

FUWEI

FGM-CL Series

Measurement/Detection Light Curtain

FGM-CL series measuring light curtain is mainly used for detecting the shape or size of objects, detecting hole, measuring volume. As it can also detect the detailed position of objects when they pass through light curtain, curtains are also applied for education (measuring the distance of long jump or shot-throwing), spraying coating of workpiece, coordinate positioning and so on. High accuracy can even detect 2.5mm small size product. With RS485, RS232, analog quantity (voltage, current), switch quantity output signal, stable performance. As strong anti-electromagnetic interference ability, it can work in various servo motors and environments with large interference.



Product Feature

- High accuracy to detect project even 2.5mm size;
- Quick response time, adopt special algorithm to shorten the entire scan cycle;
- Multiple output method, RS485, RS232, analog voltage, analog current
- Standard communication protocol, using Modbus-RTU communication protocol.
- Good performance to resist electromagnetic interference, and resist influence by electromagnetic of various equipment
- motors.
- Wire synchronization technology to resist light interference effectively;









Specification

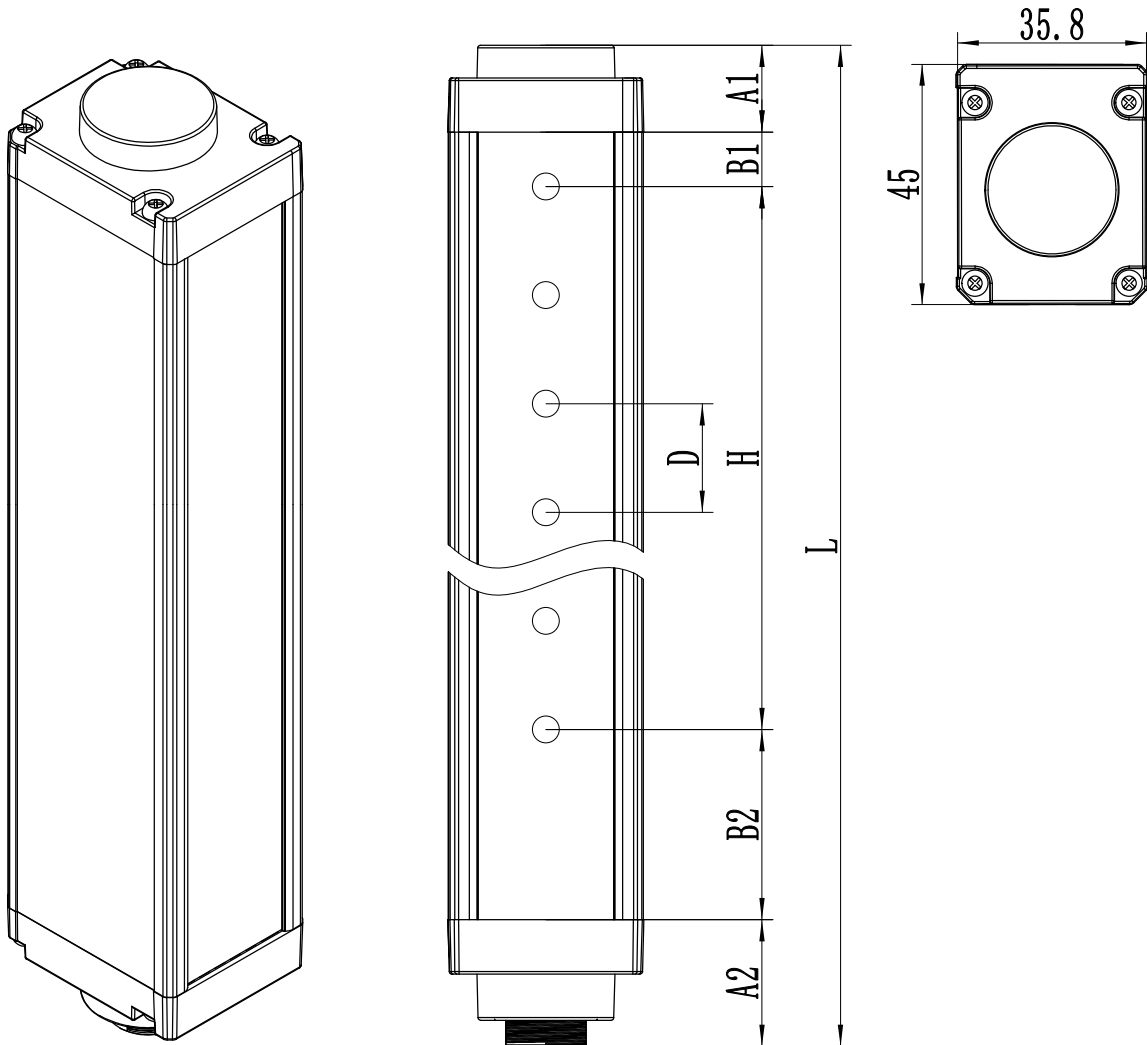
Specification

Power supply	DC12V~30V
Capacity	<5W
Beam space	2.5mm: 32, 64, 96……480 5mm: 16, 24, 32……640 10mm: 16, 24, 32……400 20mm: 16, 24, 32……240 40mm: 8, 16, 24……120
Detection precision	2.5mm, 5mm, 10mm, 20mm, 40mm
Detection height	Detection height= (N-1)* beam space, N is beam quantity
Wave length	940nm
Output signal	Switch quantity: NPN PNP Analog quantity: 0-5V, 0-10V, 4-20mA
