

DS4 - 05 - 300 - S 08 - JE

1

DS4 Standard

TECHNICAL SPECIFICATIONS

DETECTION/MEASUREMENT AREA SENSORS

		DS4-**-****-S08-JZ	DS4-**-****-S12-JE
		 	
GENERAL DATA			
Operating principle	Emitter + Receiver		
MONITORED AREA			
Nominal sensing distance	0.2 ... 13 m		
Controlled height	300 ... 3000 mm		
EMISSION DATA			
Emission	Infrared (850nm)		
FUNCTIONS			
Available functions	Advanced functions: Transparent object Blanking Pattern match		
INPUT/OUTPUT			
Output type	PNP or NPN or Push-Pull , 0...10 V, 4..20 mA, IO-Link, RS485	PNP or NPN or Push-Pull , 0...10 V, 4..20 mA, IO-Link, Ethernet TCP/IP	
Baud rate	2400/9600/19200/28400/57600/115200/230400/576000/921600 Default: 57600		
IO-LINK			
IO-Link version	IO-Link V1.1.3		
Transmission rate	230400 bits/s (COM3)		
Minimum cycle time	2 ms		
DeviceID DEC	1		
Process Data input length	32 Bytes		
Process data output l	8 Bits		
HMI/UI			
LED Indicators (TX)	Green (Power ON), Yellow (Emission range) Red (Test, failure, Firmware ongoing update), Blue (Emission range, Firmware update completed)		
LED Indicators (RX)	Green (Power ON), Yellow (Status output, Connection and teach-in active) Red (Hardware Errors, Invalid confiuration, module optical occupied)		
ELECTRICAL DATA			
Supply voltage	19.2 ... 28.8 Vdc		
Maximum No-load absorption	360 mA(emitter and receiver)		
Power consumption - Emitter	≤ 2 W		
Power consumption - Receiver	≤ 5 W		
Maximum DC output voltage drop	2.5 V @ IL=100mA		
Maximum DC load current	100 mA		
MECHANICAL DATA			
Dimensions	35 x 40 x (307.5 ... 3009) mm		
Material	Aluminium / PBT		
Housing material	Aluminium		
Optic window material	PMMA		
Connections	M12 5 poles + 200 mm length cable TPU (TX), M12 8 poles + 200 mm length cable TPU (RX) (DS4-**-****-S08-JZ)	M12 5 poles + 200 mm length cable TPU (TX), M12 8 poles + 200 mm length cable TPU (RX), M12 4 poles D code + 150 mm length cable TPU (ETH) (DS4-**-****-S12-JE)	
Weight	1.40 Kg/m single bar, without package		
ENVIRONMENTAL DATA			
Operating Temperature	-30 ... 55 °C (without freeze)		
Storage temperature max.	-30 ... 70 °C		
Mechanical Protection	IP65 IP67		
Shocks and vibrations	10 mm / 3g, 5 ... 150 Hz frequency, (EN 60068-2-6 / Class 3M7 IEC TR 60721-4-3); 25g x 6 ms x 600 (EN 60068-2-27 / Class 3M7 IEC TR 60721-4-3)		
Humidity	15 ... 95 % (no freeze)		

AVAILABLE MODELS

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Distance between beams	Nominal sensing distance	Sensitivity adjustment	Response time	Controlled height	Beams number	Output type	
						PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, RS485	PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, Ethernet TCP/IP
5 mm	0.2 ... 5 m Transparent objects (T = 0...50 °C; H ≤ 1.5 m): 10% (0.35 - 1.5 m) 20% (0.35 - 2.5 m) 30 % (0.35 - 4 m)	remote teach, IO-Link, AppGUI	2.80 ms	300 mm	60	DS4-05-0300-S08-JZ (957650010)	DS4-05-0300-S12-JE (957650029)
			3.70 ms	450 mm	90	DS4-05-0450-S08-JZ (957650011)	DS4-05-0450-S12-JE (957650030)
			4.60 ms	600 mm	120	DS4-05-0600-S08-JZ (957650012)	DS4-05-0600-S12-JE (957650031)
			5.50 ms	750 mm	150	DS4-05-0750-S08-JZ (957650013)	DS4-05-0750-S12-JE (957650032)
			6.40 ms	900 mm	180	DS4-05-0900-S08-JZ (957650014)	DS4-05-0900-S12-JE (957650033)
			7.30 ms	1050 mm	210	DS4-05-1050-S08-JZ (957650015)	DS4-05-1050-S12-JE (957650034)
			8.20 ms	1200 mm	240	DS4-05-1200-S08-JZ (957650016)	DS4-05-1200-S12-JE (957650035)
			9.10 ms	1350 mm	270	DS4-05-1350-S08-JZ (957650017)	DS4-05-1350-S12-JE (957650036)
			10.00 ms	1500 mm	300	DS4-05-1500-S08-JZ (957650018)	DS4-05-1500-S12-JE (957650037)
			10.90 ms	1650 mm	330	DS4-05-1650-S08-JZ (957650019)	DS4-05-1650-S12-JE (957650038)
			11.80 ms	1800 mm	360	DS4-05-1800-S08-JZ (957650020)	DS4-05-1800-S12-JE (957650039)
			12.70 ms	1950 mm	390	DS4-05-1950-S08-JZ (957650021)	DS4-05-1950-S12-JE (957650040)
			13.60 ms	2100 mm	420	DS4-05-2100-S08-JZ (957650022)	DS4-05-2100-S12-JE (957650041)
			14.50 ms	2250 mm	450	DS4-05-2250-S08-JZ (957650023)	DS4-05-2250-S12-JE (957650042)
			15.40 ms	2400 mm	480	DS4-05-2400-S08-JZ (957650024)	DS4-05-2400-S12-JE (957650043)
			16.30 ms	2550 mm	510	DS4-05-2550-S08-JZ (957650025)	DS4-05-2550-S12-JE (957650044)
			17.20 ms	2700 mm	540	DS4-05-2700-S08-JZ (957650026)	DS4-05-2700-S12-JE (957650045)
			18.10 ms	2850 mm	570	DS4-05-2850-S08-JZ (957650027)	DS4-05-2850-S12-JE (957650046)
			19.00 ms	3000 mm	600	DS4-05-3000-S08-JZ (957650028)	DS4-05-3000-S12-JE (957650047)

