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MT150AXXXAQ_CP   General-Outdoor

■ **Features**
- Input voltage: 249-528VAC
- Built-in active PFC function: 0.98Typ.
- Built-in Lightning protection.
- High efficiency: 91% Typ.
- Waterproof (IP67)
- Constant Current / 0-10V Dimming/ Clock Dimming(CLK)/PWM Dimming
- Protection: OVP, SCP, OTP
- Full Power at 65%Iomax～100%Iomax (Constant Power)
- UL Type TL, Type H¹

c(UL)us E348796

■ Specification

Model (MT150HXXXAQ_CP)		080	105	150	210	300	420	600
Input	Efficiency(277Vac)Note.1	89.0%	88.0%	88.0%	87.0%	87.0%	86.0%	85.0%
	Efficiency(480Vac)Note.1	91.0%	90.0%	90.0%	89.0%	89.0%	88.0%	87.0%
	Voltage Range (V)Note.2	249～528Vac						
	Voltage Rate (V)Note.2	277-480Vac						
	Frequency Range (Hz)	47~63						
	Power Factor(Typ.)	0.96（Typical）, 0.94（minimum）at 480Vac						
		>0.9 with 60%~100% load, at 277~480Vac						
	THD(Typ.)	<15% with 80%～100% load, at 277~480Vac; <20% at 277~480Vac/60Hz input ,60%~100% load						
	AC Current(Typ.)	0.72A MAX at277VAC						
	Inrush Current(Max.)	65A at 480Vac input 25℃ Cold Start (time wide=500uS, measured at 50% Ipeak,Not applicable for the inrush current to Noise Filter for less than 0.2ms)						
	Leakage Current(Max.)	0.75mA at 480VAC/60Hz input						
Output	Rated Output Voltage (V)	188-283	143-214	100-150	71-107	50-75	36-54	25-38
	Voltage range (V) Note. 4	112-283	86-214	60-150	43-107	30-75	21-54	15-38
	Rated Current(mA)	530-800	700-1050	1000-1500	1400-2100	2000-3000	2800-4200	4000-6000
	Output Current Range(mA)	53-800	70-1050	100-1500	140-2100	200-3000	280-4200	400-6000
	Rated Power (W)	150(max)						
	Output Current Set Range	6.5%Io_max～100%Io_max						
	Constant Power Output Set Range	65%Io_max～100%Io_max						
	Ripple&Noise Current (Typ.)	10% max. ((PK-AV) /AV) with LED default mode and full load)						
	Current Tolerance (Imax)	±5%						
	Line Regulation (Imax)	±1%						
	Load Regulation (Imax)	±3%						
	Turn on delay Time	2s(typ.), measured at 277Vac input						
Dimming Control	12Vdc Output Voltage (Vdc)	10.8Vmin.~13.2Vmax.						
	12Vdc Output Current(Vdc)	0mA~20mA max.						
	0~10V/DMI+ Voltage	Absolute maximum voltage -10Vmin~20Vmax						
	0~10V/DMI+ Short Current	280uA~450uA (DIM(+)=0)						
	DIMMING FUNCTION	Default 0-10V dimming mode.others Dimming modes set to PWM/Clock Dimming(CLK) by software configuration						
Protection	Over Voltage (V)(max.)	350	280	200	140	100	70	50
		No damage.The power supply shall be self-recovery when the fault is removed.						
	Short Circuit	Protection type: Constant current limiting.						
	Over Temperature	Protection type: Resumable mode.when the inside temperature of PSU rise to 100℃(Typ.), decreases output current,returning to normal after over temperature is removed.						
Environment	Operating Temp.	-40~+70℃(Refer to 'Derating Curve')						
	Operating Humidity	20~95%RH, non-condensing						
	Tc	90℃ max						
	Storage Temp., Humidity	-40~+85℃，10-95%RH						
	Temp. Coefficient	0.03%/℃（0~50℃）						
	Vibration	10-500Hz,5G 12min/cycle，period for 72min each along X、Y、Z axes						
Safety & EMC	Safety Standard	UL8750,UL1012, CSA 250.13						
	Withstand Voltage	I/P-O/P:3.75KVAC I/P-FG:1.875KV O/P-FG:1.5KV						
	Isolation Resistance	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500Vdc/25℃/70%RH						
	EMC Emission	Conducted Emission: FCC PART15 Class A, Radiated Emission: FCC PART15 Class A						
	EMC Immunity	EN61000-4-2,3,4,5,6,8,11，EN61000-4-5: Line to Neutral: ±6kV ; Line to GND: ±6kV ; Neutral to GND: ±6kV. IEEE / ANSI C62.41.2 Transient Surge Requirements, combi wave 2 ohm source impedance.						
Others	MTBF	300,000 Hours,measured at full load,25℃ ambient temperature						
	Lifetime	>=100 KHrs lifetime (continous) at Tcase = 65 ℃ >=50 KHrs lifetime (continous) at Tcase = 75 ℃						
	Dimension	245 x67.5 x37 mm（LxWxH）						
	Weight	1.05kg(Typ.)						