Anti-optical interference	10000Lux(angle>5°)
Communication method	Rs485, Rs232 Baud rate: 9600bps, 19200bps, 38400bps, 57600bps, 115200bps Protocol: Modbus-RTU Data mode: active mode/ passive mode
Sensing method	Through-beam type
Sensing distance	2.5mm space: 0.1~2m (remark: if have light reflection, please let us know) 5mm space: 0.1~4m (remark: if have light reflection, please let us know) 10mm space: 0.1~20m (remark: if have light reflection, please let us know) 20mm space: 0.1~20m (remark: if have light reflection, please let us know) 40mm space: 0.1~20m (remark: if have light reflection, please let us know)
Synchronization	Wire synchronization
Enclosure material	Aluminum alloy
Enclosure rating	IP65
Sectional size	35.8*45mm
Ambient operating temperature	-10°C~55°C(with no freezing)
Storage temperature	-30°C~70°C(with no freezing)
Ambient operating humidity	Whentemperatureis20°C, humidity max 85%

Raster Model Description

FGM-CL	-	16		20	-	L1		RY	-	2
										
Model		Beams		Beams Gap		Brackets		Communication method		Sensing distance
FGM-CL Series		08, 16, 24, 32……		2.5mm, 5mm, 10mm, 20mm, 40mm		L1:side mounting bracket L2:upper-bottom mounting bracket		Digital quantity: RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode Analog quantity: U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current		2: 0.1-2M 4: 0.1-4M 20: 0.1-20M

Dimensions



A1: Upper cover

A2: Bottom cover + aviation cap

B1: Upper stop-work range

B2: Bottom stop-work range

D: Beam gap

H: Protective height

L: Total height

A1=16mm; A2=24mm;

When D=2.5mm, B1=6.25mm; B2=81.25mm.

When D=5mm, B1=7.5mm; B2=42.5mm.

