# MXG SERIES LED DRIVERS

DL-100W-A/P/X-MXG SPEC V1.2

Features

• Class I structure

• Input voltage: 120-277 V ~ 50/60 Hz

• Efficiency :91%(Typ.)

• Constant power drive and constant current output control mode

• Metal shell structure, protection grade: IP67

• Lightning protection level: differential mode 6kV,

common mode 15kV

• Function selection:

   Output current is adjusted by external potentiometer (A version only)

   Input over-voltage protection (only P version optional)

   Isolated 3 in 1 dimming (X/P version only)

   Auxiliary source: 12V/300mA (X version only)

•Lifetime design： 5 years

Applications

Road lighting、Industrial lighting、Venue lighting

Floodlight lighting、Landscape lighting 、Plant lighting

Model list

Model NO.	Input voltage	Output power	Output voltage	The default current	Eff.	T.H.D	PF
DL-100W-V143A-MXG DL-100W-V143P-MXG DL-100W-V143X-MXG	120-277V 50/60Hz	100W	71-143Vdc	0.7A	≥91%	<10%	≥0.95
DL-100W-V56A-MXG DL-100W-V56P-MXG DL-100W-V56X-MXG	120-277V 50/60Hz	100W	25-56Vdc	2.4A	≥89.5%	<10%	≥0.95

Note：

1. Test conditions of the above parameters: Ta=25℃, 230Vac input, full load operation for 30 minutes;

2. When the input is less than 108Vac,the output power range is 50W±20%.When input 120-277VAC,rated power 100W,

   Please refer to "THE OUTPUT POWER VS INPUT VOLTAGE" curve chart for details.

3.P version can be equipped with input over-voltage protection function.

Input characteristics

Parameter	Min	Typ.	Max	Note
Rated input voltage	120Vac 150Vdc	230Vac	277Vac 420Vdc	
Input voltage range	108Vac		305Vac	
Rated frequency	47Hz	50/60Hz	63Hz	
Power factor	0.95	-	-	@230Vac full load,rated input voltage
Power factor	0.9	-	-	80%-100% load, 100-277VAC input
T.H.D.	-	-	10%	@230Vac full load
T.H.D.	-	-	20%	80%-100% load, 120-277VAC input
Input current	-	-	1.1A	@120Vac full load
Inrush current	-	-	70A	230Vac, cold start (25℃)

Output characteristic

Parameter	Min	Typ.	Max	Note
Rated current				
DL-100W-V56A/P/X-MXG	-	1.8A	-	
DL-100W-V143A/P/X-MXG	-	0.7A	-	
Output current range				
DL-100W-V56A/P/X-MXG	1.3A	-	2.8A	
DL-100W-V143A/P/X-MXG	0.5A	-	1.05A	
Output voltage range				
DL-100W-V56A/P/X-MXG	25V	-	56V	
DL-100W-V143A/P/X-MXG	71V	-	143V	
Rated power(90-120Vac)	-	50W	100W	The derating begins when the input voltage is less than 108Vac
Rated power(120-277Vac)	-	100W	-	
No-load voltage				
DL-100W-V56A/P/X-MXG	-	-	75V	
DL-100W-V143A/P/X-MXG	-	-	190V	
Efficiency@120Vac				
DL-100W-V56A/P/X-MXG	86%	88%	-	full load@120Vac
DL-100W-V143A/P/X-MXG	87%	89%		

3

Output characteristic

Parameter	Min	Typ.	Max	Note
Efficiency@230Vac				full load@230Vac
DL-100W-V56A/P/X-MXG	88%	90%	-	
DL-100W-V143A/P/X-MXG	89%	91%		
Output Current Ripple	-	5% Iomax	-	100% load , 20 MHz BW ; Ripple =rms/ average
Accuracy of output current	-5%	-	+5%	full load
Line regulation	-3%	-	+3%	full load
Load regulation	-3%	-	+3%	full load
Starting time	300 ms	-	1000 ms	Full load@120-277Vac
Auxiliary source output voltage	10.8V	12V	13.2V	-
Auxiliary source output current	0 mA	-	300 mA	Reference ground is "Dim -"
Auxiliary source output transient peak current @6W	-	-	500 mA	In a 5.0ms cycle, the maximum duration of the maximum peak current of 500mA is 2ms, and the average value must not exceed 250mA

Note: 1.The output current range is limited by the input and output voltage, please refer to "I-V WORKING AREA" for details.