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Distance between beams	Nominal sensing distance	Sensitivity adjustment	Response time	Controlled height	Beams number	Output type	
						PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, RS485	PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, Ethernet TCP/IP
10 mm	0.2 ... 7 m Transparent objects (T = 0...50 °C; H ≤ 1.5 m): 10% (0.35 - 1.5 m) 20% (0.35 - 2.5 m) 30 % (0.35 - 4 m)	remote teach, IO-Link, AppGUI	1.90 ms	300 mm	30	DS4-10-0300-S08-JZ (957650057)	DS4-10-0300-S12-JE (957650076)
			2.35 ms	450 mm	45	DS4-10-0450-S08-JZ (957650058)	DS4-10-0450-S12-JE (957650077)
			2.80 ms	600 mm	60	DS4-10-0600-S08-JZ (957650059)	DS4-10-0600-S12-JE (957650078)
			3.25 ms	750 mm	75	DS4-10-0750-S08-JZ (957650060)	DS4-10-0750-S12-JE (957650079)
			3.70 ms	900 mm	90	DS4-10-0900-S08-JZ (957650061)	DS4-10-0900-S12-JE (957650080)
			4.15 ms	1050 mm	105	DS4-10-1050-S08-JZ (957650062)	DS4-10-1050-S12-JE (957650081)
			4.60 ms	1200 mm	120	DS4-10-1200-S08-JZ (957650063)	DS4-10-1200-S12-JE (957650082)
			5.05 ms	1350 mm	135	DS4-10-1350-S08-JZ (957650064)	DS4-10-1350-S12-JE (957650083)
			5.50 ms	1500 mm	150	DS4-10-1500-S08-JZ (957650065)	DS4-10-1500-S12-JE (957650084)
			5.95 ms	1650 mm	165	DS4-10-1650-S08-JZ (957650066)	DS4-10-1650-S12-JE (957650085)
			6.40 ms	1800 mm	180	DS4-10-1800-S08-JZ (957650067)	DS4-10-1800-S12-JE (957650086)
			6.85 ms	1950 mm	195	DS4-10-1950-S08-JZ (957650068)	DS4-10-1950-S12-JE (957650087)
			7.30 ms	2100 mm	210	DS4-10-2100-S08-JZ (957650069)	DS4-10-2100-S12-JE (957650088)
			7.75 ms	2250 mm	225	DS4-10-2250-S08-JZ (957650070)	DS4-10-2250-S12-JE (957650089)
			8.20 ms	2400 mm	240	DS4-10-2400-S08-JZ (957650071)	DS4-10-2400-S12-JE (957650090)
			8.65 ms	2550 mm	255	DS4-10-2550-S08-JZ (957650072)	DS4-10-2550-S12-JE (957650091)
			9.10 ms	2700 mm	270	DS4-10-2700-S08-JZ (957650073)	DS4-10-2700-S12-JE (957650092)
			9.55 ms	2850 mm	285	DS4-10-2850-S08-JZ (957650074)	DS4-10-2850-S12-JE (957650093)
			10.00 ms	3000 mm	300	DS4-10-3000-S08-JZ (957650075)	DS4-10-3000-S12-JE (957650094)

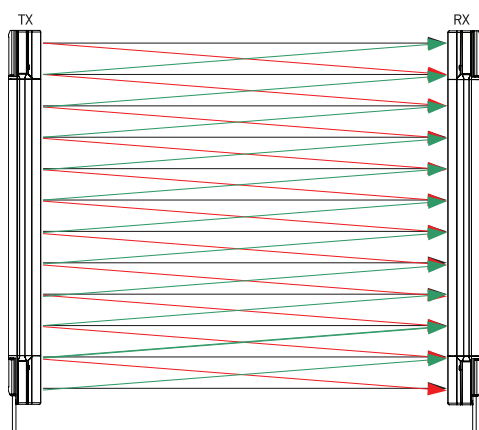
AVAILABLE MODELS

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DETECTION/MEASUREMENT AREA SENSORS

