

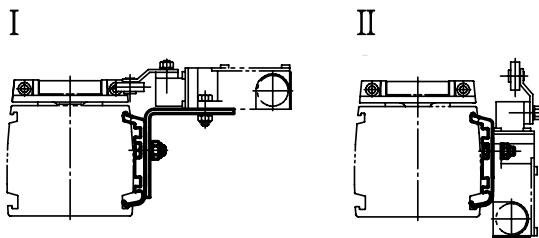
Accessories

Electrical Feedback Devices

Limit Switch Brackets¹

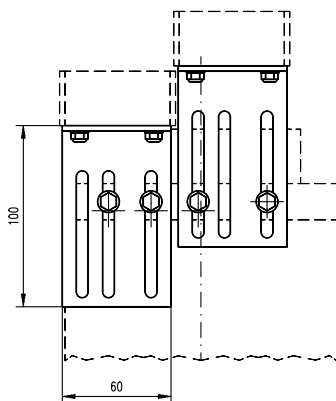
Unit type	I	For limit switch type	II	For limit switch type
M50	D393 035	ZCM-D21	–	–
M55	D313 427	ZCM-D21	D313 428	ZCM-D21
M75	D312 860	XCK-M115	D312 861	XCK-M115
M100	D312 330	XCK-M115	D312 331	XCK-M115

¹ No limit switches included in the shipment.



Limit Switch Brackets for Z3

Unit type	p/n	For limit switch type
Z3	D800 042	XCK-M115



The limit switch brackets are adjustable in height. The limit switches on the brackets are operated by the maximum extended and maximum retracted end of stroke bars on top of the Z3 units. Two brackets are required.

Limit Switches

Switch type	p/n	Protection degree	Contacts	Cable
XCK-M115	D535 107	IP67	NO + NC	–
ZCM-D21	D535 102	IP67	NO + NC	1 meter

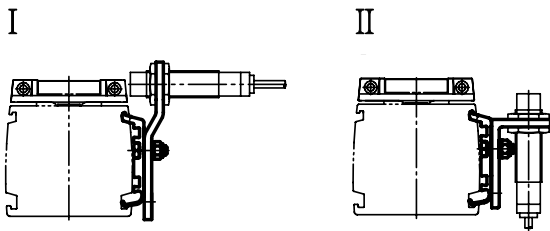
Accessories

Electrical Feedback Devices

Sensor Brackets for Cylindrical Sensors¹

Unit type	I	For sensor diameter	II	For sensor diameter
M55	D313 429	M12	D313 430	M12
M75	D312 862	M18	D312 863	M18
M100	D312 332	M18	D312 333	M18

¹ no sensors included in the shipment



Cylindrical Inductive Sensors

Sensor type	p/n	Diameter	Input voltage	Max. current	Protection degree	Contacts	Cable
PNP	D535 085	M12	12 - 48 Vdc	0,2 A	IP67	NO	connector
PNP	D535 089	M18	12 - 48 Vdc	0,2 A	IP67	NO	connector

