

Position transmitters, proximity sensors SDAS-MHS for T-slot

FESTO



Characteristics

General

The SDAS-MHS is used for contactless feedback of the piston position of drives with magnetic proximity sensing. It combines two functions into a single device.

1. As a position transmitter, it provides an output signal proportional to the motion within the sensing range, with the signal being made available in the IO-Link communication standard. Furthermore, 4 channels can be programmed via IO-Link as proximity sensor, window comparator or hysteresis comparator.

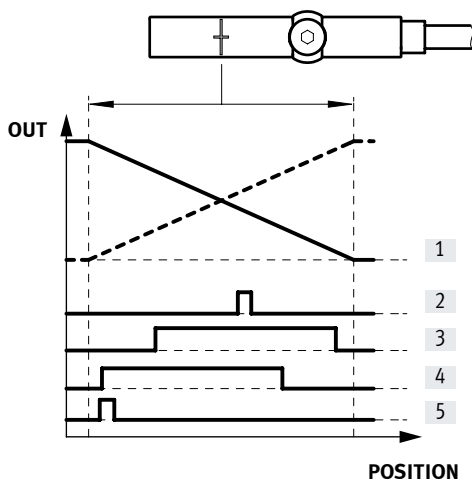
2. As a programmable proximity sensor, the SDAS-MHS provides binary feedback of the piston position which is made available as a standard 24 V output signal. Additionally, two proximity sensor switching points can be taught in within the sensing range via a capacitive operating button directly on the device.

Thanks to its extremely compact design, the SDAS-MHS is the ideal solution for grippers, compact cylinders and all applications with limited installation space.

Note

It can be used with Festo drives with T-slot (profile slot 8) as well as round cylinders and tie-rod cylinders with mounting kits. A selection aid with suitable drives can be found below.

Position transmitter



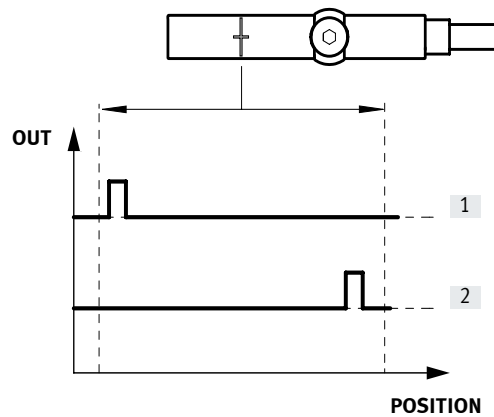
---- Output signal (PDV): direction of increase inverted
 — Output signal (PDV): direction of increase as per delivery status

- | | |
|-------------------------------------|----------|
| [1] PDV (position data values) | [3] SSC2 |
| [2] SSC1 (switching signal channel) | [4] SSC3 |
| | [5] SSC4 |

Applications:

Good/bad part sorting, press-fitting, riveting, ultrasonic welding etc.

Proximity sensor

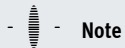


- | |
|-------------------------|
| [1] Electrical output 1 |
| [2] Electrical output 2 |

Applications:

Two proximity sensors in one device to save space on compact drives and to save time during assembly and commissioning.

Characteristics



Note

Sensing range [mm]:

Specification for operating mode as **position transmitter**; typical value.

In operating mode as **proximity sensor**, the sensing range in which switching points can be set is reduced at the right- and left-hand edge by approx. 5% in each case on account of the required functional reserve.

For drive	Sensing range [mm]
Standards-based cylinders	
ADN-12	25
ADN-16	25
ADN-20	28
ADN-25	28
ADN-32	29
ADN-40	29
ADN-50	33
ADN-63	34
ADN-80	37
ADN-100	43
ADN-125	41
ADN-TT-12	25
ADN-TT-16	25
ADN-TT-20	27
ADN-TT-25	28
ADN-TT-32	29
ADN-TT-40	29
ADN-TT-50	33
ADN-TT-63	34
ADN-TT-80	37
ADN-TT-100	42
ADN-TT-125	41