Distance between beams	Nominal sensing distance	Sensitivity adjustment	Response time	Controlled height	Beams number	Output type	
						PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, RS485	PNP or NPN or Push-Pull , 0...10 V, 4...20 mA, IO-Link, Ethernet TCP/IP
25 mm	0.2 ... 13 m	remote teach, IO-Link, AppGUI	1.36 ms	300 mm	12	DS4-25-0300-S08-JZ (957650104)	DS4-25-0300-S12-JE (957650123)
			1.54 ms	450 mm	18	DS4-25-0450-S08-JZ (957650105)	DS4-25-0450-S12-JE (957650124)
			1.72 ms	600 mm	24	DS4-25-0600-S08-JZ (957650106)	DS4-25-0600-S12-JE (957650125)
			1.90 ms	750 mm	30	DS4-25-0750-S08-JZ (957650107)	DS4-25-0750-S12-JE (957650126)
			2.08 ms	900 mm	36	DS4-25-0900-S08-JZ (957650108)	DS4-25-0900-S12-JE (957650127)
			2.26 ms	1050 mm	42	DS4-25-1050-S08-JZ (957650109)	DS4-25-1050-S12-JE (957650128)
			2.44 ms	1200 mm	48	DS4-25-1200-S08-JZ (957650110)	DS4-25-1200-S12-JE (957650129)
			2.62 ms	1350 mm	54	DS4-25-1350-S08-JZ (957650111)	DS4-25-1350-S12-JE (957650130)
			2.80 ms	1500 mm	60	DS4-25-1500-S08-JZ (957650112)	DS4-25-1500-S12-JE (957650131)
			2.98 ms	1650 mm	66	DS4-25-1650-S08-JZ (957650113)	DS4-25-1650-S12-JE (957650132)
			3.16 ms	1800 mm	72	DS4-25-1800-S08-JZ (957650114)	DS4-25-1800-S12-JE (957650133)
			3.34 ms	1950 mm	78	DS4-25-1950-S08-JZ (957650115)	DS4-25-1950-S12-JE (957650134)
			3.52 ms	2100 mm	84	DS4-25-2100-S08-JZ (957650116)	DS4-25-2100-S12-JE (957650135)
			3.70 ms	2250 mm	90	DS4-25-2250-S08-JZ (957650117)	DS4-25-2250-S12-JE (957650136)
			3.88 ms	2400 mm	96	DS4-25-2400-S08-JZ (957650118)	DS4-25-2400-S12-JE (957650137)
			4.06 ms	2550 mm	102	DS4-25-2550-S08-JZ (957650119)	DS4-25-2550-S12-JE (957650138)
			4.24 ms	2700 mm	108	DS4-25-2700-S08-JZ (957650120)	DS4-25-2700-S12-JE (957650139)
			4.42 ms	2850 mm	114	DS4-25-2850-S08-JZ (957650121)	DS4-25-2850-S12-JE (957650140)
			4.60 ms	3000 mm	120	DS4-25-3000-S08-JZ (957650122)	DS4-25-3000-S12-JE (957650141)

CROSSED BEAMS



Model Distance between beams	Crossed beam (minimum distance)
DS4-05-****-S**-** 5 mm	≥ 300 mm
DS4-10-****-S**-** 10 mm	≥ 700 mm
DS4-25-****-S**-** 25 mm	No crossed beams