Cylindrical Inductive Sensor Connectors

For sensor diameter	p/n
M12	D535 092
M18	D535 091

Accessories

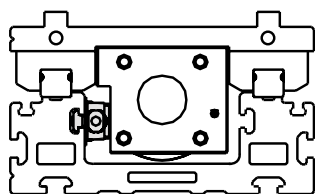
Electrical Feedback Devices

Sensor Packages

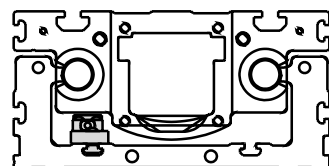
Unit type	Package type	p/n	Output type	Output operation	Frequency ¹	Supply voltage [VDC]	Cable length [m]	Sdetract [mm]
2HB10	One home sensor	LSP2HBM10-N-1	NPN	NO	1 × V	12 - 24	5	-
		LSP2HBM10-P-1	PNP	NO	1 × V	12 - 24	5	-
	Two limit switch sensors	LSP2HBM10-N-2	NPN	NC	2 × S	12 - 24	5	30
		LSP2HBM10-P-2	PNP	NC	2 × S	12 - 24	5	30
	One home and two limit switch sensors	LSP2HBM10-N-3	NPN	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	30
		LSP2HBM10-P-3	PNP	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	30
2HB20	One home sensor	LSP2HBM20-N-1	NPN	NO	1 × V	12 - 24	5	-
		LSP2HBM20-P-1	PNP	NO	1 × V	12 - 24	5	-
	Two limit switch sensors	LSP2HBM20-N-2	NPN	NC	2 × S	12 - 24	5	30
		LSP2HBM20-P-2	PNP	NC	2 × S	12 - 24	5	30
	One home and two limit switch sensors	LSP2HBM20-N-3	NPN	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	30
		LSP2HBM20-P-3	PNP	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	30
2RB12	One home sensor	LSP2RM12-N-1	NPN	NO	1 × V	12 - 24	5	-
		LSP2RM12-P-1	PNP	NO	1 × V	12 - 24	5	-
	Two limit switch sensors	LSP2RM12-N-2	NPN	NC	2 × S	12 - 24	5	35
		LSP2RM12-P-2	PNP	NC	2 × S	12 - 24	5	35
	Home and limit switch sensors	LSP2RM12-N-3	NPN	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	35
		LSP2RM12-P-3	PNP	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	35
2RB16	One home sensor	LSP2RM16-N-1	NPN	NO	1 × V	12 - 24	5	-
		LSP2RM16-P-1	PNP	NO	1 × V	12 - 24	5	-
	Two limit switch sensors	LSP2RM16-N-2	NPN	NC	2 × S	12 - 24	5	35
		LSP2RM16-P-2	PNP	NC	2 × S	12 - 24	5	35
	One home and two limit switch sensors	LSP2RM16-N-3	NPN	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	35
		LSP2RM16-P-3	PNP	1 × NC, 2 × NO	1 × V, 2 × S	12 - 24	5	35

¹ V = varied frequency. S = standard frequency.

LIMIT SWITCH POSITION 2HBE



LIMIT SWITCH POSITION 2RB



Each 2HB and 2RB can be equipped with sensors inside of the profile where they are protected from mechanical damage. The systems are provided with access holes on each side of each end plate for passage of the sensor package cable. Using limit switch sensors will reduce the effective stroke. The standard position will approximately reduce the stroke by the distance listed in the Sdetract column. The 2HB, 2RB, 2HE and 2RE ordering keys can be configured with the limit switches and/or a home sensor as part of the assembly. See ordering keys or www.LinearMotioneering.com for details. The part numbers listed above are for the limit switches and/or home sensors as separate items.



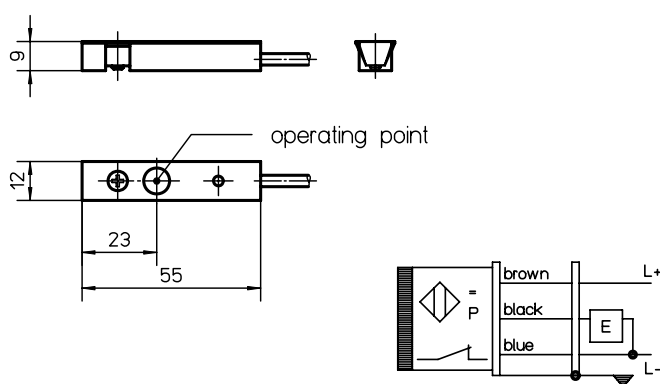
Accessories

Electrical Feedback Devices

EN2 Inductive Sensors, part numbers

Sensor type	Cable length [m]	p/n
Normally closed	2	671 545 0305
Normally open	2	671 545 0304
Normally closed	10	671 545 0307
Normally open	10	671 545 0306

To be able to mount the EN2 inductive sensors on a unit the ENT14x16 sensor rail is required (see page 178) except for units WM120 and WV120 where they can be fitted directly to the profile of the unit.