Note.1: Measured at full load and steady-state temperature in 25℃ ambient(Efficiency will be about 2% lower if measured immediately after startup);   Note. 2: Derating may be needed under low input voltages , Please Refer to 'Derating Curve' ; Note. 3: All parameters NOT specially mentioned are measured at 480VAC input , rated load and 25℃ of ambient temperature ; Note. 4: refer to V/I curve
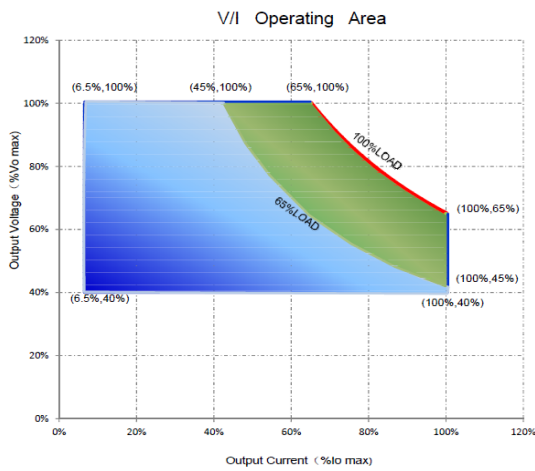
Derating Curve

V/I Curve

V/I Operating Area
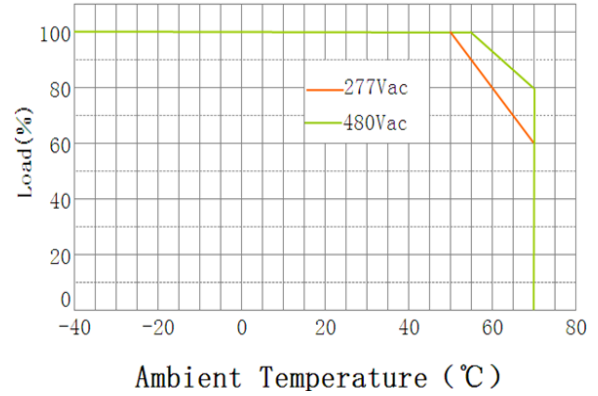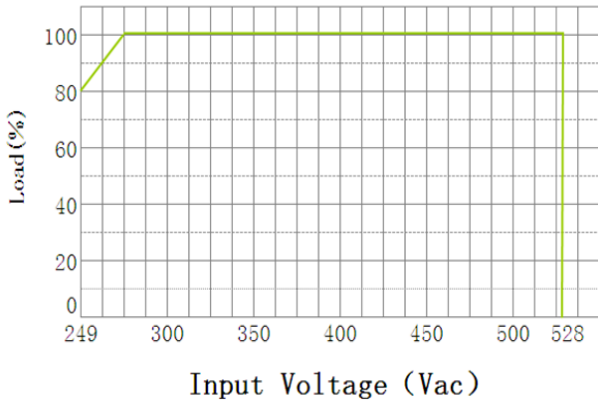
Life Time VS. Tcase (Ref.)
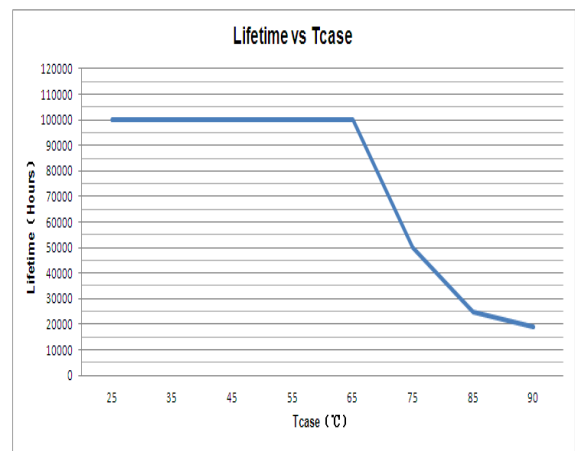
Lifetime vs Tcase

Life Time VS. Tambient(Ref.)