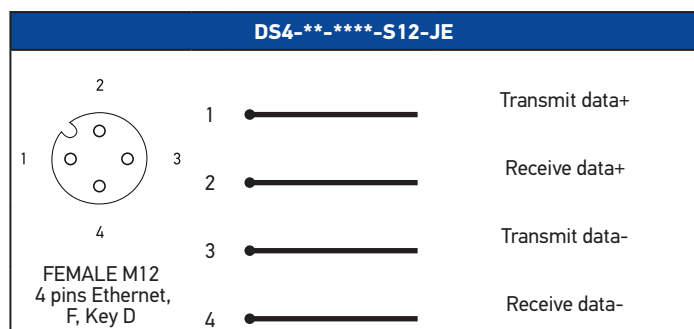
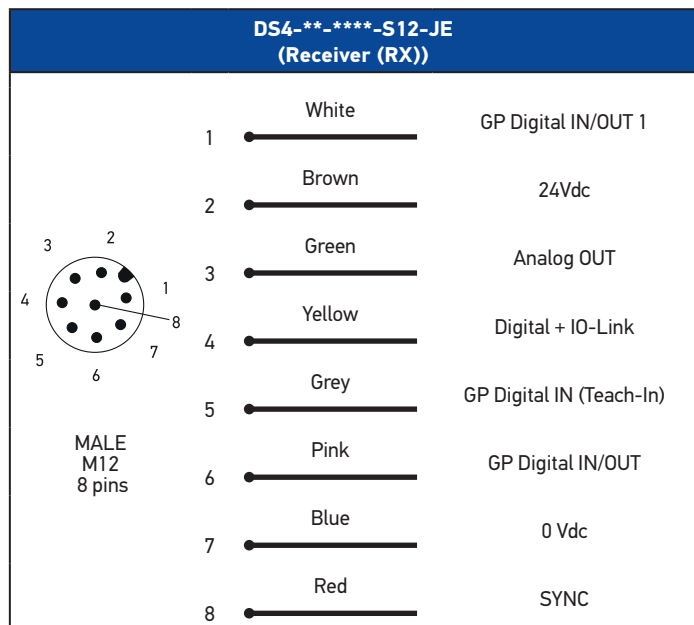
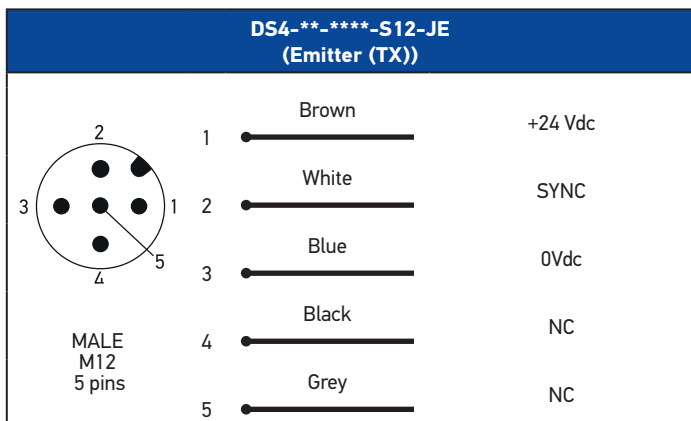
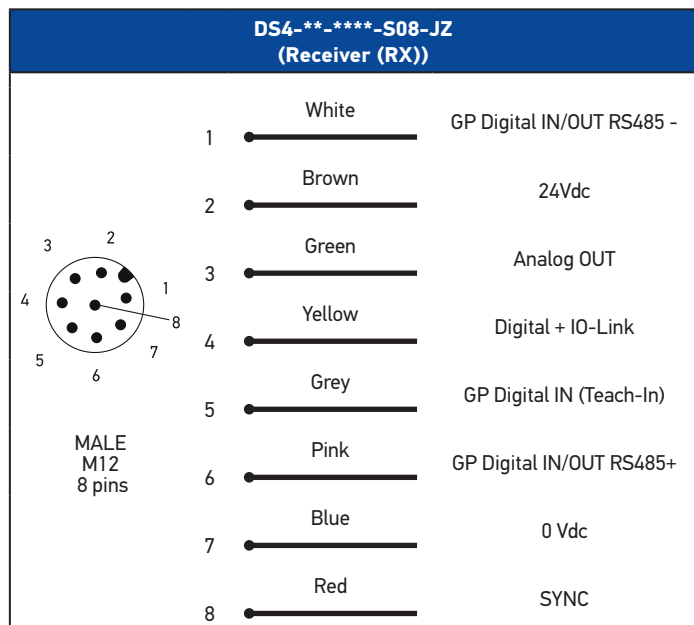
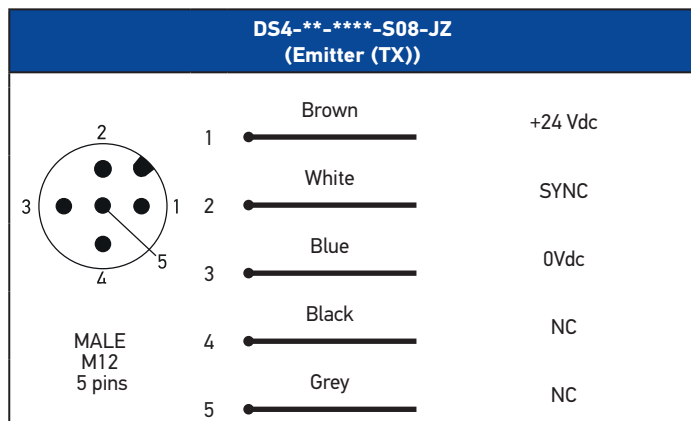
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MINIMUM DETECTABLE OBJECT

	Measurement	Detection with teach	Detection without teach
DS4-05-****-S**-**	5 mm 2.5 mm (Augmented Resolution Mode) T = 0...50 °C; H ≤ 1.5 m	≥ 3.5 mm	10 mm
DS4-10-****-S**-**	10 mm	10 mm	14 mm
DS4-25-****-S**-**	25 mm	25 mm	25 mm