For drive	Sensing range [mm]
Standards-based cylinders	
DSBC-32	28
DSBC-40	30
DSBC-50	30
DSBC-63	34
DSBC-80	38
DSBC-100	42
DSBC-125	42
DSBC-TT-32	27
DSBC-TT-40	30
DSBC-TT-50	30
DSBC-TT-63	34
DSBC-TT-80	38
DSBC-TT-100	42
DSBC-TT-125	42
DSBG-32	31
DSBG-40	29
DSBG-50	30
DSBG-63	32
DSBG-80	35
DSBG-100	40
DSBG-125	45
DSBG-32 V2	31
DSBG-63 V2	32
DSBG-100 V2	36
DSNU-8	24
DSNU-10	26
DSNU-12	27
DSNU-16	28
DSNU-20	27
DSNU-25	29
DSNU-32	27
DSNU-40	28
DSNU-50	31
DSNU-63	32

Characteristics

For drive	Sensing range [mm]
Piston rod cylinders	
ADVC-32	Stroke < sensing range of SDAS
ADVC-40	Stroke < sensing range of SDAS
ADVC-50	Stroke < sensing range of SDAS
ADVC-63	Stroke < sensing range of SDAS
ADVC-80	Stroke < sensing range of SDAS
ADVC-100	Stroke < sensing range of SDAS
ADVU-12	27
ADVU-16	24
ADVU-20	29
ADVU-25	30
ADVU-32	33
ADVU-40	35
ADVU-50	32
ADVU-63	40
ADVU-80	44
ADVU-100	45
ADVU-125	40
DMM-10	23
DMM-16	27
DMM-20	32
DMM-25	31
DMM-32	33
DPDM-25	29
DPDM-32	28
DZF-12	28
DZF-18	29
DZF-25	35
DZF-32	34
DZF-40	44
DZF-50	47
DZF-63	52
DGST-16	28
DGST-20	32
DGST-25	32
DZH-16	31
DZH-20	32
DZH-25	33
DSL-16	32
DSL-20	25
DSL-25	36
DSL-32	37
DSL-40	40

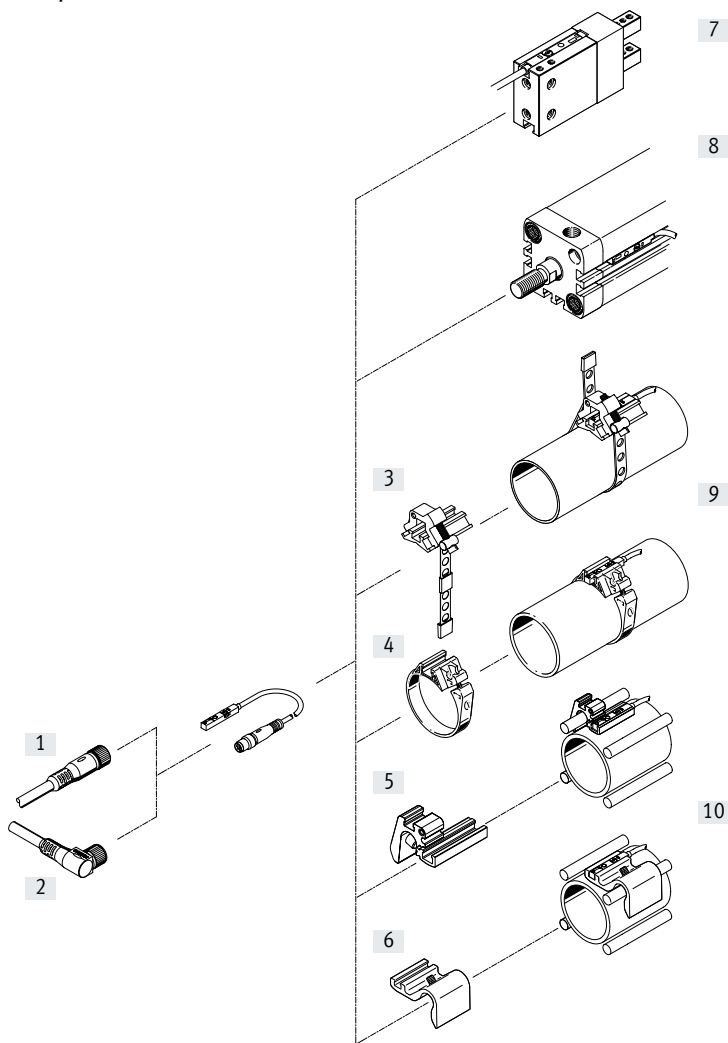
For drive	Sensing range [mm]
Rodless cylinders	
DGC-18	33
DGC-25	41
DGC-32	43
DGC-40	58
DGC-K-18	34
DGC-K-25	44
DGC-K-32	52
Semi-rotary drives with rack and pinion	
DRRD-16	Stroke < sensing range of SDAS
DRRD-20	23
DRRD-25	28
DRRD-32	30
DRRD-35	31
DRRD-40	30
DRRD-50	29
DRRD-63	29
DRQD-16	Stroke < sensing range of SDAS
DRQD-20	29
DRQD-25	29
DRQD-32	31
DRQD-50	39
DRQD-63	29
Drives with linear guide	
DFM-12	27
DFM-16	25
DFM-20	31
DFM-25	30
DFM-32	33
DFM-40	32
DFM-50	34
DFM-63	36
DFM-80	41
DFM-100	46
DFM-12-B	25
DFM-16-B	27
DFM-20-B	28
DFM-25-B	29
DFM-32-B	30
DFM-40-B	30
DFM-50-B	32
DFM-63-B	36
DGC-18	33
DGC-25	41
DGC-32	43
DGC-40	58
DGC-K-18	34
DGC-K-25	44
DGC-K-32	52
DPZ-10	27
DPZ-16	30
DPZ-20	34
DPZ-25	32
DPZ-32	34

