Installation and Operation Instructions OL-M180 Triple Stack Headlight Replacement

IMPORTANT! Read all instructions before installing and using. Installer: This manual must be delivered to the end user.

WARNING!
Failure to install or use this product according to manufacturer's recommendations may result in property damage, serious injury, and/or death to those you are seeking to protect!

Do not install and/or operate this safety product unless you have read and understood the safety information contained in this manual.

1. **Proper installation combined with operator training in the use, care, and maintenance of emergency warning devices are essential to ensure the safety of emergency personnel and the public.**
2. **Emergency warning devices often require high electrical voltages and/or currents. Exercise caution when working with live electrical connections.**
3. **This product must be properly grounded. Inadequate grounding and/or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.**
4. **Proper placement and installation is vital to the performance of this warning device. Install this product so that output performance of the system is maximized and the controls are placed within convenient reach of the operator so that they can operate the system without losing eye contact with the roadway.**
5. **It is the responsibility of the vehicle operator to ensure daily that all features of this product work correctly. In use, the vehicle operator should ensure the projection of the warning signal is not blocked by vehicle components (i.e., open trunks or compartment doors), people, vehicles or other obstructions.**
6. **The use of this or any other warning device does not ensure all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection, drive against traffic, respond at a high rate of speed, or walk on or around traffic lanes.**
7. **This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding emergency warning devices. Therefore, the user should check all applicable city, state, and federal laws and regulations. The manufacturer assumes no liability for any loss resulting from the use of this warning device.**

Contents:

Specifications:

Input Voltage:		12-24 VDC
Work Current:	M180L	1.7 A max @ 12VDC NOMINAL
	M180LMC	1.7 A max @ 12VDC NOMINAL
Temp. Range:		-30ºC to 50ºC
		-22ºF to 122ºF

Unpacking and Pre-installation:

Carefully unpack the unit and check the contents against the parts list below. Be careful to open the proper end of the lighthead carton, so the lens is not damaged or cut. Test the operation of the lighthead assembly before installation by connecting the red power wire to applicable +12 or 24 volt D.C. lead and the black wire to ground (earth).

WARNING!
Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g. 3M® Scotchlock type connectors). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring. Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity. Ground terminations should only be made to substantial chassis components, preferably directly to the vehicle battery. The user should install a fuse sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp fuse should carry a maximum of 24 Amps. DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

Installation and Mounting:

CAUTION!
When drilling into any vehicle surface, make sure that the area is free from any electrical wires, fuel lines, vehicle upholstery, etc. that could be damaged.

Mounting the L-Bracket:

1. Choose a suitable location for mounting the lighthead. Using the square mounting holes in the bottom of the bracket as a template, mark the mounting hole positions. Drill one 5/16" hole at each mark.

NOTE: The bracket bottom "L" can be turned either direction based on mounting requirements.

2. Using the supplied lockwashers, nuts, and carriage bolts, mount the bracket to the drilled holes. (See Figure 1.) Insure that the fasteners are sufficiently tight.

Mounting the lighthead:

3. To install the light to the L-bracket, remove four lens screws and pull lens from the housing. Pull the lighthead (Part #1) from the housing.
4. Insert the supplied plastic inserts (Part #6) into the back of the bracket.

Note: Push the inserts in from the side that the light will be mounted on.

5. Using the supplied screws and washers (Parts #7 and #8, see Figure 1), attach the housing to the inserts in the bracket. Ensure that the fasteners are sufficiently tight.
6. Reassemble the light, making sure not to pinch the wires when tightening the lens screws.