CONNECTIONS

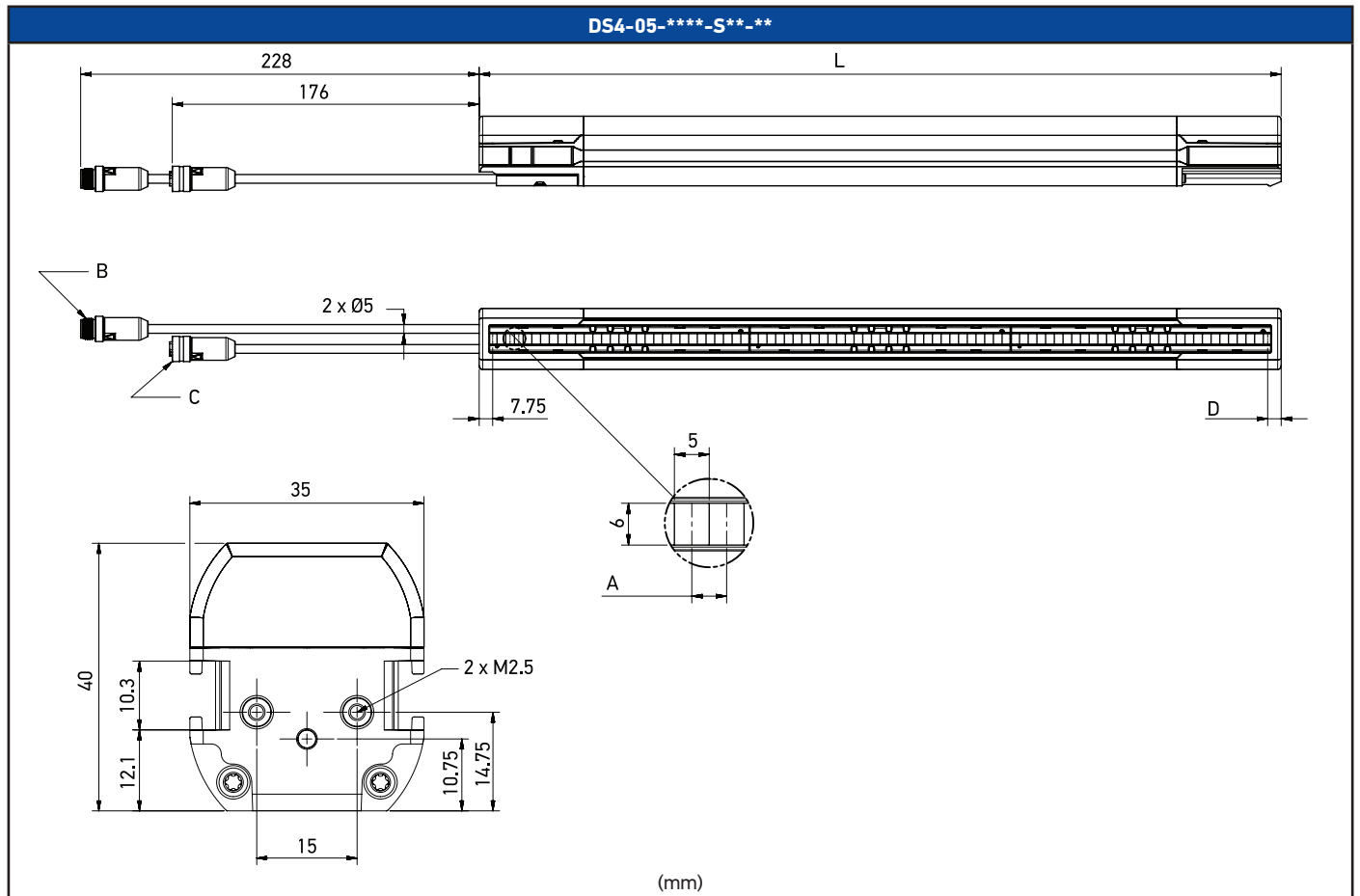
DETECTION/MEASUREMENT AREA SENSORS



MECHANICAL DRAWINGS

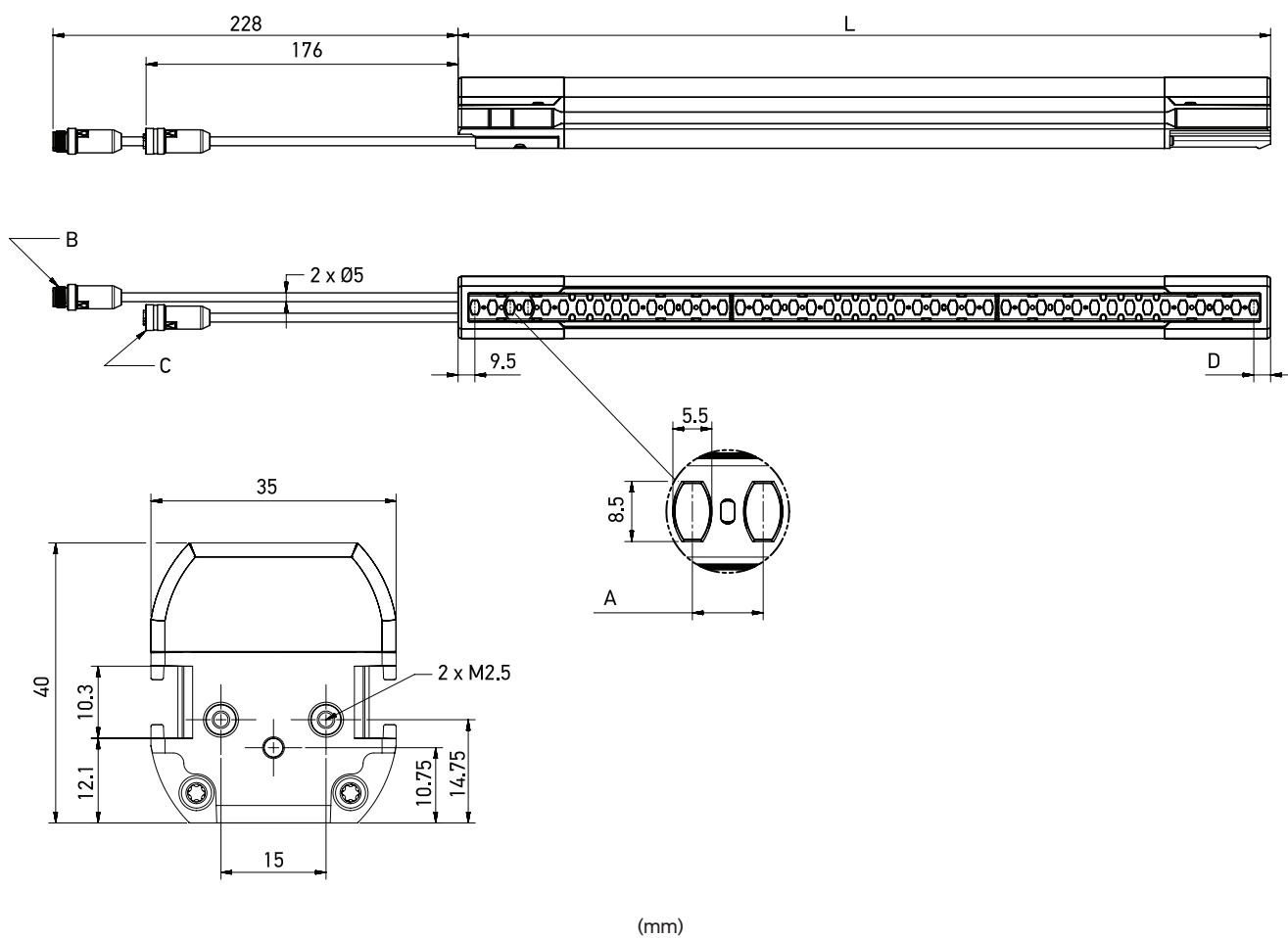
DS4 Standard

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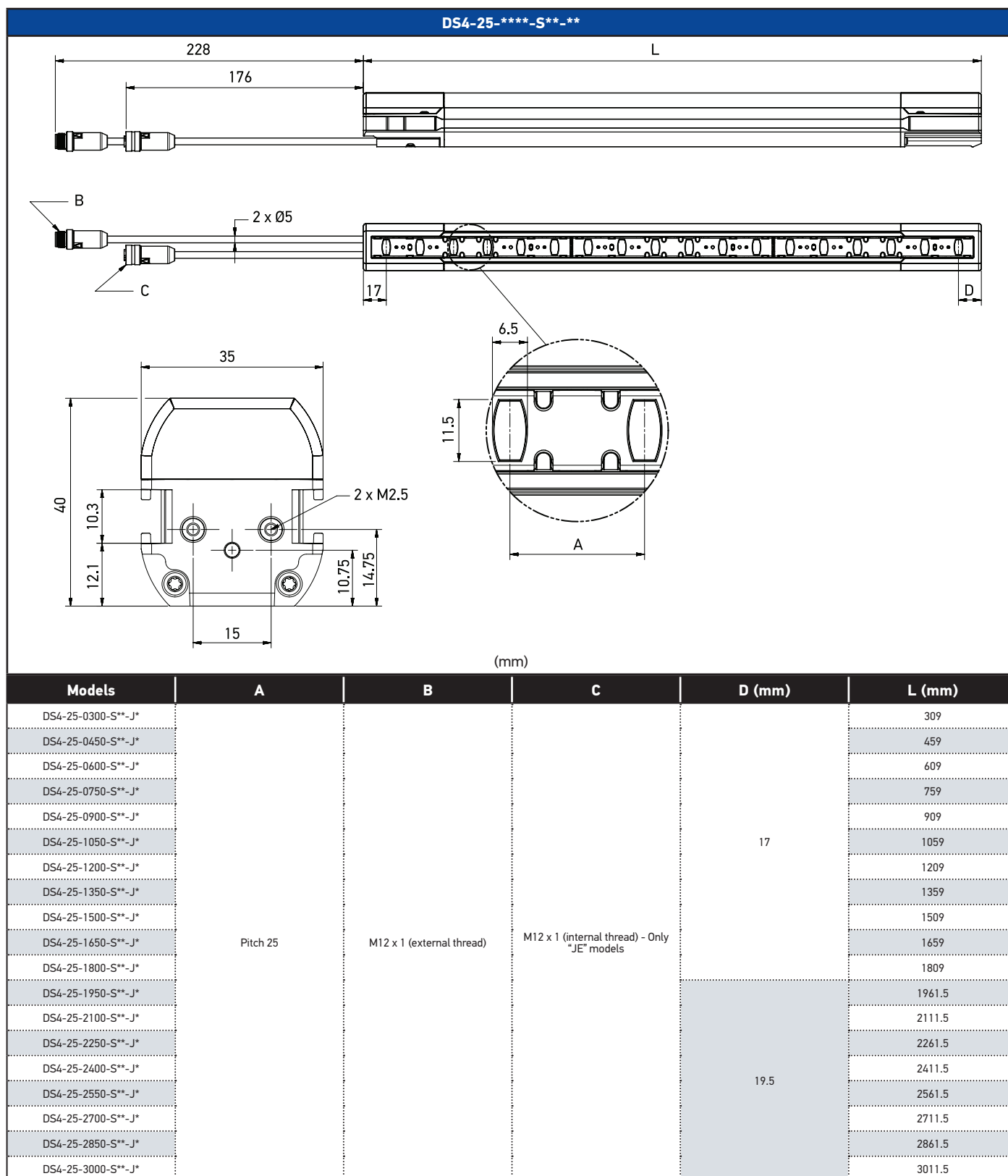
Models	A	B	C	D (mm)	L (mm)
DS4-05-0300-S**-J*	Pitch 5	M12 x 1 (external thread)	M12 x 1 (internal thread) - Only "JE" models	7.75	310.5
DS4-05-0450-S**-J*					460.5
DS4-05-0600-S**-J*					610.5
DS4-05-0750-S**-J*					760.5
DS4-05-0900-S**-J*					910.5
DS4-05-1050-S**-J*					1060.5
DS4-05-1200-S**-J*					1210.5
DS4-05-1350-S**-J*					1360.5
DS4-05-1500-S**-J*					1510.5
DS4-05-1650-S**-J*					1660.5
DS4-05-1800-S**-J*				10.25	1810.5