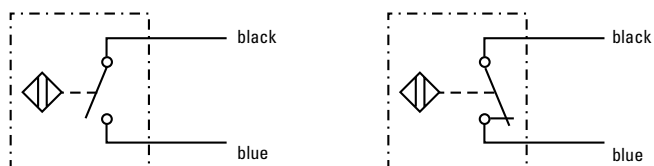


EN2 Inductive Sensors, data

Parameter		EN2
Supply voltage	[Vdc]	10 – 30
Max. load current	[A]	0,2
Operating distance	[mm]	2
LED indicator for switch		yes
Protection class		IP67
Cable type		screened
Weight	[kg]	
with cable L = 2 m		0,04
with cable L = 10 m		0,19

Magnetic Sensors, data

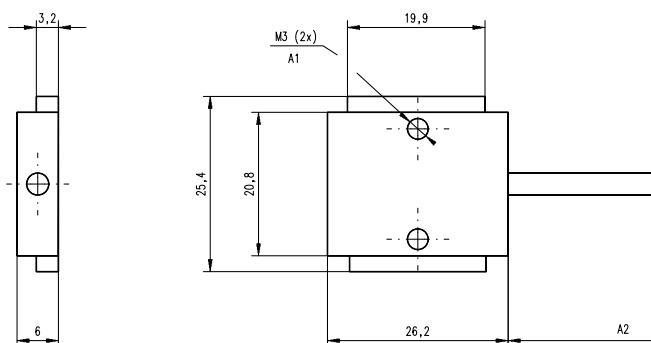
Parameter		
Max. power	[W]	10
Max. voltage	[Vdc]	100
Max. current	[A]	0,5
LED indicator for switch		no
Protection class		IP67
Cable length	[m]	3
Cable cross section	[mm ²]	2 × 0,15
Operating temperature limits	[°C]	-25 – 65
Weight	[kg]	0,050



Magnetic Sensors, part numbers

Sensor type	suitable units	p/n
Normally closed	M50, Z2, Z3	D535 071
Normally open	M50, Z2, Z3	D535 070

On M50 the magnetic sensors are mounted directly in the sensor slot of the profiles of the units and require no mounting bracket while Z2 and Z3 require magnetic sensor mounting brackets. The sensor is fixed in position by two M3 size locking screws (A1). The cable (A2) is molded into the sensor.



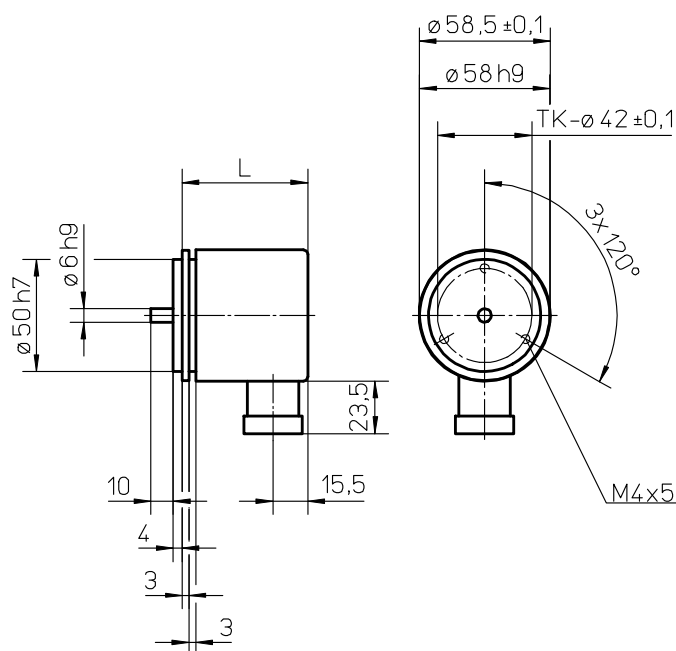
Accessories

Electrical Feedback Devices

IG602 Encoders, data

Parameter		IG602
Supply voltage	[Vdc]	
Type 1		5 ±10%
Type 2		10 – 30
Output type		
Type 1		line driver
Type 2		push-pull
Pulses per revolution	[ppr]	
Type 1		100 – 2500
Type 2		100 – 600
Length (L)	[mm]	
Type 1		51,5
Type 2		56,0
Weight	[kg]	
Type 1		0,36
Type 2		0,36