Lifetime vs Tambient
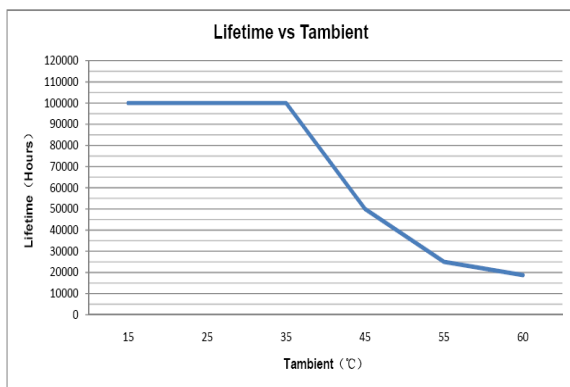
■ **Instruction**

1.Field Programmable Topology

| Programmable Diver | —cable→ | Programmer | —USB cable→ | (laptop) |
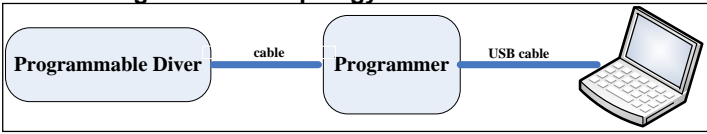
The programmable driver can be programmed by using special PC software and the programmer module.

2.Dimming Interface Description

Pin description

Pin	Name	Value	Description
1	Vaux 12V	10.8V-13.2V	Passive dimmers power supply
2	Dim+/Program	0-10V	Dimming/Programming input
3	Dim-	0V	DC Ground

3.Dimming Software Function Instruction

■ Adjustable Output Current(AOC)

Adjustable Output Current(AOC)

Module Current 1050   mA

Max Current 1050 mA Power 150 W

Users can set the rated current between 7%*Max Current and 100%*Max Current

■ Adjustable Startup Time(AST)

Adjustable Startup Time(AST)

Start Fadeup Time 5 ▼ s

Set driver's "Start Fade up Time". It means how much time the driver costs to achieve the "Module Current" that the user set. The valid value is 0s, 1s, 2s, 5s, 10s, 20s, 40s.

■ Fade Time(FT)

Fade Time(FT)

Fadeup Time 1 ▼ s

Set driver's "Fade up Time". This function is available in the Smart Midnight ClockDIM and Fixed ClockDIM mode; It means how much time the driver costs to achieve another dimming level from previous dimming level. The valid value is 0s, 1s, 2s, 5s, 10s, 20s, 40s.

■ 1-10V

Allow users to set the max and min output current and corresponding output voltage to clarify the 1-10V dimming curve. Input a 0~10V signal from 2nd pin of the dimming interface. Default: input ≤1V, output current 10%; input ≥ 8.5V, output current 100%.

Dimming Interface Selection(DIS)

◉ 1-10V   ○ PWM   ○ Smart Midnight ClockDIM   ○ Fixed ClockDIM   ○ No Dimming

1-10V Min dim level   1   V   10   %

1-10V Max dim level   8.5   V   100   %

■ PWM

Input a PWM signal from the 2nd pin(Dim+/Program) of the dimming interface to change the output current.User can set "Positive Logic" or "Negative Logic" of the PWM signal. PWM duty circle: 1%~99%(it has both positive and negative logics), frequency: 500Hz~5kHz, 3V~10V is high,-0.3V~0.8V is low.
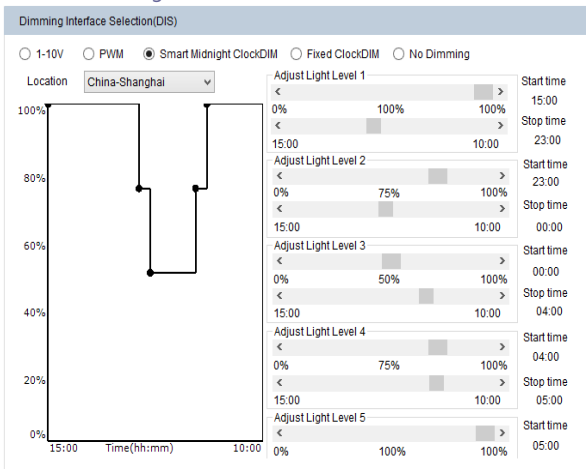
Dimming Interface Selection(DIS)