DS4-05-1950-S**-J*					1963
DS4-05-2100-S**-J*					2113
DS4-05-2250-S**-J*					2263
DS4-05-2400-S**-J*					2413
DS4-05-2550-S**-J*					2563
DS4-05-2700-S**-J*					2713
DS4-05-2850-S**-J*					2863
DS4-05-3000-S**-J*					3013

DS4-10-****-S**-**



Models	A	B	C	D (mm)	L (mm)
DS4-10-0300-S**-J*	Pitch 10	M12 x 1 (external thread)	M12 x 1 (internal thread) - Only "JE" models	9.5	309
DS4-10-0450-S**-J*					459
DS4-10-0600-S**-J*					609
DS4-10-0750-S**-J*					759
DS4-10-0900-S**-J*					909
DS4-10-1050-S**-J*					1059
DS4-10-1200-S**-J*					1209
DS4-10-1350-S**-J*					1359
DS4-10-1500-S**-J*					1509
DS4-10-1650-S**-J*					1659
DS4-10-1800-S**-J*				12	1809
DS4-10-1950-S**-J*					1961.5
DS4-10-2100-S**-J*					2111.5
DS4-10-2250-S**-J*					2261.5
DS4-10-2400-S**-J*					2411.5
DS4-10-2550-S**-J*					2561.5
DS4-10-2700-S**-J*					2711.5
DS4-10-2850-S**-J*					2861.5
DS4-10-3000-S**-J*					3011.5

MECHANICAL DRAWINGS



ACCESSORIES

	Model	Description	Article code
Mounting brackets	ST-KSTD	Metal angled brackets 4 pcs kit for SG/SH4	95ACC1670
	ST-K4OR	Orientable supports 4 pcs kit to be used with ST-KSTD	95ACC1680
	ST-K4AV	Anti vibration supports 4 pcs kit to be used with ST-KSTD	95ACC1700
	ST-K6AV	Anti vibration supports 6 pcs kit to be used with ST-KSTD	95ACC1710
	ST-KP4MP	Plastic angled brackets 4 pcs kit	95ASE1100
	ST-K4ROT-SH	Rotating brackets for SH4 4 pcs	95ASE0042