The IG602 encoders come with mounting screws but no coupling or connector. To be able to mount the encoder to the unit, the unit must have a shaft for encoders. See the ordering keys of the units. The encoders can also be ordered mounted to the unit from factory. See ADG encoder option kit on page 170.



IG602 Encoders, part numbers

Encoder type	Supply voltage [Vdc]	Pulses per revolution	p/n
Type 1	5	100	671 521 0194
Type 1	5	200	671 521 0195
Type 1	5	500	671 521 0196
Type 1	5	600	671 521 0197
Type 1	5	1000	671 521 0198
Type 1	5	1250	671 521 0199
Type 1	5	1500	671 521 0200
Type 1	5	2000	671 521 0192
Type 1	5	2500	671 521 0201
Type 2	10 – 30	100	671 521 0193
Type 2	10 – 30	200	671 521 0202
Type 2	10 – 30	500	671 521 0203
Type 2	10 – 30	600	671 521 0204
Type 2	10 – 30	600	

STE001 Encoder Connector, data

Parameter		STE001
Number of poles		12
Protection class		IP67
Execution		jack
Cable entrance		straight
Weight	[kg]	0,04
Part number		6715600153

Encoder Cable, data

Parameter		p/n
5 m cable length		671 555 0068
10 m cable length		671 555 0069

The encoder cables come fitted with a STE001 encoder connector in one of the ends.



