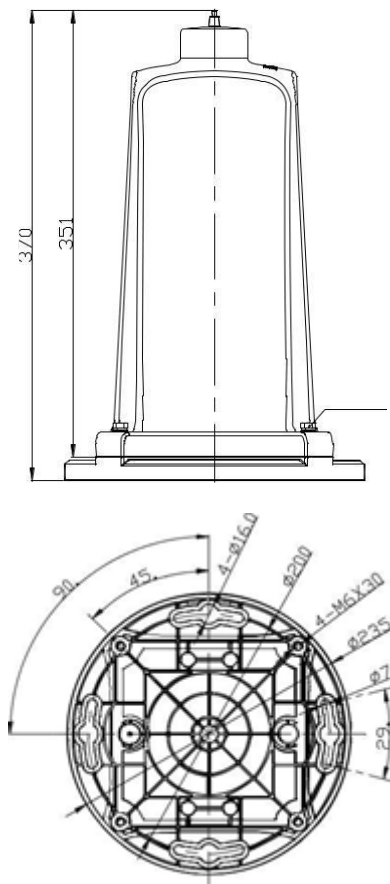


ML411A Solar Marine Lantern



Mounting dimensions
Unit mm



Applications

Applying to ocean buoy, river buoy, shore mark and offshore oil platform or other fixing and floating aids for navigation.

Main functions and features

Based on LED technology and its color complies to IALA Recommendations E-200-1.

Integrated design, enabling a rugged and completely waterproof seal capable of prolonged and deep immersion (IP68)

PC housing, UV resistance, shockproof and corrosion proof. With bird spike.

256 kinds of flashing rate adjustable are available, comply with IALA

Intensity is continuously adjustable. Photocell controls On/Off automatically and the value of luminance switch can be adjusted

Built in sealed lead acid battery, maintenance free and easy for replace.

Extremely Reliable and cost saving.

External charging power is available (Optional)

GPS synchronization(Optional)

GSM faulty alarm function (Optional).

Specifications

Physical Characteristics			
Integrated housing	UV resistance polycarbonate	Waterproof	IP68
Weight	5.9 kg	Temperature	-40°C~+80°C
Size	High 370mm, Diameter 235mm	Installation dimension	235mm 200mm
Option	External charging power GPS synchronization GSM faulty alarm function		

Operation		Power Supply	
Autonomy	>30 days (14hour darkness, 12.5%duty cycle)	Solar panel	Monocrystalline silicon solar panel
On/Off level	300• lux±100lux, end user can adjust it	Output	5W*4
Flashing mode	complies to IALA Recommendations, total 256 available flashing rate (steady burning, adjustable)	Battery	Maintenance free sealed lead acid battery
		Battery capacity	12V/12 Ah

Optical			
Effectiv Intensity	>40cd	LED color	Red, yellow, blue, green white
Visible range	>4 Nautical Mile	Light Source	LED
Horizontal degree	Horizontal 360°	LED lifetime	>100.000 hrs
Vertical degree	>7°		









LED display instruction

- 1 When controller is without operation in 1 minute, LED display will be in sleeping model (no display).
2. Press any key of controller to awake LED display and enter into display status.
- 3 In display status, LED display will indicate current page and corresponding value alternately.
- 4 Please see following LED display page, value and definition.

LED display page	Value	Definition
StAt	On	Manually turn on the light. In this status, photocell is not effective and light will work all the time (Remark: light could not work much long terms)
	Off	Manually turn off the light. In this status, photocell is effective, and light is off
	Auto	Automatic. Photocell is effective
FLSH	000-255	IALA flash character (flashing frequency) Please refer to the table of flash character
ELnt	00cd-40cd	Effective intensity
d2n	000-999L	Indicates the ambient brightness (in lux) at which the lantern LEDs will turn on in the evening
n2d	000-999L	Indicates the ambient brightness (in lux) at which the lantern LEDs will turn off in the morning. (Remark: n2d setting value must be bigger than d2n)
bAtt• (Non setting)	12.0 (example)	Current battery voltage is 12.0V
gPS (Non setting)	SrcH	Searching for GPS satellite signal
	Good	GPS signal is ok

5. In setting status, LED display indicate current value.




Remoted controller operation (Remark: controller should be directed to LED display when pressing keys)
Press any key to awake LED display and enter into display status



	<p>Press any key to awake LED display and enter into display status</p> <p>Press  /  to page down or up, LED display will indicate current page and value</p> <p>Switchover to your demanded page, press  into setting status. LED display indicates current page value statically.</p> <p>Press  /  plus/minus the value, or use digital key to set the value.</p> <p>If save setting, press  to save and quit. If not, press  to quit.</p> <p>If controller is without any operation in 1 minute, LED display enters into sleeping status.</p>
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StAt (light mode) setting instruction

Example:set Auto mode

- 1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status

- 2、 Press  /  page down/up to StAt page. And then press  enter into setting status.LED display indicate current light mode statically.