○ 1-10V   ◉ PWM   ○ Smart Midnight ClockDIM   ○ Fixed ClockDIM   ○ No Dimming
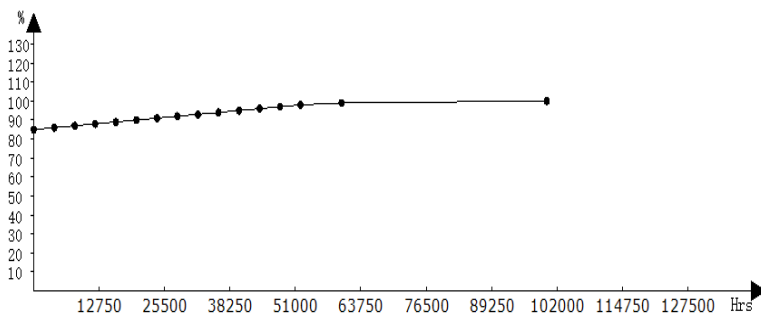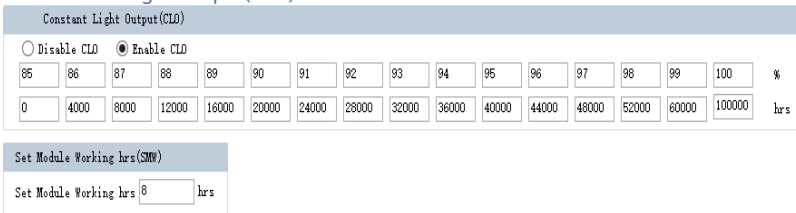
PWM Logic(PWML)

Positive Or Negative Logic   +   ▼

■ Instruction

■ Smart Midnight ClockDIM

Dimming Interface Selection(DIS)

○ 1-10V ○ PWM ● Smart Midnight ClockDIM ○ Fixed ClockDIM ○ No Dimming

Location: China-Shanghai

Adjust Light Level 1
0% 100% 100% Start time 15:00 Stop time 23:00
15:00 10:00

Adjust Light Level 2
0% 75% 100% Start time 23:00 Stop time 00:00
15:00 10:00

Adjust Light Level 3
0% 50% 100% Start time 00:00 Stop time 04:00
15:00 10:00

Adjust Light Level 4
0% 75% 100% Start time 04:00 Stop time 05:00
15:00 10:00

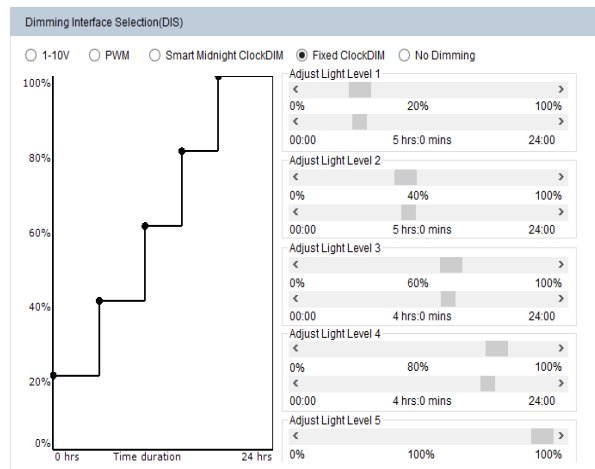Adjust Light Level 5
0% 100% 100% Start time 05:00