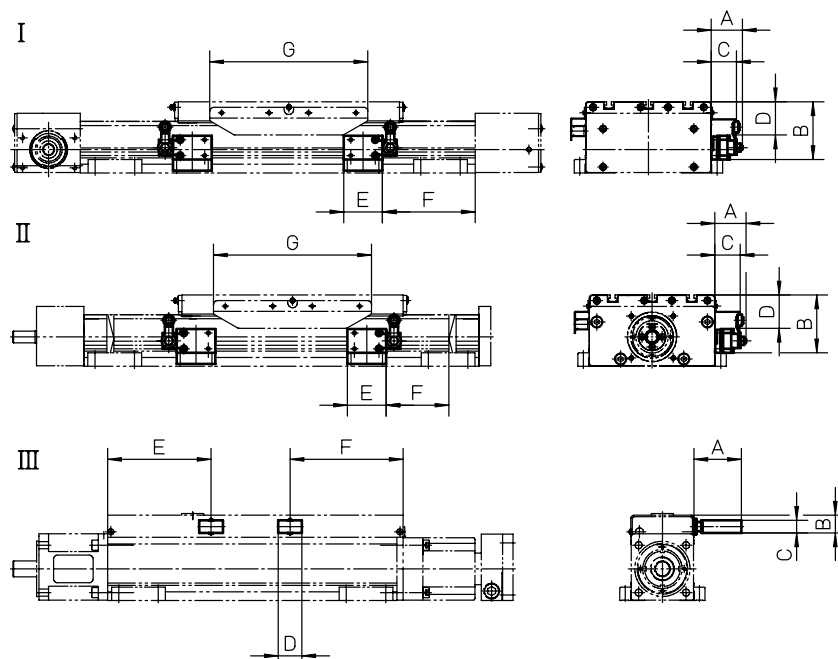
Accessories

Electrical Feedback Devices

ES Limit Switch Option Kit

Unit type	I	II	III	A	B	C	D	E	F	G
WH50 ¹	•			34	60,5	10	26	49	58,5	196
WH80	•			31	76	10	39	49	78,5	196
WH120	•			34	88	10	51	49	78,5	196
WHZ50	•			34	61	10	26	49	58,5	196
WHZ80	•			31	76	10	39	49	78,5	196
WM60		•		40	69	32	38	50	63	200
WM80		•		40	73	32	42	50	79	200
WM120		•		40	89	32	58	50	94	200
WM60Z	•			40	69	32	38	50	73	200
WM80Z ²	•			40	73	32	42	50	99 (89)	200
WV60		•		40	69	32	38	50	33	200
WV80		•		40	73	32	42	50	39	200
WV120		•		40	89	32	58	50	59	200
MLSM60D		•		40	73	32	32	50	79	200
MLSH60Z	•			40	73	32	42	50	79	200
MLSM80D		•		40	85	32	54	50	101	200
MLSM80Z		•		40	85	32	54	50	101	200
WZ60 ¹			•	60	22,5	16	30	113	53	–
WZ80 ¹			•	60	22,5	16	30	112	84	–

¹ Limit switches for these units can not be moved. On all other units the switches can be re-positioned by the customer. ² Value in brackets = for short carriage.



The ES limit switch assembly is an option that is mounted at the factory. The limit switches are placed 10 mm from the mechanical ends of the unit. Each limit switch has one NO and one NC contact with positive opening action. Protection degree is IP67. Type I and II switches can be repositioned along the profile by the customer. Note! The ES limit switch option and any of the sensor rail options ENT14x16, ENF14x16 or ENK can not be mounted on the same side of the unit.

Accessories

Electrical Feedback Devices

ES Limit Switch Option Kit, ordering key

	1	2	3	4
Example	ESK07	-L	-01	-10

1. Compatible unit

ESK02 = WH50
 ESK03 = WH80
 ESK04 = WH120
 ESK05 = WM40
 ESK06 = WM60 / WM60Z
 ESK07 = WM80 / WM80Z
 ESK08 = WM120
 ESK09 = WV60
 ESK10 = WV80
 ESK11 = WV120
 ESK12 = WHZ50
 ESK13 = WHZ80
 ESK14 = WZ60
 ESK15 = WZ80
 ESK16 = MLSH60Z
 ESK18 = MLSM80Z
 ESK19 = MLSM60D
 ESK20 = MLSM80D

2. Mounting side of the unit

-L = left side
 -R = right side

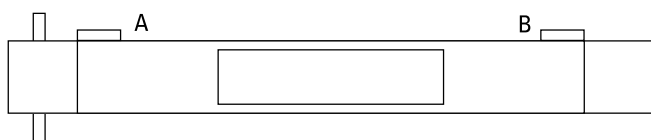
3. Switch configuration on side A

-00 = no switch on side A
 -01 = switch with 1 m cable
 -05 = switch with 5 m cable
 -10 = switch with 10 m cable

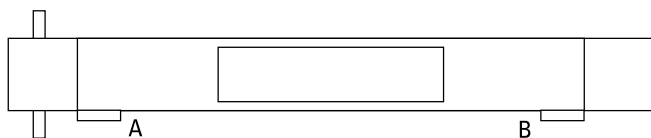
4. Switch configuration on side B

-00 = no switch on side B
 -01 = switch with 1 m cable
 -05 = switch with 5 m cable
 -10 = switch with 10 m cable

ES-...-R-...-...



ES-...-L-...-...