- 3、 Press  /  to switchover among on, oFF. Auto. Find demanded page: Auto



- 4、 Press  save and quit setting status


FLSH (light character) Setting instruction

Example: Set flashing 123

- 1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status

- 2、 Press  /  page down/up to FLSH page.And then press  enter into setting status. LED display indicate current light character statically.




- 3、 Press  /  plus/minus. Adjust to value 123. Or press digital key 1,2,3 in turn. LED display indicates 123



- 4、 Press  save and quit setting status.


ELnt (Intensity) Setting instruction

Example: Set intensity 36cd

- 1、 IfLED display is in sleeping status, press any key to awake LED display and enter into display status

- 2、 Press  /  page down/up to ELnt page. And then press  enter into setting status. Led display indicate current light intensity statically.




- 3、 Press  /  plus/minus. Adjust to value 36cd. Or press digital key 3,6 in turn. LED display indicate 36cd.



- 4、 Press  save and quit setting status.


d2n (Indicates the ambient brightness (in•lux at which the lantern LEDs will turn on in the evening) setting instruction

Example : Set•200L

- 1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status

- 2、 Press  /  page down/up to d2n page. And then press  enter into setting status. LED display will indicate illuminance value




- 3、 Press  /  plus/minus. Adjust to value 200L. Or press digital key 2,0,0 in turn. LED display indicate 200L



- 4、 Press  save and quit setting status.


n2d (Indicates the ambient brightness (in lux) at which the lantern LEDS will turn off in the morning) setting instruction

Example : Set 400L

1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status



2、 Press  /  page down/up to n2d page. And then press  enter into setting status. LED display will indicate illuminance value.

3、 Press  /  plus/minus. Adjust to value 400L. Or pres digital key 4,0,0 in turn. LED display indicate 400L

4、 Press  save and quit setting status.



bAtt (battery voltage) checking

1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status

2、 Press  /  page down/up to bAtt page. LED display will indicate bAtt and current voltage value alternately.

gPS (GPS signal status)

1、 If LED display is in sleeping status, press any key to awake LED display and enter into display status

2、 Press  /  page down/up to gPS page. LED display will indicate gPS and GPS signal status: Srch(searching) or good (singla is good)

Please refer to flash character table about 250 flashing rate: 6 else flashing rate can be customized.

Character code	Definition
F	fixed
FL	Flashing times in fixed time. Example: FL (2) 5.5 S flash 2 times per 5.5 seconds
Q	Quick flash
VQ	Very quick flash
OC	Bright and dark light, Lighting time longer than extinguish time
ISO	Equal light, Lighting time is equal to the extinguish time
LFL	Long time, long flash
MO	Morse signals, including letters

For example: VQ•(6)+LFL 15 S. Flash 6 times within 15 seconds then long flashes once

Installation and operation

- Please read this manual before using this product.
- For sake of battery protection during transportation and storage time, StAt is in oFF status. FLASH is 027. Intensity is 36cd. Before installation or testing, please set StAt: Auto or on. Adjust demanded light character and intensity.
- If light does not work at first using time, please put the light under sunlight to charge 12 hours or plug charger to charge battery. The light will Work normally.
- Solar marine lantern must be installed where is full of sunlight, in order to make lantern work continuously.
- Keep lantern and fixture installed in the axis perpendicular to the mounting surface. Mounting surface should be smooth and have sufficient mechanical strength.
- If stored long time, please set StAt in oFF status and in a dry place. Every half year, please put the lantern under sunlight to chare battery.
- Please contact us if any question in operation

Notice

•The part of material of products is PC (like lamp cover and lamp shell), so it cannot direct or indirect touch the organic solvent such as industrial alcohol, banana oil, isopropyl alcohol, carbon tetrachloride, cyclohexanone and so on, otherwise, the product will be corrosion