2. When the output voltage is in the constant power range, the current accuracy is -5%-+5%; when the output voltage is below the constant power range, the current accuracy is -10%-+10%;

Dimming characteristic

Dimming function		Min	Typ.	Max	Instructions
0-10V Dimming (Optional)	Safe applied voltage range	0V	-	12V	When the external voltage is ≥12V, the dimming will fail
	Dimming output range	0%	-	100%	-
	Rated dimming voltage range	0V	-	10V	It can be set to negative dimming mode through program setting
PWM Dimming (Optional)	PWM high level	9.5V	-	10.5V	-
	PWM low level	0V	-	0.3V	-
	PWM frequency scope	300Hz	-	2000Hz	-
	PWM duty cycle	0%	-	99%	Output full power at 99% duty cycle
Resistor Dimming (Optional)	External resistance value	0KΩ	-	100KΩ	-
	Dimming output range	0%	-	100%	-
Multiple time-controlled dimming (optional)	MCU control	Set segment dimming function through program			Working mode
	Timer control	It is divided into six segments by default and can be customized			24H to achieve a cycle

Note:

1. Output current of dimming port: 100uA (typical value);

2. The X version is 0-10V dimming, and the P version is 1-10V dimming (0V can be turned off). The maximum voltage of the dimming port is 12V. If the external power supply voltage exceeds 12V or the signal cable is inverted, the power supply will be damaged;

3. Dimming default setting is three in one positive logic dimming (programmable software can be set to timing dimming, 0-5V or other voltage dimming);

4. When set to positive logic dimming function, the 0V dimming is turned off, and the output voltage is 0.46*Vomax after the dimming is turned off. Be careful when using this function, but customers are advised to use 1-10V dimming.

5. When setting negative logic dimming, the default output is 100% when the dimming is suspended. Negative logic dimming cannot be turned off. When the port voltage of the dimming is greater than 10.5V, the maximum power output of the power supply will be achieved.

Protection

Function		Function instructions			
Input over-voltage protection (P version only)	Input over-voltage protection	Min.	Typ.	Max.	Notes
		320 Vac	340 Vac	350 Vac	Turn off the output when the input voltage exceeds protection voltage.
	Input over-voltage recovery	Min.	Typ.	Max.	Notes
		300 Vac	320 Vac	340 Vac	The driver will restart automatically when the input voltage falls below recovery voltage.
Input under-voltage protection	When the input voltage is less than 108Vac ±10%, the output power gradually decreases.				
Output overload protection	Protection mode:hiccup mode,recovers automatically after fault condition is removed.				
Output short circuit protection	Hiccup mode:recovers automatically after fault condition is removed				
Over temperature protection	Self-recovery type：when the housing temperature is greater than 90℃, the output power decreases gradually.				
Output over-voltage protection	Protection mode: Hiccup mode or clamped in output highest voltage , the product is not damaged，LED driver works normally after fault condition is removed.				

Note:

1. Unless otherwise specified, all specifications and parameters shall be measured at the conditions of 230Vac (50Hz), rated load and 25℃ of ambient temperature;
2. Including setting error, line regulation and load regulation.

