

S5N-Px-...-PK/NK SERIES

INSTRUCTION MANUAL

CONTROLS

OUTPUT LED (S5N-...A00/B01/C01/C10/F00)

The yellow LED ON indicates that the NO output status is closed.

POWER ON LED (S5N-...G00)

The green LED indicates that the sensor is operating.

TRIMMER (S5N-...B01/C01)

The trimmer can be used to adjust sensitivity; the operating distance increases turning the trimmer clockwise.

WARNING: The trimmer rotation is limited to 270°.

Do not apply excessive torque beyond the maximum and minimum positions (max 40 Nm).

INSTALLATION

The sensor can be fixed by means of the M18x1 threaded body through a Ø 18mm hole, using the specific washer and the two CH.24 nuts (1.5Nm maximum tightening torque) or CH.22 nuts, h=8mm, (2Nm maximum tightening torque) enclosed. Alternatively, the sensor can be mounted through the two housing's holes using two screws (M3x22 or longer) and washer.

Amongst the various possible solutions, we suggest to choose the combination that offers the best visibility of the signalling LEDs and the easiest access to the trimmer.

Various orientable fixing brackets are available to ease the sensor positioning (please refer to the accessories listed in the general catalogue). The operating distance is measured from the front surface of the sensor lens.

C models: To improve the detection, the object has to be moved closer or further away from the front surface of the sensor lens.

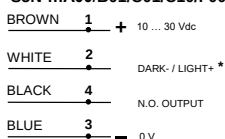
In case of lateral translation, the object must move as indicated in the figure.



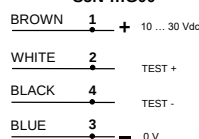
CONNECTIONS

The connections are compliant to the EN 60947-5-2 standard.

S5N-...A00/B01/C01/C10/F00



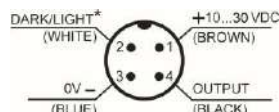
S5N-...G00



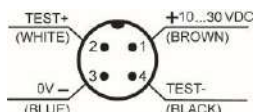
* in case of white wire or pin 2 not connected the sensor works in LIGHT mode for proximity models (C01/C10) and in DARK mode for retroreflex (A00/B01) and receiver (F00).

M12 CONNECTOR

S5N-... A00/B01/C01/C10/F00

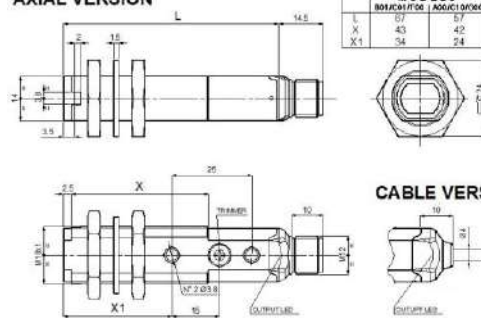


S5N-...G00



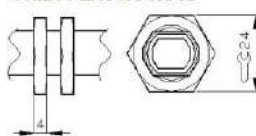
DIMENSIONS

AXIAL VERSION

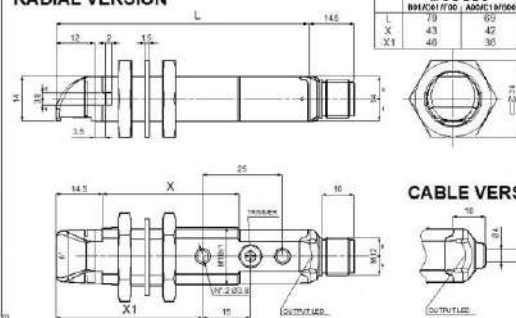


CABLE VERS.

CH.24 PLASTIC NUTS

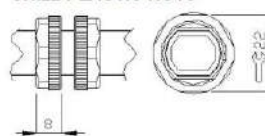


RADIAL VERSION



CABLE VERS.