FLASH	FLASH CODE	ON	OFF
000	F (Steady light)		
001	VQ 0.5 S	0.2	0.3
002	VQ 0.6 S	0.2	0.4
003	VQ 0.6 S	0.3	0.3
004	Q 1 S	0.2	0.8
005	Q 1 S	0.3	0.7
006	Q 1 S	0.4	0.6
007	Q 1 S	0.5	0.5
008	Q 1 S	0.8	0.2
009	Q 1.2 S	0.3	0.9
010	Q 1.2 S	0.5	0.7
011	Q 1.2 S	0.6	0.6
012	FL 1.5 S	0.2	1.3
013	FL 1.5 S	0.3	1.2
014	FL 1.5 S	0.4	1.1
015	FL 1.5 S	0.5	1
016	FL 2 S	0.2	1.8
017	FL 2 S	0.3	1.7
018	FL 2 S	0.4	1.6
019	FL 2 S	0.5	1.5
020	FL 2 S	0.7	1.3
021	FL 2 S	0.8	1.2
022	ISO 2 S	1	1
023	FL 2.5 S	0.3	2.2
024	FL 2.5 S	0.5	2
025	FL 2.5 S	1	1.5
026	FL 3 S	0.2	2.8
027	FL 3 S	0.3	2.7
028	FL 3 S	0.4	2.6
029	FL 3 S	0.5	2.5
030	FL 3 S	0.6	2.4
031	FL 3 S	0.7	2.3

FLASH	FLASH CODE	ON	OFF
032	FL 3 S	1	2
033	ISO 3 S	1.5	1.5
034	OC 3 S	2	1
035	OC 3 S	2.5	0.5
036	OC 3.5 S	2.5	1
037	FL 4 S	0.2	3.8
038	FL 4 S	0.3	3.7
039	FL 4 S	0.4	3.6
040	FL 4 S	0.5	3.5
041	FL 4 S	0.6	3.4
042	FL 4 S	0.8	3.2
043	FL 4 S	1	3
044	FL 4 S	1.5	2.5
045	ISO 4 S	2	2
046	OC 4 S	2.5	1.5
047	OC 4 S	3	1
048	FL 4.3 S	1.3	3
049	FL 5 S	0.2	4.8
050	FL 5 S	0.3	4.7
051	FL 5 S	0.5	4.5
052	FL 5 S	0.9	4.1
053	FL 5 S	1	4
054	FL 5 S	1.5	3.5
055	ISO 5 S	2.5	2.5
056	LFL 5 S	2	3
057	OC 5 S	3	2
058	OC 5 S	4	1
059	OC 5 S	4.5	0.5
060	FL 6 S	0.2	5.8
061	FL 6 S	0.3	5.7
062	FL 6 S	0.4	5.6
063	FL 6 S	0.5	5.5

FLASH	FLASH CODE	ON	OFF
064	FL 6 S	0.6	5.4
065	FL 6 S	1	5
066	FL 6 S	1.2	4.8
067	FL 6 S	1.5	4.5
068	ISO 6 S	3	3
069	LFL 6 S	2	4
070	OC 6 S	4	2
071	OC 6 S	4.5	1.5
072	OC 6 S	5	1
073	FL 7 S	1	6
074	FL 7 S	2	5
075	OC 7 S	4.5	2.5
076	FL 7.5 S	0.5	7
077	FL 7.5 S	0.8	6.7
078	FL 8 S	0.5	7.5
079	FL 8 S	1	7
080	ISO 8 S	4	4
081	LFL 8 S	2	6
082	OC 8 S	5	3
083	LFL 8 S	3	5
084	FL 9 S	0.9	8.1
085	FL 9 S	1	8
086	OC 9 S	6	3
087	FL 10 S	0.2	9.8
088	FL 10 S	0.3	9.7
089	FL 10 S	0.5	9.5
090	FL 10 S	0.8	9.2
091	FL 10 S	1	9
092	FL 10 S	1.5	8.5
093	LFL 10 S	2	8
094	LFL 10 S	3	7
095	ISO 10 S	5	5

FLASH	FLASH CODE	ON	OFF
096	LFL 10 S	4	6
097	OC 10 S	6	4
098	OC 10 S	7	3
099	OC 10 S	7.5	2.5
100	FL 12 S	1.2	10.8
101	FL 12 S	2.5	9.5
102	LFL 12 S	2	10
103	FL 15 S	1	14
104	LFL 15 S	4	11
105	OC 15 S	10	5
106	LFL 20 S	2	18
107	FL 26 S	1	25