Smart Midnight ClockDIM allows dimming to predefined light levels based on the nightly operating time. With flexibility in setting time and light levels, the user can configure the driver for specific locations and application needs. Using Smart Midnight ClockDIM, it is possible to set up to 5 dim levels and time intervals. The driver does not have a real time clock. Instead it runs a virtual clock, determined by the length of nightly operating hours. After 3 ON-OFF cycles, the driver will calculate the virtual clock time. A valid ON-time is defined as a period during which the driver operates continuously for ≥4 hours to ≤24 hours. For example, if the requirement in summer is: 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75% (other time 100% or Off). The driver should be powered on for 7h, so it can calculate the virtual clock time as 22:00. Then we can set the dimming plan: 22:00~23:00: 100%, 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75%. From summer to winter, the valid ON-time changes day by day. The driver should be powered on for 17h in winter, and it also can calculate the virtual clock time as 17:00. Then the dimming plan is 17:00~23:00: 100%, 23:00-00:00: 75%, 00:00-04:00: 50%, 04:00-05:00: 75%, 05:00~10:00: 100%. From the above, if we set the dimming plan as shown in the picture, after repeating the driver ON-time for 3 consecutive days, the dimming plan takes effect from the 4th day onwards. Each day the driver powered on, it has a different start time according to the virtual clock time. So the driver can satisfy different requirements for different seasons.

■ Fixed ClockDIM

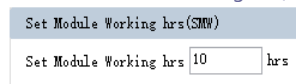Dimming Interface Selection(DIS)

○ 1-10V ○ PWM ○ Smart Midnight ClockDIM ● Fixed ClockDIM ○ No Dimming

Adjust Light Level 1
0% 20% 100%
00:00 5 hrs:0 mins 24:00

Adjust Light Level 2
0% 40% 100%
00:00 5 hrs:0 mins 24:00

Adjust Light Level 3
0% 60% 100%
00:00 4 hrs:0 mins 24:00

Adjust Light Level 4
0% 80% 100%
00:00 4 hrs:0 mins 24:00

Adjust Light Level 5
0% 100% 100%

Allow users to separate 24hrs into 5 sections and corresponding output current.

■ No Dimming

Dimming Interface Selection(DIS)

○ 1-10V ○ PWM ○ Smart Midnight ClockDIM ○ Fixed ClockDIM ● No Dimming
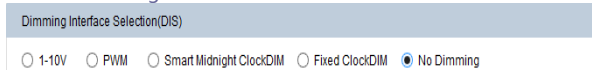
The driver will be in constant output mode.

■ Set MODULE Working hrs(SMW)

Set Module Working hrs(SMW)

Set Module Working hrs 10 hrs

User can check how much time the driver works through this function.

■ Constant Light Output(CLO)

Constant Light Output(CLO)

○ Disable CLO ● Enable CLO

85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	%
0	4000	8000	12000	16000	20000	24000	28000	32000	36000	40000	44000	48000	52000	60000	100000	hrs

