S36P95-5m
2 meters	35 mm *)	A1S36WP35-2m

*) with angular cable outlet for less space.

Signal Output

Level and waveform widely depend on the target marking and sensing distance Typical 100 millivolts superposed to the operational voltage. Stains and scratches may add pulses. The output circuit is an isolated npn-transistor.

Required supply and circuitry to output and LED-light source will be provided by our portable units C118 or C156. Or by the adapter cable B1A003, if used in permanent installation with units CDE124, D421, or D1553.

Marking the Object

A significant contrast to the surface of the target is very important. The reflective tape U1A006 has proven as a very simple and efficient means. Available as strips of 1 cm width and 10 cm length (or as a roll of 4.5 m length). Cut a piece of approx. 1 cm and tape on the object. Alternatively, paint a dot or line on a glossy surface.

The units for permanent installation require a clean and highly contrasting marking, as these units do not incorporate an automatic signal conditioning.

Several marks on one object may be used for a higher spatial resolution (more pulses per revolution). But place them with equal distances between.

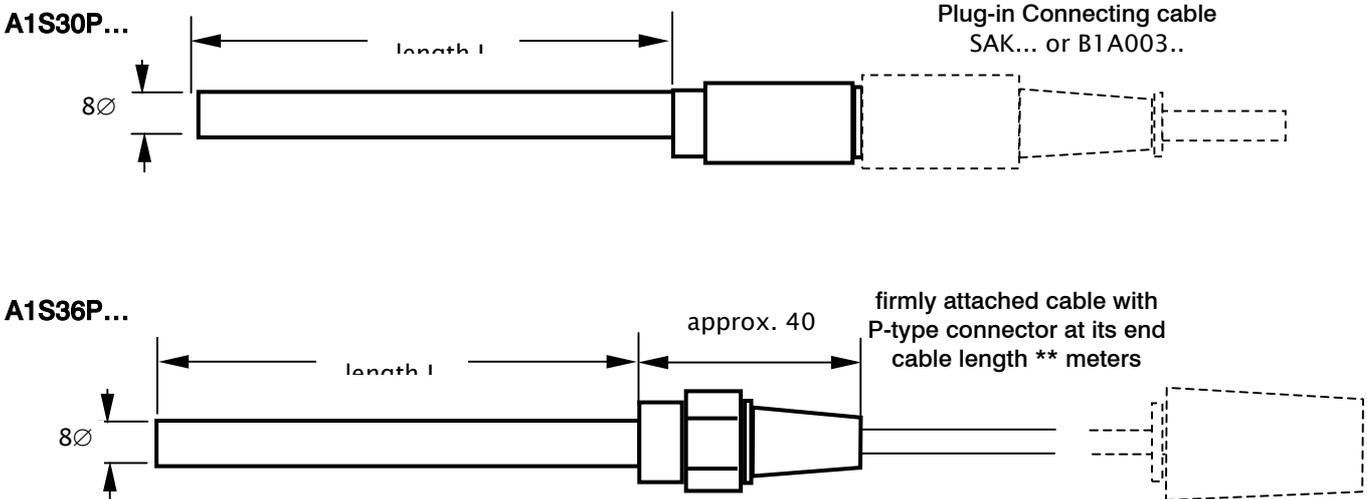
Sensing Distance

Depends widely on the quality of the contrast at the target. Sensors A5S30... have a typical distance of 1... 2 cm., sensors A1S36... twice as much. Using the high reflection tape U1A006 increases the distance up to 10 cm. Note: the Laser sensor A1S37P detects this tape from up to 2 meters!

Signal Transmission Distance

The rather low signal level and the high source impedance limit the transmission distance to a maximum of 30 meters. A consequence shielding must be observed, preferably use our ready connection cables SAK or B1A003.

Dimensions



Connection

The connector at the end of A1S30P or A1S36P-**-m fits the input socket of MOVIPORT C118 and C156, and the extension cables type SAK-**-m. The marked open leads of the adapter cable B1A003-**-m will connect the terminals of units D421..., or CDE124 as follows:

A (white) the high sensitive input path
B (green) common zero of input
C (brown) NAMUR level supply (8 volts via 1k)

D (yellow) to 12 volts supply output
S (shield) to PE ground of installation

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