FLASH	FLASH CODE	ON	OFF	ON	OFF
108	FL (2) 4 S	0.5	1	0.5	2
109	VQ (2) 4 S	0.2	1	0.2	2.6
110	FL (2) 4.5 S	0.3	1	0.3	2.9
111	FL (2) 4.5 S	0.4	1	0.4	2.7
112	FL (2) 4.5 S	0.5	1	0.5	2.5
113	FL (2) 5 S	0.2	0.8	0.2	3.8
114	FL (2) 5 S	0.2	1.2	0.2	3.4
115	FL (2) 5 S	0.4	0.6	0.4	3.6
116	FL (2) 5 S	0.5	1	0.5	3
117	FL (2) 5 S	1	1	1	2
118	Q (2) 5 S	0.3	0.7	0.3	3.7
119	Q (2) 5 S	0.5	0.5	0.5	3.5
120	FL (2) 5.5 S	0.4	1.4	0.4	3.3
121	FL (2) 6 S	0.3	0.6	1	4.1
122	FL (2) 6 S	0.3	0.9	0.3	4.5
123	FL (2) 6 S	0.3	1	0.3	4.4
124	FL (2) 6 S	0.4	1	0.4	4.2
125	FL (2) 6 S	0.5	1	0.5	4
126	FL (2) 6 S	0.8	1.2	0.8	3.2
127	FL (2) 6 S	1	1	1	3
128	Q (2) 6 S	0.3	0.7	0.3	4.7
129	FL (2) 7 S	1	1	1	4
130	FL (2) 8 S	0.4	0.6	2	5
131	FL (2) 8 S	0.4	1	0.4	6.2
132	FL (2) 8 S	0.5	1	0.5	6
133	FL (2) 8 S	0.8	1.2	2.4	3.6
134	FL (2) 8 S	1	1	1	5
135	OC (2) 8 S	3	2	1	2
136	OC (2) 8 S	5	1	1	1
137	VQ (2) 8 S	0.2	1	0.2	6.6
138	FL (2) 10 S	0.4	1.6	0.4	7.6
139	FL (2) 10 S	0.5	0.5	1.5	7.5
140	FL (2) 10 S	0.5	1	0.5	8
141	FL (2) 10 S	0.5	1.5	0.5	7.5
142	FL (2) 10 S	0.5	2	0.5	7
143	FL (2) 10 S	0.8	1.2	0.8	7.2

FLASH	FLASH CODE	ON	OFF	ON	OFF
144	FL (2) 10 S	1	1	1	7
145	FL (2) 10 S	1	1.5	1	6.5
146	Q (2) 10 S	0.6	0.4	0.6	8.4
147	FL (2) 12 S	0.4	1	0.4	10.2
148	FL (2) 12 S	0.5	1	0.5	10
149	FL (2) 12 S	1.5	2	1.5	7
150	FL (2) 15 S	0.5	1.5	2	11
151	FL (2) 15 S	1	2	1	11
152	Q (2) 15 S	0.2	0.8	0.2	13.8
153	FL (2) 20 S	1	3	1	15
154	FL (2) 25 S	1	1	1	22

FLASH	FLASH CODE	ON	OFF
155	Q (3) 5 S	0.5	0.5
156	VQ (3) 5 S	0.2	0.3
157	VQ (3) 5 S	0.3	0.2
158	VQ (3) 5 S	0.3	0.3
159	FL (3) 6 S	0.5	1
160	FL (2+1) 6 S	0.3	0.4
161	Q (3) 6 S	0.3	0.7
162	FL (3) 8 S	0.5	1
163	FL (3) 9 S	0.3	1
164	FL (3) 9 S	0.8	1.2
165	FL (3) 10 S	0.3	0.7
166	FL (3) 10 S	0.4	0.6
167	FL (3) 10 S	0.5	0.5
168	FL (3) 10 S	0.5	1.5
169	FL (3) 10 S	0.6	0.6
170	FL (3) 10 S	1	1
171	FL (2+1) 10 S	0.5	0.7
172	OC (3) 10 S	5	1
173	Q (3) 10 S	0.3	0.7
174	FL (2 + 1) 10 S	0.5	0.5
175	FL (3) 12 S	0.5	1.5
176	FL (3) 12 S	0.5	2
177	FL (3) 12 S	0.8	1.2
178	FL (3) 12 S	1	1
179	FL (2+1) 12 S	0.8	1.2
180	FL (2+1) 12 S	1	1
181	FL (2+1) 13.5 S	1	1
182	FL (3) 15 S	0.3	1.7
183	FL (3) 15 S	0.4	1
184	FL (3) 15 S	0.5	1.5
185	FL (2+1) 15 S	0.6	0.3
186	FL (2+1) 15 S	0.7	0.5
187	FL (2+1) 15 S	0.7	0.7
188	FL (2+1) 15 S	1	2
189	VQ (3) 15 S	0.1	0.5
190	FL (3) 20 S	0.5	3
191	FL (3) 20 S	0.5	1.5
192	FL (3) 20 S	0.8	1.2
193	FL (3) 20 S	1	1