Characteristics

For grippers	Sensing range [mm]
DHDS-32	Stroke < sensing range of SDAS
DHDS-50	Stroke < sensing range of SDAS
DHDS-32-NC	Stroke < sensing range of SDAS
DHDS-50-NC	Stroke < sensing range of SDAS
DHEF-20-A	33
DHPS-10	Stroke < sensing range of SDAS
DHPS-16	Stroke < sensing range of SDAS
DHPS-20	Stroke < sensing range of SDAS
DHPS-25	Stroke < sensing range of SDAS
DHPS-35	Stroke < sensing range of SDAS
DHPS-10-NC	Stroke < sensing range of SDAS
DHPS-16-NC	Stroke < sensing range of SDAS
DHPS-35-NC	Stroke < sensing range of SDAS
DHPS-10-NO	Stroke < sensing range of SDAS
DHPS-16-NO	Stroke < sensing range of SDAS
DHPS-20-NO	Stroke < sensing range of SDAS
DHPS-35-NO	Stroke < sensing range of SDAS
DHRS-16	Stroke < sensing range of SDAS
DHRS-25	Stroke < sensing range of SDAS
DHRS-32	Stroke < sensing range of SDAS
DHRS-40	Stroke < sensing range of SDAS
DHRS-16-NC	Stroke < sensing range of SDAS
DHRS-25-NC	Stroke < sensing range of SDAS
DHRS-32-NC	Stroke < sensing range of SDAS
DHRS-40-NC	Stroke < sensing range of SDAS
HGW-16	Stroke < sensing range of SDAS
HGW-25	Stroke < sensing range of SDAS
HGW-32	Stroke < sensing range of SDAS
HGW-40	Stroke < sensing range of SDAS
DHWS-16	Stroke < sensing range of SDAS
DHWS-25	Stroke < sensing range of SDAS
DHWS-32	Stroke < sensing range of SDAS
DHWS-40	Stroke < sensing range of SDAS
DHWS-16-NC	Stroke < sensing range of SDAS
DHWS-25-NC	Stroke < sensing range of SDAS
DHWS-32-NC	Stroke < sensing range of SDAS
DHWS-40-NC	Stroke < sensing range of SDAS
HGDD-50	Stroke < sensing range of SDAS
HGDD-63	Stroke < sensing range of SDAS
HGDD-80	Stroke < sensing range of SDAS
HGDD-35-G1	Stroke < sensing range of SDAS
HGDD-40-G1	Stroke < sensing range of SDAS
HGDD-50-G1	Stroke < sensing range of SDAS
HGDD-63-G1	Stroke < sensing range of SDAS
HGDD-80-G1	Stroke < sensing range of SDAS
HGDD-35-G2	Stroke < sensing range of SDAS
HGDD-40-G2	Stroke < sensing range of SDAS
HGDD-50-G2	Stroke < sensing range of SDAS
HGDD-63-G2	Stroke < sensing range of SDAS
HGDD-80-G2	Stroke < sensing range of SDAS