CH.22 PLASTIC NUTS



TECHNICAL DATA

	S5N-PA AXIAL VERSION	S5N-PR RADIAL VERSION
Power supply:	10 ... 30 Vdc (limit values)	
Ripple:	2 Vpp max.	
Current consumption (output current excluded):	30 mA max.	
Outputs:	N.O.; PNP or NPN (short circuit protection)	
Output current:	100 mA max.	
Capacitive load:	C _{max} ≤ 1.5 uF @24V, I _{load} = 100mA C _{max} ≤ 3.5 uF @24V, I _{load} = 10mA	
Output saturation voltage:	2 V max.	
Response time:	1 ms (4 ms mod.F00)	
Switching frequency:	500 Hz (120 Hz mod.F00)	
Indicators:	OUTPUT LED (YELLOW) mod.G00 excluded POWER ON LED (GREEN) (mod.G00)	
Setting:	sensitivity trimmer (mod.B01/C01)	
Operating temperature:	-25 ... 55 °C	
Storage temperature:	-25 ... 70 °C	
Insulating strength:	500 Vac 1 min., between electronics and housing	
Insulating resistance:	>20 MΩ 500 Vdc, between electronics and housing	
Operating distance (typical values):	A00: 0.1...3.5 m on R2 B01: 0.1...2.5 m on R2 C01: 1...40 cm C10: 0...10 cm F00/G00: 0...18 m	A00: 0.1...2.5 m on R2 B01: 0.1...2.0 m on R2 C01: 1...30 cm C10: 0...8 cm F00/G00: 0...15 m
Emission type:	RED (660 nm) (mod.B01) / INFRARED (880 nm) (mod.A00/C01/C10/G00)	
Ambient light rejection:	according EN 60947-5-2	
Vibrations:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)	
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)	
LIGHT/DARK selection:	white wire or pin 2 connected to +10...30V LIGHT mode; to 0V DARK mode white wire or pin 2 not connected LIGHT mode (mod.C01/C10); DARK mode (mod.A00/B01/F00)	
Housing material:	PBT	
Lens material:	PMMA	
Mechanical protection:	IP67	
Connections:	2 m cable Ø 4 mm / M12 - 4 pole connector	
Weight:	75 g. max. cable vers. / 25 g. max. connector vers.	
AtEx 2014/34/EU	II 3D EX tc IIIC IP67 T85°C	

SETTING

Setting of S5N-...A00/B01

Position the sensor and reflector on opposite sides.

Moving the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT) and then mount the sensor in the middle of the points defined.

B01 Model: Turn the sensitivity trimmer to the maximum position.

If necessary reduce sensitivity in order to detect very small targets. In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

Setting of S5N-...F00/G00

Position the sensors on opposite sides.

Move the sensor both vertically and horizontally, determine the power on and off points of the yellow LED (OUT) and then mount the sensor in the middle of the defined points.

Setting of S5N-...C01

Turn the sensitivity trimmer to minimum: the yellow LED is OFF.

Position the target to detect in front of the sensor.

Turn the sensitivity trimmer clockwise until the yellow

LED turns ON (Target detected state, pos.A).

Remove the target, the yellow LED turns OFF.

Turn the sensitivity trimmer clockwise until the yellow LED turns ON (Background detected state, pos.B).

The trimmer reaches the maximum level if the background is not detected.

Turn the trimmer to the intermediate C position, between the two A and B positions.



Setting of S5N-...C10

The operating distance range of these sensors is factory preset: please consider this feature when positioning.

TEST FUNCTION (S5N-...G00)

The TEST+ and TEST- inputs can be used to inhibit the emitter and verify that the system is correctly operating.

The receiver output should switch when the test is activated while the beam is uninterrupted. The inputs activating voltage range is 10 ... 30 Vdc, whilst respecting the polarity.

The emission is switched off connecting TEST+ to Vdc and TEST- to 0V.

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The warranty period for this product is 36 months. See General Terms and Conditions of Sales for further details.



For information about the disposal of Waste Electrical and Electronic Equipment (WEEE), please refer to the website at www.datasensing.com.