Environmental

| Environmental categories	Parameter
Working temperature	-40 ~ +55℃@200-277Vac, -40 ~ +45℃ @120-200Vac (refer to "Life Curve ")
Max.Case Temp.	-40 ~ 90℃
Working humidity	20 ~ 95% RH, non condensing
Storage temperature、humidity	-40 ~ +80℃, 10 ~ 95% RH
Resistant to vibration	10 ~ 500Hz, 5G 12 min/cycle, X, Y, Z axis 72 min each
MTBF	230Khrs min. MIL-HDBK-217F (Ta=25℃)
Lifetime	75,000 hours @Tcase≤75℃,230Vac, 80% Load, Please refer to "Tcase VS Lifetime" section
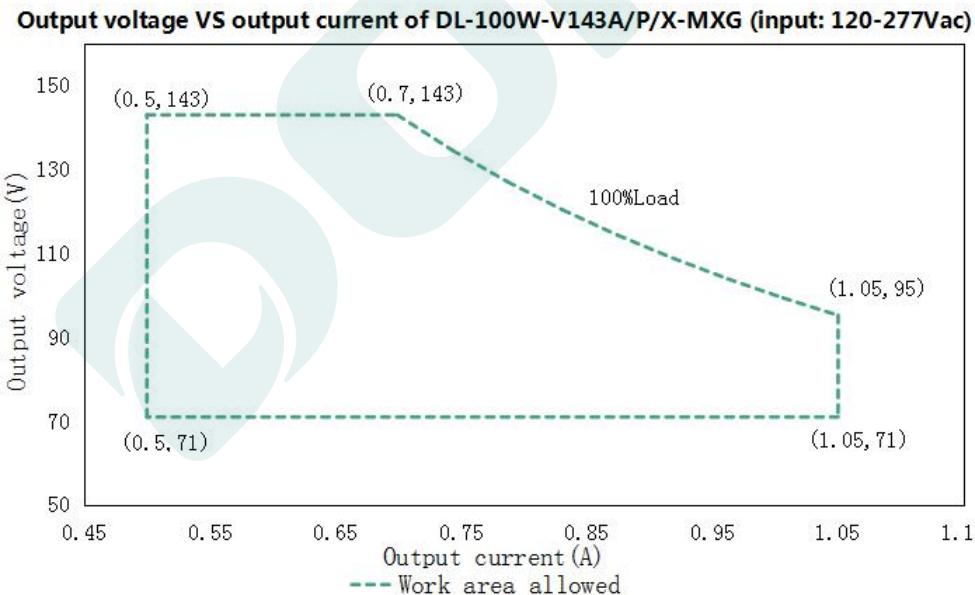
Safety and EMC

Safety categories	Standard
Safety	GB19510.1、GB19510.14、EN61347-1、EN61347-2-13、IEC61347-1、IEC61347-2-13、AS/NZS61347.1、AS61347.2.13、 EN 62384、 UL8750;
EMC	EN 55015、EN 61000-3-2 、GB/T 17743、GB17625.1、 EN 61000-3-3
Surge protection	Differential mode L-N ±6KV（2 ohm）,common mode L，N-PE± 15 KV (12 ohm)；Refer to IEC61000-4-5 2014 Criterion B
High-pot test	I/P-O/P:3.75KVac I/P-PE :1.5KVac O/P-PE : 0.5KVac I/P-DIM:1.5KVac O/P-DIM:1.5KVac
Insulation impedance	I/P-PE:100MΩ / 500VDC; I/P-O/P:100MΩ / 500VDC / 25℃/ 70% RH
Leakage current	<0.7mA@277Vac
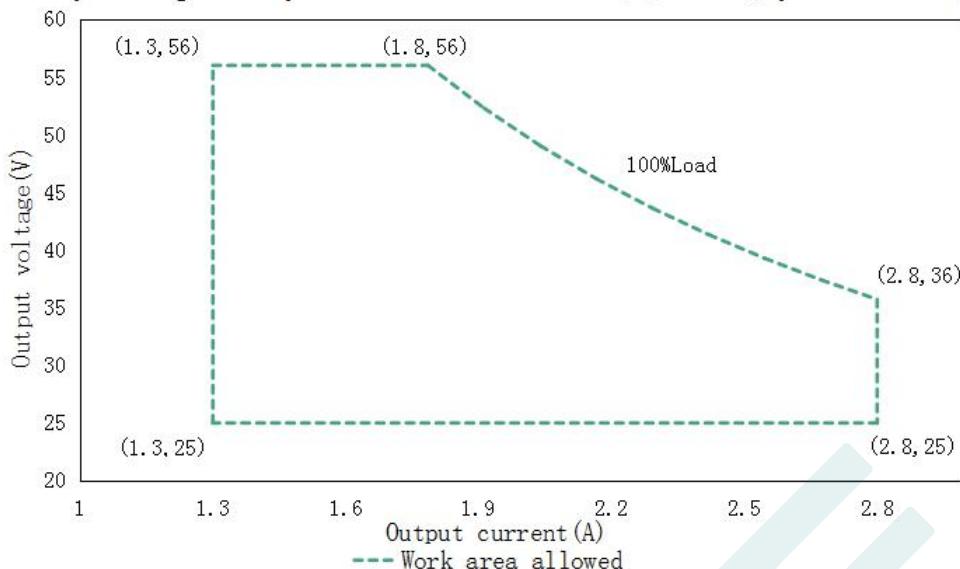
Note:

1. The driver is considered as a component that will be operated in combination with the final equipment. Since EMC performance will be affected by the complete installation,the final equipment manufacturers must re-qualify EMC Directive on the complete installation again.

I-V Working area

Output voltage VS output current of DL-100W-V143A/P/X-MXG (input: 120-277Vac)
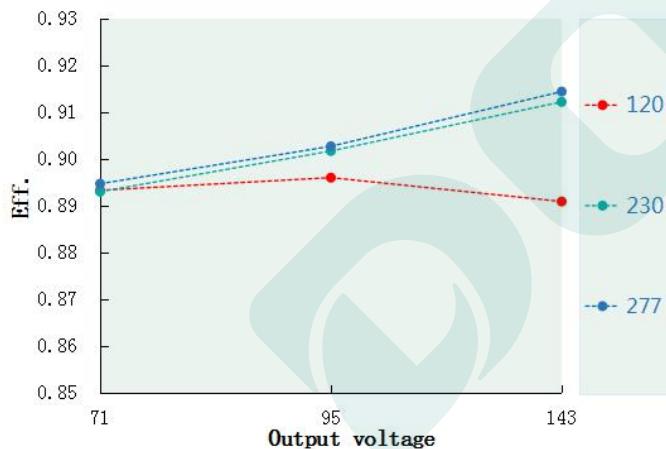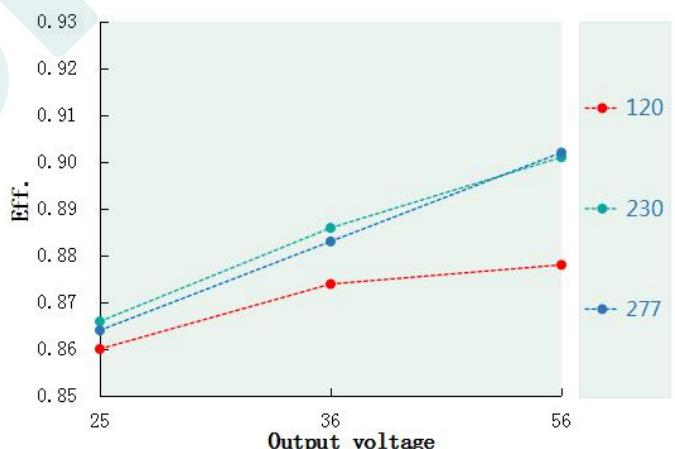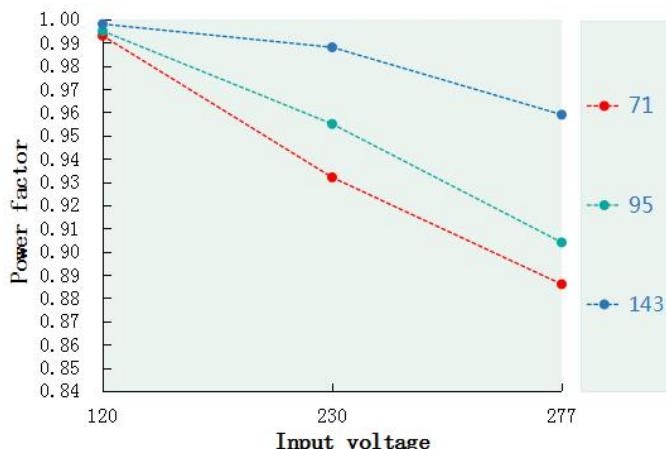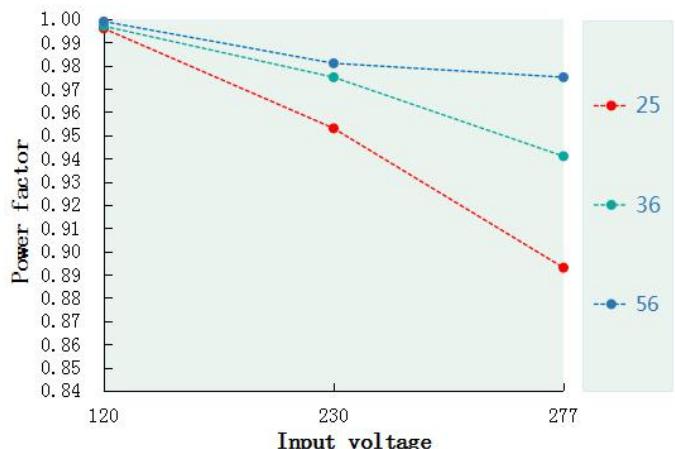
Load	Output								
Load working Voltage	71V	80V	89V	95V	107V	116V	125V	134V	143V
Io_MAX	1.05A	1.05A	1.05A	1.05A	0.93A	0.86A	0.8A	0.74A	0.7A
Po_MAX	74.5W	84W	93.5W	100W	99.51W	99.76W	100W	99.16W	100W

