GA series

LINEAR

A

Specially designed for high performance environment requiring high speed and accuracy.

The TDMS™ mounting system ensures greater accuracy, higher repeatability and ability to withstand vibrations without compromising machine performance.

Measuring lengths in millimeters

140 • 240 • 340 • 440 • 540 • 640 • 740 • 840 • 940
1 040 • 1 140 • 1 240 • 1 340 • 1 440 • 1 540 • 1 640
1 740 • 1 840 • 2 040 • 2 240 • 2 440 • 2 640 • 2 840 • 3 040

Model description:

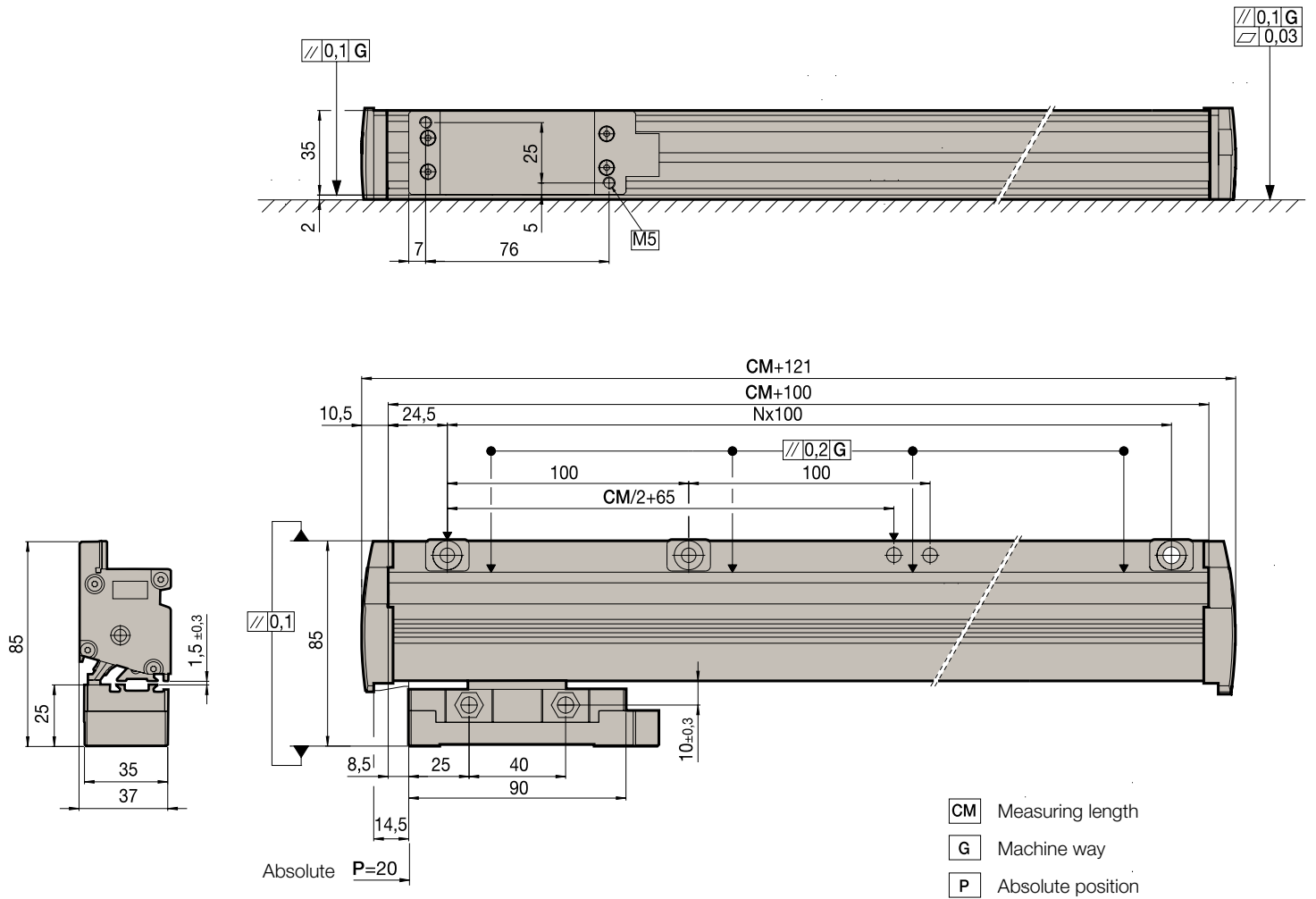GA: Absolute linear encoders with SSI protocol for FAGOR and others.