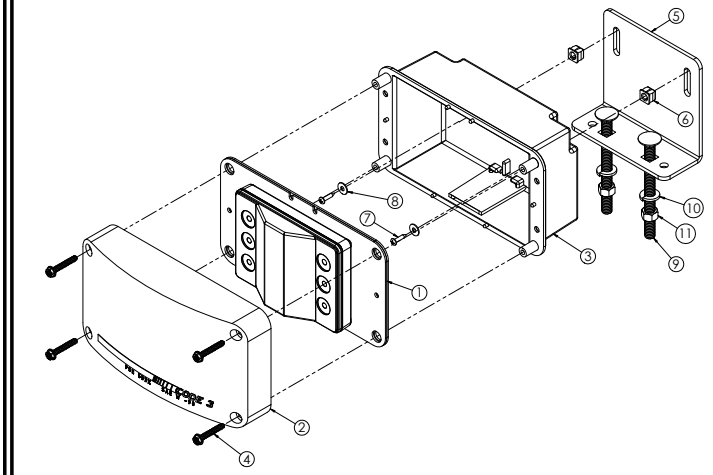

Figure 1

ITEM NO.	PART NUMBER	DESCRIPTION
1	-	M180 LIGHT ASSY
2	T0553X	LENS
3	T03759	HOUSING
4	T00392	SMS, HX HD PHIL WASH FACE, 8-15 X 1", "B" PT, SS
5	S85897	L-BRACKET
6	T06521	PLASTI GROMMET
7	T06213	SMS, PAN HD PHIL, 6 X 1/2", "B" PT, BLACK OXIDE
8	T10155	#6 FLAT WASHER
9	T06716	C-BOLT, 5/16-18 X 3 1/2" FULL THREAD, SS
10	T00245	5/16" SPLIT LOCKWASHER - SS
11	T00244	NUT, HEX HD 5/16", SS

Wiring:

IMPORTANT! This unit is a safety device and it must be connected to its own separate, fused power point to assure its continued operation should any other electrical accessory fail.

M180L:

RED: Positive
(need to add 2A fuse)
BLACK: Negative
BLUE: Pattern Select to Negative and Dimming to Positive
YELLOW: Synchronized Function
(Up to 8 units can be Synchronized)
ORANGE: Takedown Light Operation

M180LMC:

RED: Positive, Colors 1 & 3
(need to add 5A fuse)
WHITE: Positive, Colors 2 & 4
(need to add 5A fuse)
BLACK: Negative
BLUE: Pattern Select to Negative and Dimming to Positive
YELLOW: Synchronized Function
(Up to 8 units can be Synchronized)
ORANGE: Takedown Light Operation

	RED	WHITE
PRODUCT	**1 & 3 COLORS**	**2 & 4 COLORS**
M180LMC-AW	AMBER	WHITE
M180LMC-BW	BLUE	WHITE
M180LMC-RB	RED	BLUE
M180LMC-RW	RED	WHITE
M180LMC-AB	AMBER	BLUE
M180LMC-RA	AMBER	RED

Pattern Select Operation:

The lighthead's flash pattern may be changed by holding the blue wire to ground for the following intervals:

1 second: increment flash pattern
3 seconds: decrement flash pattern
5 seconds: reset to default
7 seconds: set to last flash pattern

Note: The blue wire must be disconnected from any voltage when operating except when changing flash patterns or activating dim.

M180 Series Flash Pattern Chart:

Pattern	MODE	PATTERNS	SYNC.	SAE J595				CA T13			SAE J845				ECE R65		
				RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE	RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE
1	1	Single Flash 75FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
	2	Single Flash 75FPM sim. Phase2	yes	Class 1	Class 1	Class 1	Class 1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
	3	Single Flash 75FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
2	4	Single Flash 120FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	5	Single Flash 120FPM sim. phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	6	Single Flash 120FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
3	7	Double Flash 75FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	8	Double Flash 75FPM sim. phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	9	Double Flash 75FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
4	10	Double Flash 120FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
	11	Double Flash 120FPM sim. phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
	12	Double Flash 120FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
5	13-Default	Quad Flash 75FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	120	100	80	N/C	N/C	N/C
	14	Quad Flash 75FPM sim. Phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	120	100	80	N/C	N/C	N/C
	15	Quad Flash 75FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
6	16	Quad Flash 150FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	120	100	100	60	N/C	N/C	N/C
	17	Quad Flash 150FPM sim. Phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	120	100	100	60	N/C	N/C	N/C
	18	Quad Flash 150FPM Alt	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
7	19	Triple 75FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	140	N/C	N/C	N/C
	20	Triple 75FPM sim. Phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	140	N/C	N/C	N/C
	21	TripleAlter 75FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
8	22	Quint Flash 150FPM sim. Phase1	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	120	100	100	60	N/C	N/C	N/C
	23	Quint Flash 150FPM sim. Phase2	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	120	100	100	60	N/C	N/C	N/C
	24	Quint Flash 150FPM Alt.	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
9	25	Steady - Single	NO	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
10	26	Steady Burn	NO	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
11	27	Modulation	NO	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
12	28	2 Double Flash,2 Triple Alt.	NO	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
13	29	4 Single Flash ,2 Quad Flash Alt.	NO	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

M180LMC Series Flash Pattern Chart:

PATTERN	MODE 1 Color 1 & Color 3 (Red line)	MODE 2 Color 2 & Color 4 (White line)	MODE 1 Color 1 & Color 3 MODE 2 Color 2 & Color 4 (Red line & White line)	Pattern	SYNC.	SAE J595				CAT13			SAE J845 Class 1S				ECE R65		
						RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE	RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE
1	1-Default		1	SAE/T13 SAE/T13 Single 75FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class1	Class1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
	2		2	SAE/T13 SAE/T13 Single 75FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
			3	SAE/T13 Single 75FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			4	SAE/T13 Single 75FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		1-Default	5	SAE/T13 Single 75FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
		2	6	SAE/T13 Single 75FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	Class B	Class B	Class B	160	140	140	140	N/C	N/C	N/C
	3	3	7	SAE/T13 Single 75FPM Ph1(Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	4	4	8	SAE/T13 Single 75FPM Ph2(Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	5	5	9	SAE/T13 Single 75FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
2	6		10	Single 375FPMFPM Ph1 Color 1 Synchronous Color 3	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	7		11	Single 375FPMFPM Ph2 Color 1 Synchronous Color 3	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			12	Single 375FPMFPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			13	Single 375FPMFPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		6	14	Single 375FPMFPM Ph1 Color 2 Synchronous Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		7	15	Single 375FPMFPM Ph2 Color 2 Synchronous Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	8	8	16	Single 375FPMFPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	9	9	17	Single 375FPMFPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	10	10	18	Single 375FPMFPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
3	11		19	SAE/T13 Double 75FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	12		20	SAE/T13 Double 75FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
			21	SAE/T13 Double 75FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			22	SAE/T13 Double 75FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		11	23	SAE/T13 Double 75FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
		12	24	SAE/T13 Double 75FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	13	13	25	SAE/T13 Double 75FPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	14	14	26	SAE/T13 Double 75FPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	15	15	27	SAE/T13 Double 75FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

M180LMC Series Flash Pattern Chart:

PATTERN	MODE 1 Color 1 & Color 3 (Red line)	MODE 2 Color 2 & Color 4 (White line)	MODE 1 Color 1 & Color 3 MODE 2 Color 2 & Color 4 (Red line & White line)	Pattern	SYNC.	SAE J595				CAT13			SAE J845				ECE R65 Class1		
						RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE	RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE
4	16		28	ECER65/SAE Double 120FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
	17		29	ECER65/SAE Double 120FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
			30	ECER65/SAE Double 120FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			31	ECER65/SAE Double 120FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		16	32	ECER65/SAE Double 120FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
		17	33	ECER65/SAE Double 120FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	Class 2	Class 2	Class 2
	18	18	34	ECER65/SAE Double 120FPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	19	19	35	ECER65/SAE Double 120FPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	20	20	36	ECER65/SAE Double 120FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
5	21		37	SAE/T13 Triple 75FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	22		38	SAE/T13 Triple 75FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
			39	SAE/T13 Triple 75FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			40	SAE/T13 Triple 75FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		21	41	SAE/T13 Triple 75FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
		22	42	SAE/T13 Triple 75FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	160	140	140	140	N/C	N/C	N/C
	23	23	43	SAE/T13 Triple 75FPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	24	24	44	SAE/T13 Triple 75FPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	25	25	45	SAE/T13 Triple 75FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
6	26		46	SAE/T13 Quad 75FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	N/C	N/C	N/C
	27		47	SAE/T13 Quad 75FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	N/C	N/C	N/C
			48	SAE/T13 Quad 75FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			49	SAE/T13 Quad 75FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		26	50	SAE/T13 Quad 75FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	N/C	N/C	N/C
		27	51	SAE/T13 Quad 75FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	120	120	N/C	N/C	N/C
	28	28	52 - Default	SAE/T13 Quad 75FPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	29	29	53	SAE/T13 Quad 75FPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	30	30	54	SAE/T13 Quad 75FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

M180LMC Series Flash Pattern Chart:

PATTERN	MODE 1 Color 1 & Color 3 (Red line)	MODE 2 Color 2 & Color 4 (White line)	MODE 1 Color 1 & Color 3 MODE 2 Color 2 & Color 4 (Red line & White line)	Pattern	SYNC.	SAE J595				CAT13			SAE J845 Class 1S				ECE R65 Class1		
						RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE	RED	AMBER	BLUE	WHITE	RED	AMBER	BLUE
7	31		55	ECER65/SAE Quad 120FPM Ph1 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	120	N/C	N/C	N/C
	32		56	ECER65/SAE Quad 120FPM Ph2 Color 1 Synchronous Color 3	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	120	N/C	N/C	N/C
			57	ECER65/SAE Quad 120FPM Ph1 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
			58	ECER65/SAE Quad 120FPM Ph2 Color 1 Alternately Color 4	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		31	59	ECER65/SAE Quad 120FPM Ph1 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	120	N/C	N/C	N/C
		32	60	ECER65/SAE Quad 120FPM Ph2 Color 2 Synchronous Color 4	yes	Class 1	Class 1	Class 1	Class 1	N/C	N/C	N/C	140	140	140	120	N/C	N/C	N/C
	33	33	61	ECER65/SAE Quad 120FPM Ph1 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	34	34	62	ECER65/SAE Quad 120FPM Ph2 (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
	35	35	63	ECER65/SAE Quad 120FPM (Color 1 Alternately Color 2) Alternately (Color 3 Alternately Color 4)	yes	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
8			64	Modulation (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
9			65	2 Double,2 Quad (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
10			66	4 Single,2 Triple (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
11			67	1Doube 1Triple 1Quad (Color 1 Synchronous Color 3) Alternately (Color 2 Synchronous Color 4)	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
12	36		68	Steady burn-Color 1 & 3	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
		36	69	Steady burn-Color 2 & 4	no	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C

Troubleshooting:

M180L and M180LMC series have been factory tested and approved. If the device fails, please check the following:

- Check the wiring to the device has not short circuited.
- Make sure the red and or white, and black wires are securely connected to power and ground separately.

Warranty:

Manufacturer Limited Warranty Policy:

Manufacturer warrants that on the date of purchase this product will conform to Manufacturer's specifications for this product (which are available from the Manufacturer upon request). This Limited Warranty extends for Sixty (60) months from the date of purchase.

DAMAGE TO PARTS OR PRODUCTS RESULTING FROM TAMPERING, ACCIDENT, ABUSE, MISUSE, NEGLIGENCE, UNAPPROVED MODIFICATIONS, FIRE OR OTHER HAZARD; IMPROPER INSTALLATION OR OPERATION; OR NOT BEING MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE PROCEDURES SET FORTH IN MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS VOIDS THIS LIMITED WARRANTY.

Exclusion of Other Warranties:

MANUFACTURER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE IMPLIED WARRANTIES FOR MERCHANTABILITY, QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE ARE HEREBY EXCLUDED AND SHALL NOT APPLY TO THE PRODUCT AND ARE HEREBY DISCLAIMED, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ORAL STATEMENTS OR REPRESENTATIONS ABOUT THE PRODUCT DO NOT CONSTITUTE WARRANTIES.

Remedies and Limitation of Liability:

MANUFACTURER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR UNDER ANY OTHER THEORY AGAINST MANUFACTURER REGARDING THE PRODUCT AND ITS USE SHALL BE, AT MANUFACTURER'S DISCRETION, THE REPLACEMENT OR REPAIR OF THE PRODUCT, OR THE REFUND OF THE PURCHASE PRICE PAID BY BUYER FOR NON-CONFORMING PRODUCT. IN NO EVENT SHALL MANUFACTURER'S LIABILITY ARISING OUT OF THIS LIMITED WARRANTY OR ANY OTHER CLAIM RELATED TO THE MANUFACTURER'S PRODUCTS EXCEED THE AMOUNT PAID FOR THE PRODUCT BY BUYER AT THE TIME OF THE ORIGINAL PURCHASE. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LOST PROFITS, THE COST OF SUBSTITUTE EQUIPMENT OR LABOR, PROPERTY DAMAGE, OR OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES BASED UPON ANY CLAIM FOR BREACH OF CONTRACT, IMPROPER INSTALLATION, NEGLIGENCE, OR OTHER CLAIM, EVEN IF MANUFACTURER OR A MANUFACTURER'S REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. MANUFACTURER SHALL HAVE NO FURTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE PRODUCT OR ITS SALE, OPERATION AND USE, AND MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES THE ASSUMPTION OF ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH PRODUCT.

This Limited Warranty defines specific legal rights. You may have other legal rights which vary from jurisdiction to jurisdiction. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages.

Product Returns:

If a product must be returned for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3®, Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

*Code 3®, Inc. reserves the right to repair or replace at its discretion. Code 3®, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping: nor for the handling of products returned to sender after the service has been rendered.

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