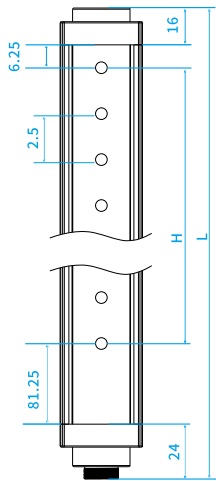
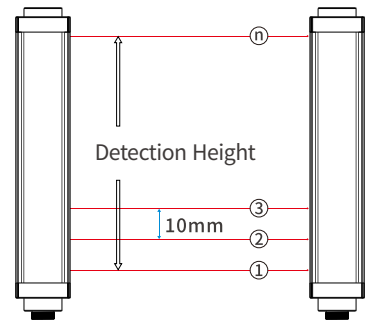
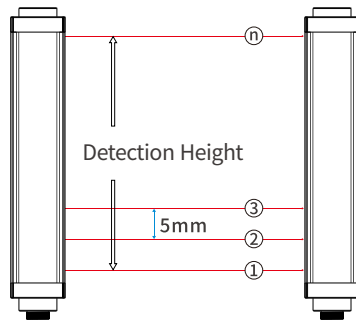
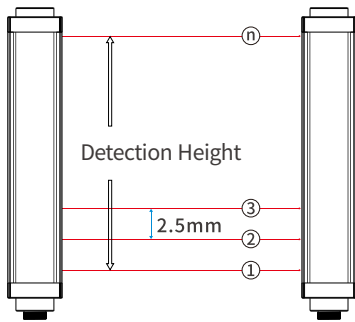
When D=10mm, B1=5mm; B2=30mm.

When D=20/40mm, B1=10mm; B2=35mm.

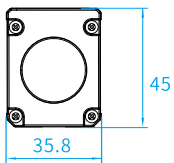
L is total height: $L=A1+A2+B1+B2+H$

H is protective height: $H=(\text{beams}-1) \times \text{beam space}$

Dimensions

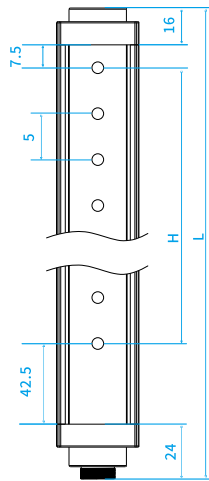


Front View

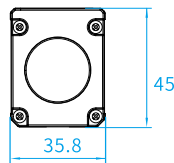


Top View

2.5mm Beams Pitch

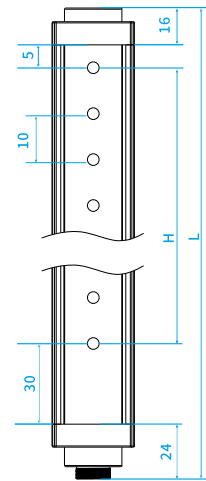


Front View

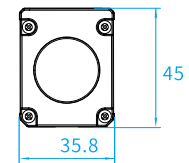


Top View

5mm Beams Pitch



Front View



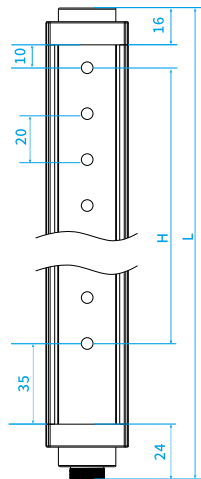
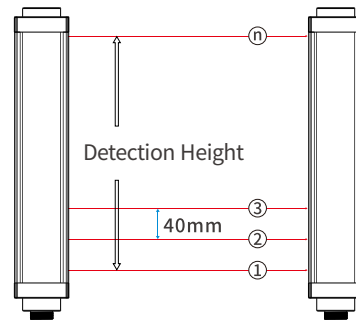
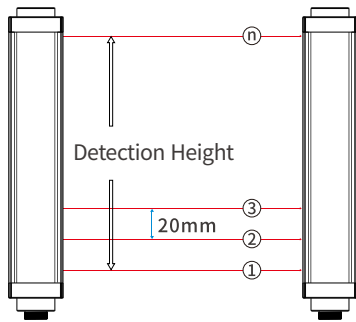
Top View