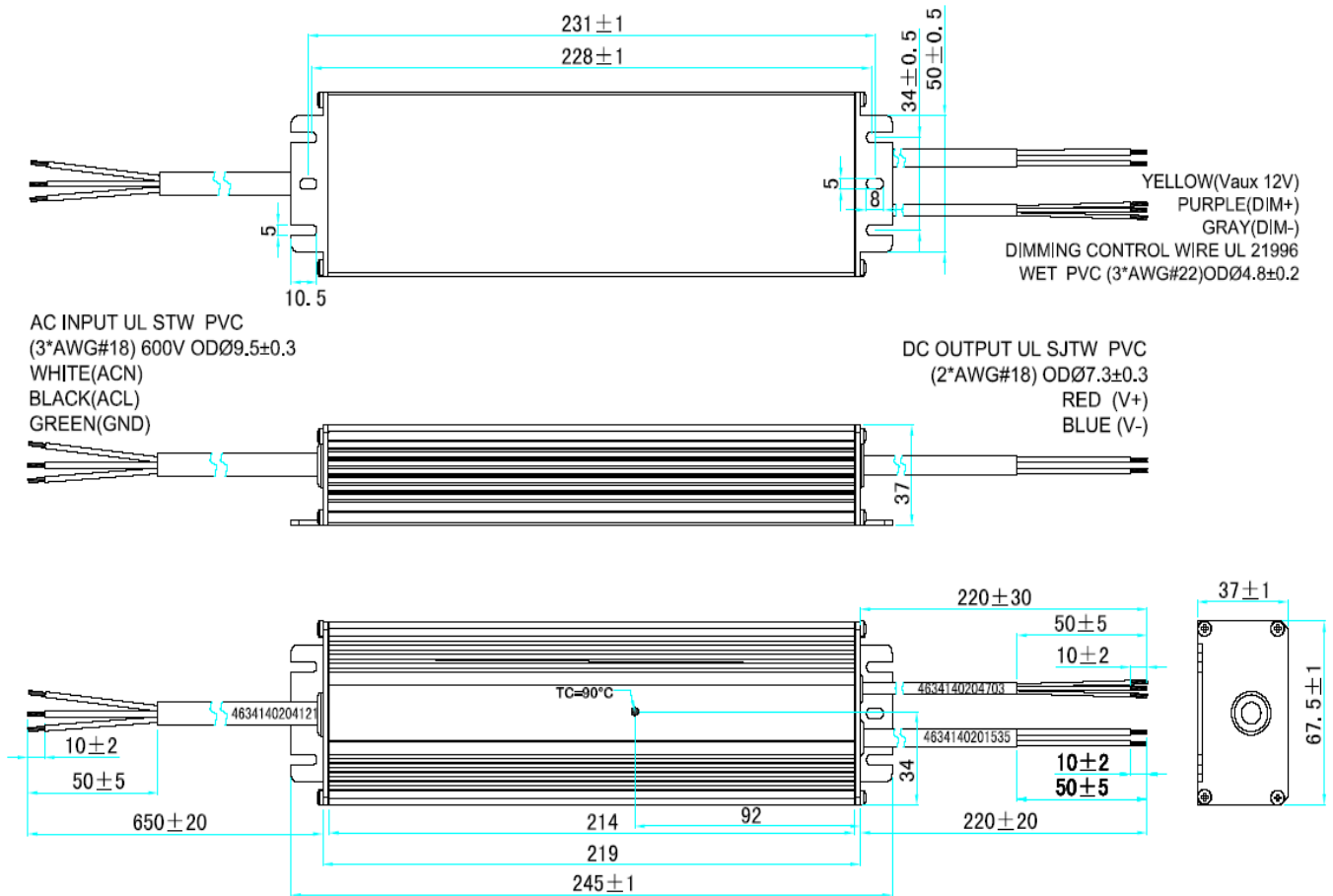Set Module Working hrs(SMW)

Set Module Working hrs 8 hrs

Traditional light sources suffer from depreciation in light output over time. This applies to LED light sources as well. The CLO feature enables LED solutions to deliver constant lumen output through the life of the light engine. Based on the type of LEDs used, heat sinking and driver current, it is possible to estimate the depreciation of light output for specific LEDs and this information can be entered into the driver. The driver counts the number of light source working hours and will increase output current based on this input to enable CLO.

When the CLO feature is enabled, the driver nominal output current will be defined by the CLO percentage as shown by the equation below: Driver target nominal output current = CLO percentage * AOC. For example, in the CLO profile shown in Figure, between 52,000-60,000 working hours, the CLO percentage is set at 98%. Assuming the nominal AOC is set to 500mA, the driver output current with CLO enabled will be 0.98 x 500 = 600 mA.

The CLO percentage can be set to a value between 85%-100%, in increments of 1%. The LED module working hours can be set at any value between (0-100,000 hours).

■ Mechanical Specification

Dimensions (Unit: mm)

231±1
228±1
34±0.5
50±0.5
5
8
5
10.5

YELLOW(Vaux 12V)
PURPLE(DIM+)
GRAY(DIM-)
DIMMING CONTROL WIRE UL 21996
WET PVC (3*AWG#22)ODØ4.8±0.2

AC INPUT UL STW PVC
(3*AWG#18) 600V ODØ9.5±0.3
WHITE(ACN)
BLACK(ACL)
GREEN(GND)

DC OUTPUT UL SJTW PVC
(2*AWG#18) ODØ7.3±0.3
RED (V+)
BLUE (V-)

37

220±30
50±5
10±2
37±1
67.5±1

TC=90°C
4634140204703
4634140204121
4634140201535
10±2
50±5
34
10±2
50±5
650±20
214
92
219
245±1
220±20

RoHS Compliance:

Our products comply with the European Directive of LVD (2014/35/EU), WEEE (2012/19/EU) and ROHS (2011/65/EU and（EU）2015/863),

calling for the elimination of lead and other hazardous substances from electronic products.