	Model	Description	Article code
Cables	CAB-ETH-M01	M12-RJ45 IP67 ethernet cable 1m	93A051346
	CAB-ETH-M03	M12-RJ45 IP67 ethernet cable 3m	93A051347
	CAB-ETH-M05	M12-RJ45 IP67 ethernet cable 5m	93A051348
	CAB-ETH-M10	M12-RJ45 IP67 ethernet cable 10m	93A051391
	CD12M/0E-050A1	Connect.M12-F,8 poles-5m,PVC,Axial	CD12M/0E-050A1
	CD12M/0E-100A1	Connect.M12-F,8 poles-10m,PVC,Axial	CD12M/0E-100A1
	CD12M/0E-150A1	Connect.M12-F,8 poles-15m,PVC,Axial	CD12M/0E-150A1
	CDP12/0B-010AA	M12-F-Axial, 4p,M12-M-Axial,PVC,1 m	CDP12/0B-010AA
	CDP12/0B-030AA	M12-F-Axial, 4p,M12-M-Axial,PVC,3 m	CDP12/0B-030AA
	CDP12/0B-050AA	M12-F-Axial, 4p,M12-M-Axial,PVC,5 m	CDP12/0B-050AA
	CDP12/0B-100AA	M12-F-Axial, 4p,M12-M-Axial,PVC,10 m	CDP12/0B-100AA
	CS-A1-02-B-NC	CS-A1-02-B-NC = M12 4-p axial PG	G5085002
	CS-A1-02-G-03	CS-A1-02-G-03 = M12 4-p axial 3m	95A251380
	CS-A1-02-G-05	CS-A1-02-G-05 = M12 4-p axial 5m	95A251270
	CS-A1-02-G-10	CS-A1-02-G-10 = M12 4-p axial 10m	95A251390
	CS-A1-02-R-02	CS-A1-02-R-02 = M12 4-p axial 2m PUR	95A251540
	CS-A1-02-R-05	CS-A1-02-R-05 = M12 4-p axial 5m PUR	95A251560
	CS-A1-02-U-03	Cable M12 4 poles axial female unshielded 3 m UL 2464	95ASE1120
	CS-A1-02-U-05	Cable M12 4 poles axial female unshielded 5 m UL 2464	95ASE1130
	CS-A1-02-U-10	Cable M12 4 poles axial female unshielded 10 m UL 2464	95ASE1140
	CS-A1-02-U-15	Cable M12 4 poles axial female unshielded 15 m UL 2464	95ASE1150
	CS-A1-06-B-03	CS-A1-06-B-03 = M12 8-p axial 3m	95ACC2230
	CS-A1-06-B-05	CS-A1-06-B-05 = M12 8-p axial 5m	95ACC2240
	CS-A1-06-B-10	CS-A1-06-B-10 M12 8 pins10 m black	95ACC2250
	CS-A1-06-B-NC	M12 8-p axial PG	95ACC2550
	CS-A1-06-U-03	Cable M12 8 poles axial female unshielded 3 m UL 2464	95ASE1220
	CS-A1-06-U-05	Cable M12 8 poles axial female unshielded 5 m UL 2464	95ASE1230
	CS-A1-06-U-10	Cable M12 8 poles axial female unshielded 10 m UL 2464	95ASE1240
	CS-A1-06-U-15	Cable M12 8 poles axial female unshielded 15 m UL 2464	95ASE1250
	CS-A1-06-U-25	Cable M12 8 poles axial female unshielded 25 m UL 2464	95ASE1260
	CS-H2-03-B-01	Cascade cable for SH4 1 m	95ASE0031
	CS-H2-03-B-03	Cascade cable for SH4 3 m	95ASE0032
	CS-H2-03-B-10	Cascade cable for SH4 10 m	95ASE0033
	CS-I1-02-B-03	CS-I1-02-B-03 4p M12-M/M12-F axial 3m bk	95ACC0009
	CS-M1-02-B-03	CS-M1-02-B-03 5p M12-F Lcode axial 3m gr	95ACC0007
	CS-Y2-45-B-002	Y Cable M12 8p female - M12 5p Female + M12 4p Male	95ASE0102
	CV12/0B-00A	Connect.M12-M-Axial,4 p,Field attach.	CV12/0B-00A
	CV12/0B-00B	Connect.M12-M-90°,4 p,Field attach.	CV12/0B-00B
	CV12/0H-00A	Connect.M12-M-Axial,5 p,Field attach.	CV12/0H-00A
	CV-A1-26-B-03	Cable M12 8 poles axial female shielded 3m	95ACC1510
	CV-A1-26-B-05	Cable M12 8 poles axial female shielded 5m	95ACC1520
	CV-A1-26-B-10	Cable M12 8 poles axial female shielded 10m	95ACC1530
	CV-A1-26-B-15	Cable M12 8 poles axial female shielded 15m	95ACC2080
	CV-A1-26-B-25	Cable M12 8 poles axial female shielded 25m	95ACC2100
IO-Link masters	CBX-8IOL-PNIO	8P IOL M12 PROFINET MASTER	95ACC8190
	CBX-8IOL-EIP	8P IOL M12 EIP MASTER	95ACC8180

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