10mm Beams Pitch

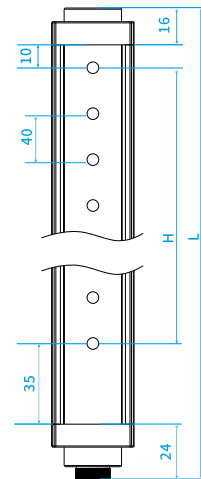
L is total height: $L=A1+A2+B1+B2+H$

H is protective height: $H=(beams-1) \times beam\ space$

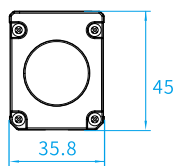
Dimensions



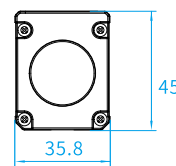
Front View



Front View



Top View



Top View

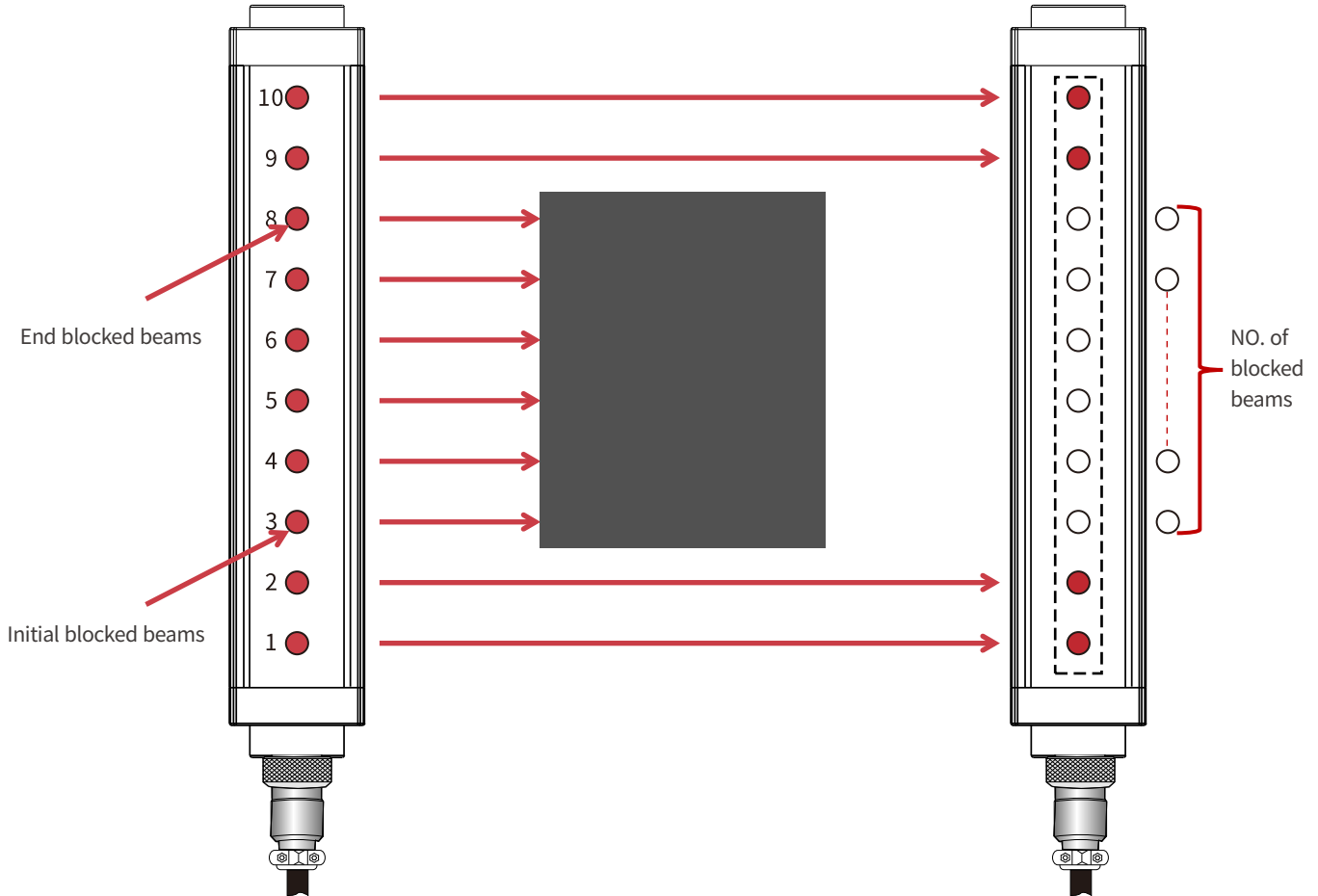
20mm Beams Pitch

40mm Beams Pitch

L is total height: $L=A1+A2+B1+B2+H$

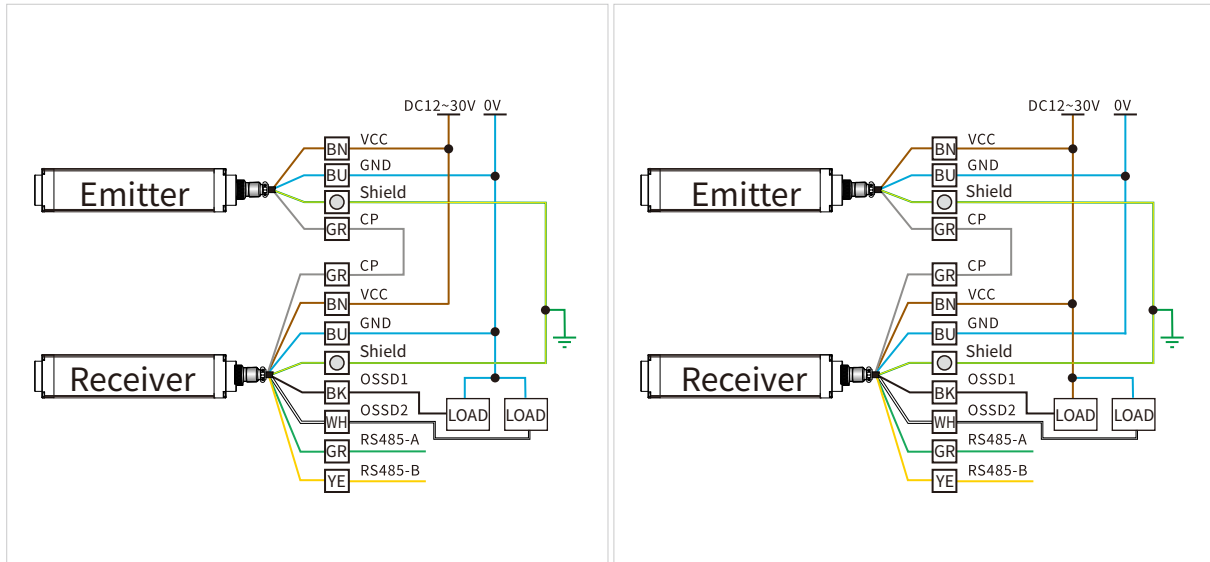
H is protective height: $H=(beams-1) \times beam\ space$