For grippers	Sensing range [mm]
HGPD-40	Stroke < sensing range of SDAS
HGPD-50	Stroke < sensing range of SDAS
HGPD-63	Stroke < sensing range of SDAS
HGPD-80	Stroke < sensing range of SDAS
HGPD-40-G1	Stroke < sensing range of SDAS
HGPD-50-G1	Stroke < sensing range of SDAS
HGPD-63-G1	Stroke < sensing range of SDAS
HGPD-80-G1	Stroke < sensing range of SDAS
HGPD-40-G2	Stroke < sensing range of SDAS
HGPD-50-G2	Stroke < sensing range of SDAS
HGPD-63-G2	Stroke < sensing range of SDAS
HGPD-80-G2	Stroke < sensing range of SDAS
HGPL-14	25
HGPL-25	28
HGPL-40	32
HGPL-63	33
HGPL-B-14	26
HGPL-B-25	28
HGPL-B-40	32
HGPL-B-63	33
HGPT-40	Stroke < sensing range of SDAS
HGPT-50	Stroke < sensing range of SDAS
HGPT-63	Stroke < sensing range of SDAS
HGPT-80	Stroke < sensing range of SDAS
HGPT-40-G1	Stroke < sensing range of SDAS
HGPT-50-G1	Stroke < sensing range of SDAS
HGPT-63-G1	Stroke < sensing range of SDAS
HGPT-80-G1	Stroke < sensing range of SDAS
HGPT-40-G2	Stroke < sensing range of SDAS
HGPT-50-G2	Stroke < sensing range of SDAS
HGPT-63-G2	Stroke < sensing range of SDAS
HGPT-80-G2	Stroke < sensing range of SDAS
HGRT-40	Stroke < sensing range of SDAS
HGRT-50	36
HGRT-40-G2	Stroke < sensing range of SDAS
HGRT-50-G2	40
EHPS-16	Stroke < sensing range of SDAS
EHPS-20	Stroke < sensing range of SDAS
EHPS-25	Stroke < sensing range of SDAS

Peripherals overview



Accessories	→ Page/Internet
[1] Connecting cable NEBU-M8G4	12
[2] Connecting cable NEBU-M8W4	12
[3] Mounting kit SMBR-8-8/100-S6, heat-resistant	12
[4] Mounting kit SMBR	12
[5] Mounting kit SMBZ-8	12
[6] Sensor bracket DASP-M4-...	12
[7] Three-point gripper HGDD	hgdd
Parallel gripper DHPS	dhps
Parallel gripper HGPD	hgpd
Parallel gripper HGPT	hgpt
Angle gripper DHWS	dhws
Radial gripper DHRS	dhrs
Radial gripper HGRT	hgtr

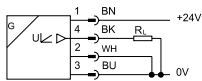
Accessories	→ Page/Internet
[8] Standards-based cylinder DSBC	dsbc
Standards-based cylinder DNC	dnc
Compact cylinder ADN	adn
Short-stroke cylinder ADVC/AEVC	advc
Compact cylinder ADVU/AEUV	advu
Flat cylinder DZF	dzf
Linear drive DGC	dgc
Linear/swivel clamp CLR	clr
Guided drive DFM	dfm
[9] Standards-based cylinder/round cylinder DSNU	dsnu
Linear drive unit SLE	sle
[10] Standards-based cylinder DSBG	dsbg

Type codes

001	Series		007	Electrical output 1	
SDAS	Position transmitter/cylinder switch		PNLK	PNP or NPN or IO-Link®	
002	Sensor version		008	Electrical output 2	
M	Can be inserted in the slot		PN	PNP or NPN	
003	Sensor principle		009	Cable characteristic	
HS	Hall sensor		E	Suitable for energy chains/robot applications	
004	Measuring range		010	Cable length [m]	
M40	Typically up to 40 mm		0.3	0.3	
005	Nominal operating voltage		2.5	2.5	
1	24 V DC		011	Electrical connection	
006	Display		LE	Open end	
L	LED		M8	Plug M8	