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF
194	VQ (4) 4 S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.9
195	Q (4) 8 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	2.7
196	Q (4) 8 S	0.4	0.8	0.4	0.8	0.4	0.8	0.4	2.6
197	FL (4) 10 S	0.5	1	0.5	1	0.5	1	0.5	5
198	FL (4) 10 S	0.8	1.2	0.8	1.2	0.8	1.2	0.8	3.2
199	Q (4) 10 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	6.7
200	FL (4) 12 S	0.3	1.7	0.3	1.7	0.3	1.7	0.3	5.7
201	FL (4) 12 S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	8.5
202	FL (4) 12 S	0.5	1.5	0.5	1.5	0.5	1.5	0.5	5.5
203	FL (4) 12 S	0.8	1.2	0.8	1.2	0.8	1.2	0.8	5.2
204	Q (4) 12 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	8.7
205	FL (4) 15 S	0.5	1.5	0.5	1.5	0.5	1.5	0.5	8.5
206	FL (4) 15 S	1	1	1	1	1	1	1	8
207	FL (4) 15 S	1.5	0.5	0.5	0.5	0.5	0.5	0.5	10.5
208	FL (4) 16 S	0.5	1.5	0.5	1.5	0.5	1.5	0.5	9.5
209	FL (4) 20 S	0.3	3	0.3	3	0.3	3	0.3	9.8
210	FL (4) 20 S	0.5	1.5	0.5	1.5	0.5	1.5	0.5	13.5
211	FL (4) 20 S	0.5	1.5	0.5	1.5	0.5	4.5	0.5	10.5
212	FL (4) 20 S	1.5	1.5	1.5	1.5	1.5	1.5	1.5	9.5
213	Q (4) 20 S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	16.5
214	Q (4) 28 S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	24.5
215	FL (4) 30 S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	26.5

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
216	Q (5) 7 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	2.7
217	Q (5) 10 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	5.7
218	FL (5) 16.5 S	5	1.5	0.5	1.5	0.5	1.5	0.5	1.5	0.5	3.5
219	FL (5) 20 S	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	15.5
220	FL (5) 20 S	0.8	1.2	0.8	1.2	0.8	1.2	0.8	1.2	0.8	11.2
221	FL (5) 20 S	1	1	1	1	1	1	1	1	1	11

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
222	Q (6) 10 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	4.7
223	FL (6) 15 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	9.7
224	FL (6) 15 S	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	7
225	FL (6) + LFL 15 S	0.5	1	0.5	1	0.5	1	0.5	1	0.5	1	0.5	7

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
226	VQ (6) + LFL 10 S	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	2	5
227	VQ (6) + LFL 10 S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	2	4.4
228	Q (6) + LFL 15 S	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	2	7
229	Q (6) + LFL 15 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	2	7
230	Q (6) + LFL 15 S	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	2	5.8
231	VQ (6) + LFL 15 S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	2	9.4

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
232	VQ (9) 10 S	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	5.8
233	VQ (9) 10 S	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	4.9
234	Q (9) 15 S	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	0.8	0.2	6.8
235	Q (9) 15 S	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	0.7	0.3	6.7
236	Q (9) 15 S	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	4.8

FLASH	FLASH CODE	ON	OFF	ON	OFF	ON	OFF	ON	OFF
MORSE CODE () INDICATES LETTER									
237	MO (A) 6 S	0.3	0.6	1	4.1				
238	MO (A) 8 S	0.4	0.6	2	5				
239	MO (A) 8 S	0.8	1.2	2.4	3.6				
240	MO (U) 10 S	0.3	0.7	0.3	0.7	0.9	7.1		
241	MO (U) 10 S	0.4	0.6	0.4	0.6	1.2	6.8		
242	MO (U) 10 S	0.5	0.5	0.5	0.5	1.5	6.5		
243	MO (A) 10 S	0.5	0.5	1.5	7.5				
244	MO (D) 10 S	5	1	1	1	1	1		
245	MO (A) 15 S	0.5	1.5	2	11				
246	MO (U) 15 S	0.6	0.3	0.6	0.3	1.4	11.8		
247	MO (U) 15 S	0.7	0.5	0.7	0.5	1.9	10.7		
248	MO (U) 15 S	0.7	0.7	0.7	0.7	2.1	10.1		
249	MO (B) 15 S	1.5	0.5	0.5	0.5	0.5	0.5	0.5	10.5
250	MO (F) 15 S	0.5	0.5	0.5	0.5	1.5	0.5	0.5	10.5

Thanks for choosing our products, is the professional brand of signal transmission and high quality industrial lighting which is trusted and loved by global users from various industries.

Read and understand these instructions completely and carefully. Wrong installation and operation may lead to fires, electric shock, and others. Due to our continued efforts to improve our products, product specifications are subject to change without notice.