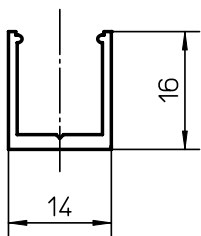


Accessories

Electrical Feedback Devices

ENT14x16 Inductive Sensor Rail

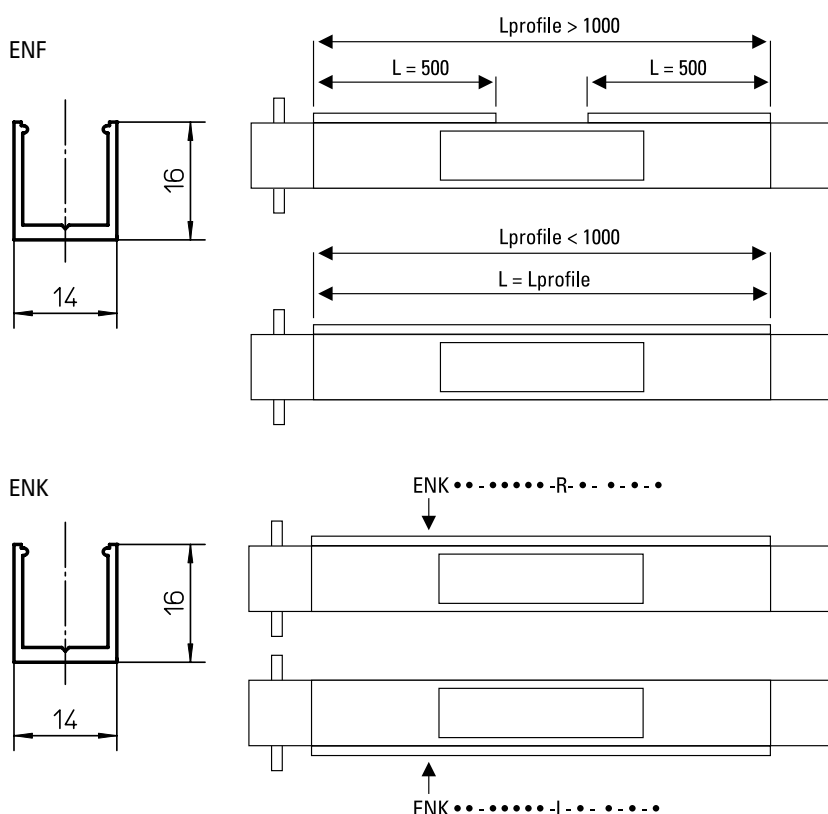
Unit type	p/n
WH40 / WH50 / WH80 / WH120 / WHZ50 / WHZ80 / WM40 / WM60 / WM80 / WM60Z / WM80Z / WV60 / WV80 / MLSM60D / MLSM80D / MLSH60Z / MLSM80Z / WZ60 / WZ80 / WB40 / WB60	671 545 0283



The ENT14x16 inductive sensor rail is mounted to the side of a unit or along any type of beam or profile. Sensors of type EN2 can be mounted in the rail. The rail can also serve as a cable duct for the sensor cables. The rail is sealed with a cover which comes with the rail. The rail comes in lengths of max 3000 mm. Drilling in the profile of the unit is required when mounting the rail. When ordering, specify part number and length of the rail. Note1! WM120 and WV120 units do not require any rail as the EN2 sensors can be fitted directly to the profile of the units. Note2! ES limit switch option and ENT14x16 rail can not be mounted on the same side of the unit.

ENF and ENK Inductive Sensor Rail Option Kit, compatibility table

Unit type	ENF / ENK
WH40 / WH50 / WH80 / WH120 / WHZ50 / WHZ80 / WM40 / WM60 / WM80 / WM60Z / WM80Z / WV60 / WV80 / MLSM60D / MLSM80D / MLSH60Z / MLSM80Z / WZ60 / WZ80 / WB40 / WB60 / M50 / M75 / M100	.



The ENF and ENK inductive sensor rail option kits are mounted at the factory. The ENF option consists of two 500 mm long ENT14x16 sensor rails mounted in each end of the unit on the left or right side of the profile. In cases where the unit is too short to allow two 500 mm sensor rails to be mounted, then one rail is mounted along the entire profile of the unit. The ENK option also consists of ENT14 x16 sensor rails but the ENK option has sensor profiles that run along the entire profile of the unit. In the shipment of both ENF and ENK the specified amount and type of EN2 sensors are included. The sensors are fitted to the sensor rail by the customer at the desired positions.