Data sheet

Function



Operating mode:
Position transmitter

Operating mode:
Proximity sensor



General technical data

Design	For T-slot
Mounting position	Any
Type of mounting	Screwed tightly
Certification	RCM compliance mark
KC mark	KC EMC
CE marking (see declaration of conformity)	To EU EMC Directive
Degree of protection	IP65, IP68
Note on materials	RoHS-compliant Halogen-free

- 1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Sensors

Measured variable	Position
Measuring principle	Magnetic Hall
Sensing range [mm]	≤ 52
Ambient temperature [°C]	-40 ... +80
Typical sampling interval [ms]	2
Max. travel speed [m/s]	3
Path resolution [mm]	≤ 0.02
Repetition accuracy [mm]	0.2
Typical linearity error [mm]	±1

Electronics – General

Operating voltage range [V DC]	10 ... 30
Residual ripple [%]	10
Reverse polarity protection	For all electrical connections

Data sheet

Electronics – Switching output (operating mode: proximity sensor)		
Switching output		2x PNP or 2x NPN adjustable
Switching element function ¹⁾		N/C or N/O contact, switchable
Switch-on time	[ms]	< 4
Switch-off time	[ms]	< 4
Max. switching frequency	[Hz]	125
Max. output current ²⁾	[mA]	50
Short circuit current rating		Yes
Overload protection		Present
Max. switching output voltage DC	[V]	30
Max. switching capacity DC	[W]	1.5
Voltage drop	[V]	< 0.5

1) Switching element function can only be set via IO-Link

2) Per switching output

IO-Link (operating mode: position transmitter)	
Protocol	IO-Link I-Port
Protocol version	Device V 1.1
Profile	Smart sensor profile
Function classes	Process data variable (PDV) Identification Diagnostics Teach channel Switching signal channel (SSC)
Communication mode	COM2 (38.4 kBaud)
SIO-mode support	Yes
Port class	A
Process data width IN	2 bytes
Process data content IN	12-bit PDV (position measurement) 4-bit SSC (switching signal)
Minimum cycle time	[ms] 2.5

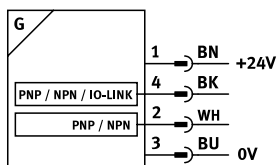
Display/operation	
Switching status indication	LED yellow
Status indication	LED red
Setting options	IO-Link Capacitive pushbutton

Data sheet

Electromechanical components	SDAS-MHS- ... -0,3-M8	SDAS-MHS- ... -2,5-LE
Electrical connection 1		
Connection type	Cable with plug	Cable
Connection technology	M8x1, A-coded to EN 61076-2-104	Open end
Number of pins/wires	4	
Type of mounting	Screw-type lock	-
Connection outlet direction	In-line	
Ambient temperature with flexible cable installation	[°C] -20 ... +70	
Cable length	[m] 0.3	2.5
Cable characteristic	Suitable for use with energy chains/robot applications	
Cable test conditions	Bending strength: to Festo standard	
	Energy chain: 5 million cycles, bending radius 28 mm	
	Torsional resistance: > 300,000 cycles, ± 270°/0.1 m	
Cable sheath colour	Grey	
Cable sheath material	TPE-U(PUR)	
Information on materials: Pin contacts	Gold-plated copper alloy	-

Terminal allocation

	Operating mode: proximity sensor	Operating mode: position transmitter
1	Operating voltage	1 Operating voltage
2	Switching output 2	2 Not used
3	0V	3 0V
4	Switching output 1	4 IO-Link



Wire colours

BN = Brown
BK = Black

WH = White
BU = Blue

Plug

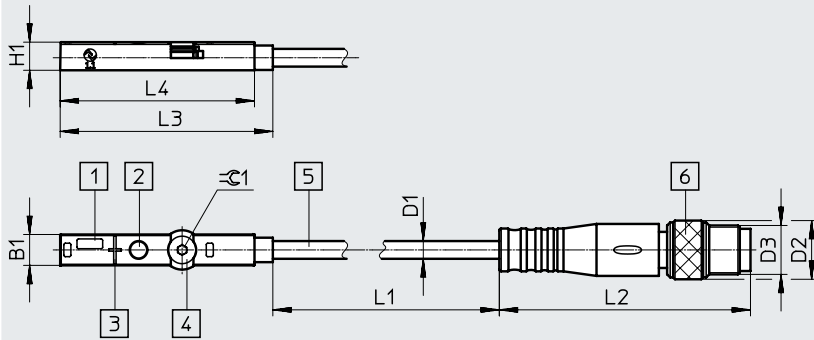


Mechanical system	SDAS-MHS- ... -0,3-M8	SDAS-MHS- ... -2,5-LE
Type of mounting	Insertable in the slot from above	
Product weight	[g] 9.5	27
Housing material	High-alloy stainless steel	
	Reinforced PA	
Information on materials: Union nut	Nickel-plated brass	-