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EN	CE Compliance
CE marking states the compliance of the product with essential requirements listed in the applicable European directive. Since the directives and applicable standards are subject to continuous updates, and since the manufacturer promptly adopts these updates, therefore the EU declaration of conformity is a living document. The EU declaration of conformity is available for competent authorities and customers through the manufacturer's commercial reference contacts. Since April 20th, 2016 the main European directives applicable to the products require inclusion of an adequate analysis and assessment of the risk(s). This evaluation was carried out in relation to the applicable points of the standards listed in the Declaration of Conformity. These products are mainly designed for integration purposes into more complex systems. For this reason, it is under the responsibility of the system integrator to do a new risk assessment regarding the final installation. Warning This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.	
IT	Conformità CE
La marcatura CE dichiara la conformità del prodotto con i requisiti essenziali elencati nella direttiva europea applicabile. Essendo le direttive e le normative applicabili soggette a continui aggiornamenti, e dato che il costruttore adotta immediatamente tali aggiornamenti, la dichiarazione di conformità CE è un documento vivo. La dichiarazione di conformità CE è disponibile per le autorità competenti e i clienti tramite i contatti commerciali di riferimento al costruttore. Dal 20 aprile 2016, le principali direttive europee applicabili ai prodotti richiedono l'inserimento di un'adeguata analisi e valutazione del/i rischi(o). Tale valutazione è stata realizzata in relazione ai punti applicabili delle normative elencate nella Dichiarazione di Conformità. Questi prodotti sono progettati principalmente per essere integrati in sistemi più complessi. Per questo motivo, l'integratore di sistemi è responsabile della realizzazione di una nuova valutazione dei rischi riguardante l'installazione finale. Attenzione Si tratta di un prodotto di Classe A. In un ambiente domestico questo prodotto può generare interferenze radio. In tal caso è necessario prendere le dovute misure.	
DE	EG-Konformität
Die CE-Kennzeichnung bestätigt die Konformität des Produkts mit den wesentlichen Anforderungen der geltenden europäischen Richtlinien. Da die Richtlinien und anwendbaren Normen laufend aktualisiert werden und der Hersteller diese Aktualisierungen umgehend übernimmt, ist die EU-Konformitätserklärung ein fortschreitendes Dokument. Die EU-Konformitätserklärung ist für zuständige Behörden und Kunden über die Handelskontakte von dem Hersteller erhältlich. Seit dem 20. April 2016 erfordern die wichtigsten für diese Produkte anwendbaren Europäischen Richtlinien die Integration einer angemessenen Analyse und der Bewertung der Risiken. Diese Bewertung wird in Bezug auf die anwendbaren Punkte der in der Konformitätserklärung aufgelisteten Normen durchgeführt. Diese Produkte werden in erster Linie für die Integration in komplexere Systeme ausgelegt. Aus diesem Grund liegt es in der Verantwortung des Systemintegrators, eine neue Risikobewertung der Endinstallation vorzunehmen. Warnung Dies ist ein Produkt nach Klasse A. In einem häuslichen Umfeld kann dieses Produkt Funkstörungen auslösen, gegebenenfalls hat der Benutzer dann angebrachte Maßnahmen zu ergreifen.	
FR	Conformité CE
La marque CE indique la conformité du produit aux exigences essentielles énoncées dans la directive européenne applicable. Les directives et les normes applicables sont sujettes à des mises à jour de manière continue et le constructeur adopte rapidement ces mises à jour ; la déclaration de conformité UE est par conséquent un document vivant. La déclaration de conformité UE est disponible aux autorités compétentes et aux clients à travers les interlocuteurs commerciaux de référence des constructeurs. Depuis le 20 Avril 2016 les principales directives européennes applicables aux produits exigent l'inclusion d'une analyse et d'une évaluation adéquates du/des risque/s. Cette évaluation a été réalisée en relation avec les points applicables des normes indiquées dans la Déclaration de Conformité. Ces produits sont principalement conçus à des fins d'intégration dans des systèmes plus complexes. Pour cette raison, il est de la responsabilité de l'intégrateur de système d'effectuer une nouvelle évaluation des risques concernant l'installation finale. Avertissement Ceci est un produit de Classe A. Dans un environnement domestique, ce produit peut provoquer des interférences radio auquel cas l'utilisateur peut se trouver dans l'obligation de prendre des mesures adéquates.	
ES	Conformidad CE
La marca CE establece la conformidad del producto con los requisitos fundamentales enumerados en la directiva europea aplicable. Debido a que las directivas y normativas aplicables están sujetas a actualización continua, como el constructor adopta estas actualizaciones de inmediato, la declaración de conformidad UE es un documento activo. La declaración de conformidad UE está disponible para las autoridades competentes y para los clientes a través de los contactos comerciales de referencia del constructor. Desde el 20 de abril de 2016, las principales directivas europeas aplicables a los productos exigen la inclusión de un idóneo análisis y evaluación de riesgos. Esta evaluación ha sido efectuada sobre los puntos aplicables de la normativa indicada en la Declaración de Conformidad. Estos productos han sido diseñados a fin de ser integrados en sistemas más complejos. Por ello, es responsabilidad del integrador del sistema efectuar una nueva evaluación de riesgos relativa a la instalación final. Advertencia Este es un producto de Clase A. En un entorno doméstico, este producto puede causar interferencias radioeléctricas; en este caso, el usuario debería tomar medidas adecuadas.	
NL	EU-conformiteitsverklaring
Met de CE-markering wordt verklaard dat het product voldoet aan de essentiële eisen zoals vermeld in de toepasselijke Europese richtlijnen. Daar de richtlijnen en de toepasselijke normen onderhevig zijn aan voortdurende aanpassingen, en de fabrikant deze aanpassingen direct toepast, is de EU-conformiteitsverklaring een levend document. De EU-conformiteitsverklaring is beschikbaar voor bevoegde autoriteiten en klanten via contactgegevens voor commerciële referentie. Sinds 20 april 2016 vereisen de belangrijkste Europese richtlijnen de inclusie van een adequate risicoanalyse- en beoordeling. Deze beoordeling werd uitgevoerd met betrekking tot de toepasselijke punten van de normen zoals vermeld in de Conformiteitsverklaring. Deze producten zijn voornamelijk ontworpen voor integratie in complexere systemen. Om deze reden is het de verantwoordelijkheid van de systeemintegrator om een nieuwe risicobeoordeling uit te voeren met betrekking tot de definitieve installatie. Waarschuwing Dit is een Klasse A product. In een woonomgeving kan dit product radiostoring veroorzaken, in welk geval de gebruiker mogelijk verplicht is om adequate maatregelen te treffen.	