Note1! WM120 and WV120 units do not require any ENF or ENK options as the EN2 sensors can be fitted directly to the profile of the units.

Note2! The ES limit switch option and ENF rail can not be mounted on the same side of the unit.

Note3! Movopart M50/75/100 units require adapter plates for mounting the ENF/ENK to the profile. See page 135 for adapter plate dimensions.

Accessories

Electrical Feedback Devices

ENK and ENF Inductive Sensor Rail Option Kit, ordering key

	1	2	3	4	5	6	7	8
Example	ENK16	-S	-04000	-R	-2	-0	-1	-6

1. Type of rail and compatible unit

ENK01 = ENK rail for WH40
 ENK02 = ENK rail for WH50
 ENK03 = ENK rail for WH80
 ENK04 = ENK rail for WH120
 ENK05 = ENK rail for WM40
 ENK06 = ENK rail for WM60 / WV60
 ENK07 = ENK rail for WM80 / WV80
 ENK08 = ENK rail for WM120 / WV120
 ENK09 = ENK rail for WM60Z
 ENK10 = ENK rail for WM80Z
 ENK11 = ENK rail for WHZ50
 ENK12 = ENK rail for WHZ80
 ENK13 = ENK rail for WZ60
 ENK14 = ENK rail for WZ80
 ENK15 = ENK rail for MLSH60Z
 ENK17 = ENK rail for MLSM80Z
 ENK18 = ENK rail for MLSM60D
 ENK19 = ENK rail for MLSM80D
 ENK20 = ENK rail for WB40
 ENK21 = ENK rail for WB60
 ENK28 = ENK rail for MF/MG07K
 ENK29 = ENK rail for MF/MG06K
 ENK30 = ENK rail for MF/MG06B
 ENK31 = ENK rail for MF/MG07B
 ENK32 = ENK rail for MF/MG10K
 ENK33 = ENK rail for MF/MG10B

ENF01 = ENF rail for WH40
 ENF02 = ENF rail for WH50
 ENF03 = ENF rail for WH80
 ENF04 = ENF rail for WH120
 ENF05 = ENF rail for WM40
 ENF06 = ENF rail for WM60 / WV60
 ENF07 = ENF rail for WM80 / WV80
 ENF08 = ENF rail for WM120 / WV120
 ENF09 = ENF rail for WM60Z
 ENF10 = ENF rail for WM80Z
 ENF11 = ENF rail for WHZ50
 ENF12 = ENF rail for WHZ80
 ENF13 = ENF rail for WZ60
 ENF14 = ENF rail for WZ80
 ENF15 = ENF rail for MLSH60Z
 ENF17 = ENF rail for MLSM80Z
 ENF18 = ENF rail for MLSM60D
 ENF19 = ENF rail for MLSM80D
 ENF20 = ENF rail for WB40
 ENF21 = ENF rail for WB60
 ENF28 = ENF rail for MF/MG07K
 ENF29 = ENF rail for MF/MG06K
 ENF30 = ENF rail for MF/MG06B
 ENF31 = ENF rail for MF/MG07B
 ENF32 = ENF rail for MF/MG10K
 ENF33 = ENF rail for MF/MG10B