Output data description of light curtain



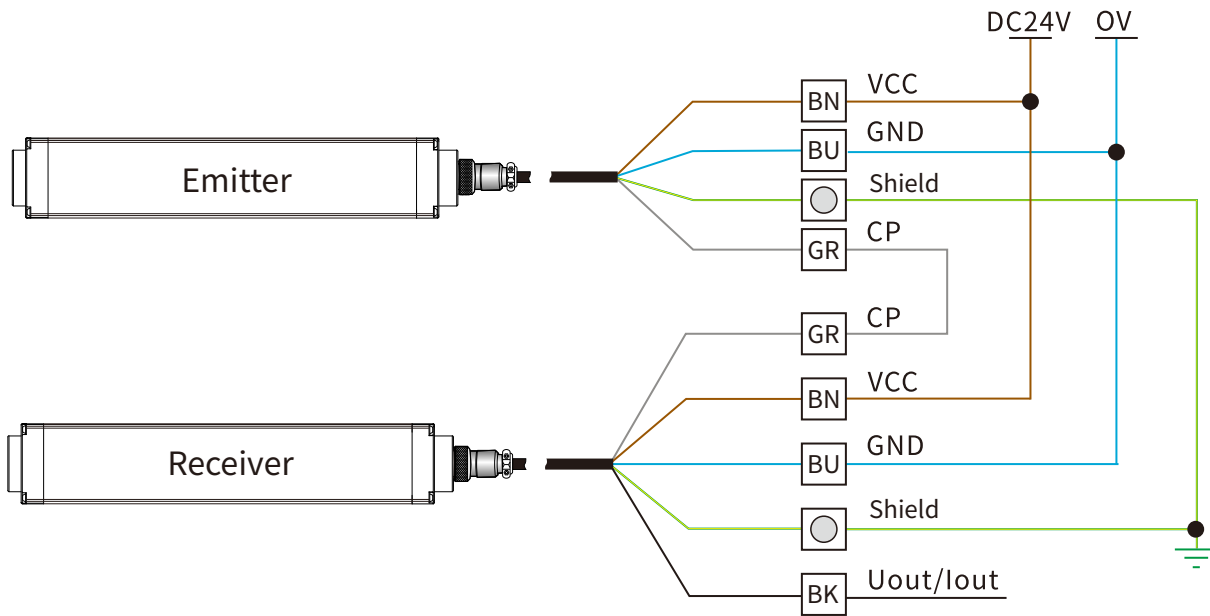
Output data description of light curtain	The beam space is related to the minimum size of detected objects
Numbers of blocked beams: The total number of light beams that are blocked	2.5mm size: minimum>2.5mm
Initial blocked beams: The initial position where light curtain is blocked by objects	5mm size: minimum>5mm
End blocked beams: The end position where light curtain is blocked by objects	10mm size: minimum>10mm
	20mm size: minimum>20mm
	40mm size: minimum object>40mm

Wiring Diagram



NPN Output

PNP Output



Analog Output

Select Sheet-Beams Pitch (2.5mm)

Beams (n)	Protective Height (mm)	Total Height (mm)	Size (mm)	Model	Output optional
32	77.5	205	35.8*45*205	FGM-CL32025	<p>Digital quantity:</p> <p>RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode</p> <p>Analog quantity:</p> <p>U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current</p>
64	157.5	285	35.8*45*285	FGM-CL64025	
96	237.5	365	35.8*45*365	FGM-CL96025	
128	317.5	445	35.8*45*445	FGM-CL128025	
160	397.5	525	35.8*45*525	FGM-CL160025	
192	477.5	605	35.8*45*605	FGM-CL192025	
224	557.5	685	35.8*45*685	FGM-CL224025	
256	637.5	765	35.8*45*765	FGM-CL256025	
288	717.5	845	35.8*45*845	FGM-CL288025	
320	797.5	925	35.8*45*925	FGM-CL320025	
352	877.5	1005	35.8*45*1005	FGM-CL352025	
384	957.5	1085	35.8*45*1085	FGM-CL384025	
416	1037.5	1165	35.8*45*1165	FGM-CL416025	
448	1117.5	1245	35.8*45*1245	FGM-CL448025	
480	1197.5	1325	35.8*45*1325	FGM-CL480025	

Select Sheet-Beams Pitch (5mm)

Beams (n)	Protective Height (mm)	Total Height (mm)	Size (mm)	Model	Output optional
16	75	165	35.8*45*165	FGM-CL1605	<p>Digital quantity:</p> <p>RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode</p> <p>Analog quantity:</p> <p>U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current</p>
24	115	205	35.8*45*205	FGM-CL2405	
32	155	245	35.8*45*245	FGM-CL3205	
40	195	285	35.8*45*285	FGM-CL4005	
48	235	325	35.8*45*325	FGM-CL4805	
56	275	365	35.8*45*365	FGM-CL5605	
64	315	405	35.8*45*405	FGM-CL6405	
72	355	445	35.8*45*445	FGM-CL7205	
80	395	485	35.8*45*485	FGM-CL8005	
88	435	525	35.8*45*525	FGM-CL8805	
96	475	565	35.8*45*565	FGM-CL9605	
104	515	605	35.8*45*605	FGM-CL10405	
112	555	645	35.8*45*645	FGM-CL11205	
120	595	685	35.8*45*685	FGM-CL12005	
128	635	725	35.8*45*725	FGM-CL12805	
136	675	765	35.8*45*765	FGM-CL13605	
144	715	805	35.8*45*805	FGM-CL14405	
152	755	845	35.8*45*845	FGM-CL15205	
160	795	885	35.8*45*885	FGM-CL16005	
168	835	925	35.8*45*925	FGM-CL16805	
176	875	965	35.8*45*965	FGM-CL17605	
184	915	1005	35.8*45*1005	FGM-CL18405	
192	955	1045	35.8*45*1045	FGM-CL19205	
200	995	1085	35.8*45*1085	FGM-CL20005	
208	1035	1125	35.8*45*1125	FGM-CL20805	
216	1075	1165	35.8*45*1165	FGM-CL21605	
224	1115	1205	35.8*45*1205	FGM-CL22405	
232	1155	1245	35.8*45*1245	FGM-CL23205	
240	1195	1285	35.8*45*1285	FGM-CL24005	
248	1235	1325	35.8*45*1325	FGM-CL24805	