GAS: Absolute linear encoders with SSI protocol for SIEMENS® (Solution Line).

GAF: Absolute linear encoders with FANUC® (01 and 02) protocol.

GAM: Absolute linear encoders with MITSUBISHI® CNC protocol.

GAP: Absolute linear encoders with PANASONIC® (Matsushita) protocol.

GAD: Absolute linear encoders with FeeDat protocol for FAGOR and others.

GAD + EC-PA-DQ: Linear and absolute encoders with DRIVE-CLiQ® protocol , for SIEMENS® (Solution Line).

Characteristics

	GA / GAS	GAF		GAM		GAP		GAD		GAD+ EC-PA-DQ	
Measurement	**Incremental:** By means of a 20 µm-pitch stainless steel tape **Absolute:** Optical reading of sequential binary code										
Glass thermal expansion coefficient	α_{therm}: 8 ppm/K aprox.										
Measuring resolution	0.1 µm	0.01 µm	0.05 µm	0.01 µm	0.05 µm	0.01 µm	0.05 µm	0.01 µm	0.05 µm	0.01 µm	0.05 µm
Output signals	∿ 1 Vpp	–		–		–		–		–	
Incremental signal period	20 µm	–		–		–		–		–	
Limit frequency	< 100 KHz for 1 Vpp	–		–		–		–		–	
Maximum cable length	100 m	30 m		30 m		30 m		100 m		30 m	
Supply voltage	5V ± 10%, 250 mA (without load)										
Accuracy	± 5 µm/m ± 3 µm/m	± 5 µm/m ± 3 µm/m		± 5 µm/m ± 3 µm/m		± 5 µm/m ± 3 µm/m		± 5 µm/m ± 3 µm/m		± 5 µm/m ± 3 µm/m	
Maximum speed	120 m/min	180 m/min	120 m/min	180 m/min	120 m/min	180 m/min	120 m/min	180 m/min		180 m/min	
Maximum vibration	20 g (55 … 2000 Hz) IEC 60068-2-6										
Maximum shock	30 g (11 ms) IEC 60068-2-27										
Maximum acceleration	10 g in the measuring direction										
Required moving force	< 5 N										
Operating temperature	0 ºC … 50 ºC										
Storage temperature	-20 ºC ... 70 ºC										
Weight	0.25 kg + 2.25 kg/m										
Relative humidity	20 … 80%										
Protection	IP 53 (standard) IP 64 (DIN 40050) using pressurized air at 0.8 ± 0.2 bar in linear encoders										
Reader head	With built-in connector Connection at both ends of the reader head										

GA model

Dimensions in mm

// 0,1 G

// 0,1 G
▱ 0,03

35
25
2
7
76
5
M5

CM+121
CM+100
Nx100
10,5
24,5
// 0,2 G
100
100
CM/2+65
// 0,1
85
85
10±0,3
1,5 ±0,3
8,5
25
40
90
14,5
Absolute   **P=20**
85
25
35
37

CM   Measuring length

G   Machine way

P   Absolute position

Example of Linear Encoder: **GAF10-1640-5-A**

G	A	F	10	1640	5	A

Type of profile for long space	**Letter identifying the absolute encoder**	**Type of communications protocol:**
		• Blank space: SSI protocol (FAGOR)
		• D: FeeDat protocol (FAGOR)
		• S: SIE MENS® (SL) protocol
		• **F: FANUC® (01 and 02) protocol**
		• M: MITSUBISHI® CNC protocol
		• P: PANASONIC® (Matsushita) protocol
			Resolution:
			• Blank space: 50 nm
			  50: 50 nm (*)
			  10: 10 nm
				Measuring lengths in millimeters:
				In the example
				(1640) = 1 640 mm
					Accuracy of the linear encoder:
					• **5: ± 5 µm**
					• 3: ± 3 µm
						Air intake on the reader head:
						• Blank space:
						  Without air intake
						• **A: With air intake**

(*): identificador sólo para Protocolo FeeDat GAD50