2. Number of carriages

-S = single carriage
 -D = double carriages

3. Total length of unit (L tot)

-vvvvv = distance in mm

4. Mounting side of the unit

-L = left side
 -R = right side

5. Number of EN2 sensors with NC contact and 2 m cable

-w = 0 – 9 sensors / normally closed / 2 m cable

6. Number of EN2 sensors with NO contact and 2 m cable

-x = 0 – 9 sensors / normally open / 2 m cable

7. Number of EN2 sensors with NC contact and 10 m cable

-y = 0 – 9 sensors / normally closed / 10 m cable

8. Number of EN2 sensors with NO contact and 10 m cable

-z = 0 – 9 sensors / normally open / 10 m cable

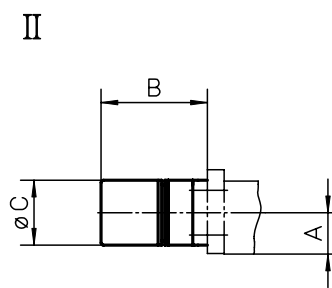
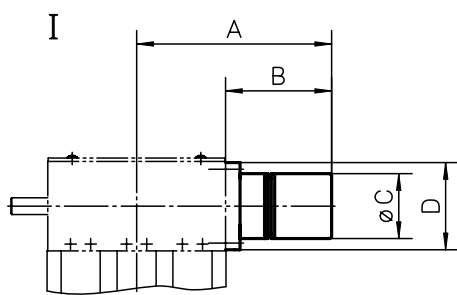


Accessories

Electrical Feedback Devices

ADG Encoder Option Kit

Unit type	Mounting type I	Mounting type II	A	B	øC	D
WH40	•		115	95	58,5	ø60
WH50 / WHZ50	•		120	96	58,5	50 × 50
WH80 / WHZ80	•		139	100	58,5	90 × 90
WH120	•		153	93	58,5	100 × 100
WM40		•	25	95	58,5	–
WM60		•	31	95	58,5	–
WM80		•	40	95	58,5	–
WM120		•	74	95	58,5	–
WM60Z	•		124	94	58,5	60 × 60
WM80Z	•		138	98	58,5	65 × 65
WB40		•	20,8	95	58,5	–
WB60		•	32,5	95	58,5	–
MLSM60D		•	37	95	58,5	–
MLSM80D		•	46	95	58,5	–
MLSH60Z	•		174,5	95	58,5	78 × 59
MLSM80Z	•		214,5	95	58,5	100 × 80



The ADG encoder option kit is an option that is mounted to the unit at the factory. It includes an IG602 encoder, a STE001 encoder connector and an encoder mounting flange with coupling. Cable can also be supplied in 5 or 10 meter lengths.

Accessories

Electrical Feedback Devices

ADG Encoder Option Kit, ordering key

	1	2	3
Example	ADG-08	-05-0600	-00

1. Compatible unit

ADG-01 = WH40
 ADG-02 = WH50 / WHZ50
 ADG-03 = WH80 / WHZ80
 ADG-04 = WH120
 ADG-05 = WM40
 ADG-06 = WM60 / WV60
 ADG-07 = WM80 / WV80
 ADG-08 = WM120 / WV120
 ADG-09 = WM60Z
 ADG-10 = WM80Z
 ADG-11 = MLSH60Z
 ADG-13 = MLSM80Z
 ADG-14 = MLSM60D
 ADG-15 = MLSM80D
 ADG-16 = WB40
 ADG-17 = WB60

2. Supply voltage and number of pulses

-05-0100 = 5 volts, 100 pulses per revolution
 -05-0200 = 5 volts, 200 pulses per revolution
 -05-0500 = 5 volts, 500 pulses per revolution
 -05-0600 = 5 volts, 600 pulses per revolution
 -05-1000 = 5 volts, 1000 pulses per revolution
 -05-1250 = 5 volts, 1250 pulses per revolution
 -05-2000 = 5 volts, 2000 pulses per revolution
 -05-2500 = 5 volts, 2500 pulses per revolution
 -24-0100 = 10 - 30 volts, 100 pulses per revolution
 -24-0200 = 10 - 30 volts, 200 pulses per revolution
 -24-0500 = 10 - 30 volts, 500 pulses per revolution
 -24-0600 = 10 - 30 volts, 600 pulses per revolution

3. Cable and connector configuration

-00 = no cable only STE001 encoder connector
 -05 = 5 m cable with STE001 encoder connector in one of the ends
 -10 = 10 m cable with STE001 encoder connector in one of the ends