Digital quantity:

RY: RS485 active mode
 RZ: RS485 passive mode
 SY: RS232 active mode
 SZ:RS232 passive mode

Analog quantity:

U: 0-10V voltage
 U1: 0-5V voltage
 I: 4-20mA current

Select Sheet-Beams Pitch (10mm)

Beams (n)	Protective Height (mm)	Total Height (mm)	Size (mm)	Model	Output optional
16	150	225	35.8*45*225	FGM-CL1610	<p>Digital quantity:</p> <p>RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode</p> <p>Analog quantity:</p> <p>U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current</p>
24	230	305	35.8*45*305	FGM-CL2410	
32	310	385	35.8*45*385	FGM-CL3210	
40	390	465	35.8*45*465	FGM-CL4010	
48	470	545	35.8*45*545	FGM-CL4810	
56	550	625	35.8*45*625	FGM-CL5610	
64	630	705	35.8*45*705	FGM-CL6410	
72	710	785	35.8*45*785	FGM-CL7210	
80	790	865	35.8*45*865	FGM-CL8010	
88	870	945	35.8*45*945	FGM-CL8810	
96	950	1025	35.8*45*1025	FGM-CL9610	
104	1030	1105	35.8*45*1105	FGM-CL10410	
112	1110	1185	35.8*45*1185	FGM-CL11210	
120	1190	1265	35.8*45*1265	FGM-CL12010	
128	1270	1345	35.8*45*1345	FGM-CL12810	
136	1350	1425	35.8*45*1425	FGM-CL13610	
144	1430	1505	35.8*45*1505	FGM-CL14410	
152	1510	1585	35.8*45*1585	FGM-CL15210	
160	1590	1665	35.8*45*1665	FGM-CL16010	
168	1670	1745	35.8*45*1745	FGM-CL16810	
176	1750	1825	35.8*45*1825	FGM-CL17610	
184	1830	1905	35.8*45*1905	FGM-CL18410	
192	1910	1985	35.8*45*1985	FGM-CL19210	
200	1990	2065	35.8*45*2065	FGM-CL20010	
208	2070	2145	35.8*45*2145	FGM-CL20810	
216	2150	2225	35.8*45*2225	FGM-CL21610	
224	2230	2305	35.8*45*2305	FGM-CL22410	
232	2310	2385	35.8*45*2385	FGM-CL23210	
240	2390	2465	35.8*45*2465	FGM-CL24010	
248	2470	2545	35.8*45*2545	FGM-CL24810	

Select Sheet-Beams Pitch (20mm)