Data sheet

Dimensions of cable with plug

Download CAD data → www.festo.com

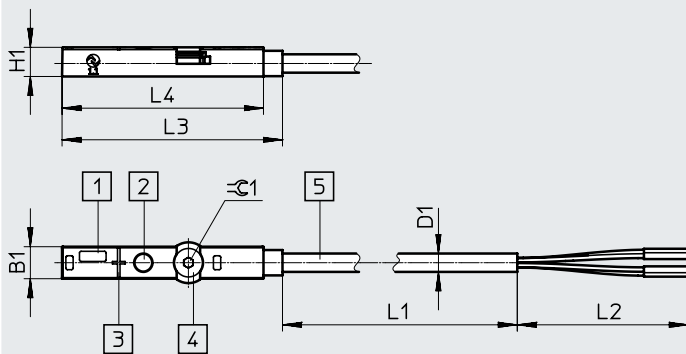


- [1] Light emitting diode
- [2] Operating button
- [3] Centre of the sensor
- [4] Slot for screwdriver
- [5] Connecting cable
- [6] Plug M8, 4-pin

Type	B1	D1 ∅	D2 ∅	D3	H1	L1	L2	L3	L4	⊕ 1
SDAS-MHS-...-M8	5	2.9	9.6	M8	4.6	300	41.1	34.8	31.8	1.5

Cable dimensions

Download CAD data → www.festo.com







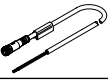
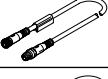

- [1] Light emitting diode
- [2] Operating button
- [3] Centre of the sensor
- [4] Slot for screwdriver
- [5] Connecting cable

Type	B1	D1 ∅	H1	L1	L2	L3	L4	⊕ 1
SDAS-MHS-...-LE	5	2.9	4.6	2500	50	34.8	31.8	1.5

Ordering data

	Electrical connection	Cable length [m]	Part no.	Type
	Cable with plug, M8x1, A-coded to EN 61076-2-104	0.3	8063974	SDAS-MHS-M40-1L-PNLK-PN-E-0.3-M8
	Cable, open end	2.5	8063975	SDAS-MHS-M40-1L-PNLK-PN-E-2.5-LE

Accessories

Ordering data – Mounting components					
	For piston diameter		Part no.	Type	
Mounting kit SMBR-8-8/100-S6, heat-resistant					
	8 ... 100		538937	SMBR-8-8/100-S6	
Mounting kit SMBR					
	8		175091	SMBR-8-8	
	10		175092	SMBR-8-10	
	12		175093	SMBR-8-12	
	16		175094	SMBR-8-16	
	20		175095	SMBR-8-20	
	25		175096	SMBR-8-25	
	32		175097	SMBR-8-32	
	40		175098	SMBR-8-40	
	50		175099	SMBR-8-50	
63		175100	SMBR-8-63		
Mounting SMBZ					
	For DSBG 32 ... 100		537806	SMBZ-8-3 2/100	
Sensor bracket DASP-M4-...					
	For DSBG-125		1451483	DASP-M4-125-A	
Ordering data – Connecting cable NEBU-M8					
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	Type
	Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	541342	NEBU-M8G4-K-2.5-LE4
			5	541343	NEBU-M8G4-K-5-LE4
	Straight socket, M8x1, 4-pin	Straight socket, M8x1, 4-pin	2.5	554035	NEBU-M8G4-K-2.5-M8G4
			5	541344	NEBU-M8W4-K-2.5-LE4
	Angled socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	541344	NEBU-M8W4-K-2.5-LE4
			5	541345	NEBU-M8W4-K-5-LE4

Data sheets → Internet: nebu