Beams (n)	Protective Height (mm)	Total Height (mm)	Size (mm)	Model	Output optional
16	300	385	35.8*45*385	FGM-CL1620	<p>Digital quantity:</p> <p>RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode</p> <p>Analog quantity:</p> <p>U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current</p>
24	460	545	35.8*45*545	FGM-CL2420	
32	620	705	35.8*45*705	FGM-CL3220	
40	780	865	35.8*45*865	FGM-CL4020	
48	940	1025	35.8*45*1025	FGM-CL4820	
56	1100	1185	35.8*45*1185	FGM-CL5620	
64	1260	1345	35.8*45*1345	FGM-CL6420	
72	1420	1505	35.8*45*1505	FGM-CL7220	
80	1580	1665	35.8*45*1665	FGM-CL8020	
88	1740	1825	35.8*45*1825	FGM-CL8820	
96	1900	1985	35.8*45*1985	FGM-CL9620	
104	2060	2145	35.8*45*2145	FGM-CL10420	
112	2220	2305	35.8*45*2305	FGM-CL11220	
120	2380	2465	35.8*45*2465	FGM-CL12020	
128	2540	2625	35.8*45*2625	FGM-CL12820	
136	2700	2785	35.8*45*2785	FGM-CL13620	
144	2860	2945	35.8*45*2945	FGM-CL14420	
152	3020	3105	35.8*45*3105	FGM-CL15220	
160	3180	3265	35.8*45*3265	FGM-CL16020	
168	3340	3425	35.8*45*3425	FGM-CL16820	
176	3500	3585	35.8*45*3585	FGM-CL17620	
184	3660	3745	35.8*45*3745	FGM-CL18420	
192	3820	3905	35.8*45*3905	FGM-CL19220	
200	3980	4065	35.8*45*4065	FGM-CL20020	
208	4140	4225	35.8*45*4225	FGM-CL20820	
216	4300	4385	35.8*45*4385	FGM-CL21620	
224	4460	4545	35.8*45*4545	FGM-CL22420	
232	4620	4705	35.8*45*4705	FGM-CL23220	
240	4780	4865	35.8*45*4865	FGM-CL24020	
248	4940	5025	35.8*45*5025	FGM-CL24820	

Digital quantity:

RY: RS485 active mode
 RZ: RS485 passive mode
 SY: RS232 active mode
 SZ:RS232 passive mode


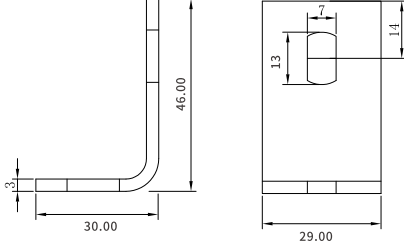
Analog quantity:

U: 0-10V voltage
 U1: 0-5V voltage
 I: 4-20mA current

Select Sheet-Beams Pitch (40mm)

Beams (n)	Protective Height (mm)	Total Height (mm)	Size (mm)	Model	Output optional
8	280	365	FGM-CL0840	35.8*45*365	<p>Digital quantity:</p> <p>RY: RS485 active mode RZ: RS485 passive mode SY: RS232 active mode SZ:RS232 passive mode</p> <p>Analog quantity:</p> <p>U: 0-10V voltage U1: 0-5V voltage I: 4-20mA current</p>
12	440	525	FGM-CL1240	35.8*45*525	
16	600	685	FGM-CL1640	35.8*45*685	
20	760	845	FGM-CL2040	35.8*45*845	
24	920	1005	FGM-CL2440	35.8*45*1005	
28	1080	1165	FGM-CL2840	35.8*45*1165	
32	1240	1325	FGM-CL3240	35.8*45*1325	
36	1400	1485	FGM-CL3640	35.8*45*1485	
40	1560	1645	FGM-CL4040	35.8*45*1645	
44	1720	1805	FGM-CL4440	35.8*45*1805	
48	1880	1965	FGM-CL4840	35.8*45*1965	
52	2040	2125	FGM-CL5240	35.8*45*2125	
56	2200	2285	FGM-CL5640	35.8*45*2285	
60	2360	2445	FGM-CL6040	35.8*45*2445	
64	2520	2605	FGM-CL6440	35.8*45*2605	

Option of brackets

Picture	Brackets	Accessories	Size
	<p>L1 back mounting brackets</p>	<ol style="list-style-type: none"> 1. L type brackets (4pcs) 2. Slide block (4pcs) 3. M6 grommet (4pcs) 4. M6*16 screw (4pcs) 5. M6*8 screw (4pcs) 	

Application Example