## Output voltage VS output current of DL-100W-V56A/P/X-MXG (input: 120-277Vac)

Load	Output								
Load working Voltage	25V	28V	32V	36V	40V	43V	48V	52V	56V
Io_MAX	2.8A	2.8A	2.8A	2.8A	2.5A	2.32A	2.08A	1.92A	1.8A
Po_MAX	70W	78.4W	89.6W	100W	100W	100W	99.84W	99.84W	100W
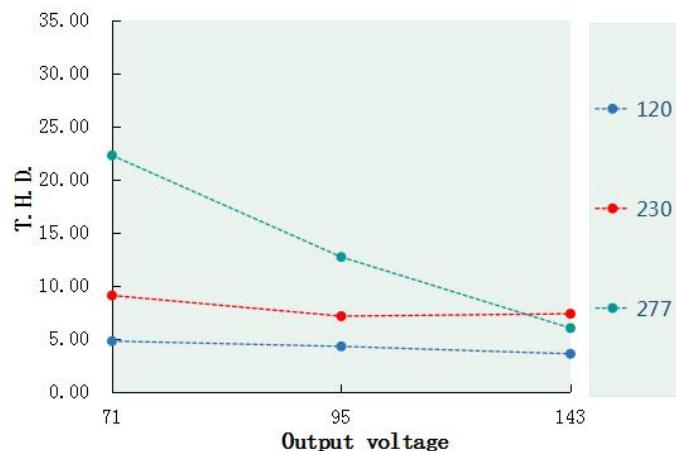
Eff. VS Output voltage(DL-100W-V143A/P/X-MXG)

Eff. VS Output voltage(DL-100W-V56A/P/X-MXG)

Power factor VS Input voltage(DL-100W-V143A/P/X-MXG)

**Power factor VS Input voltage(DL-100W-V56A/P/X-MXG)**
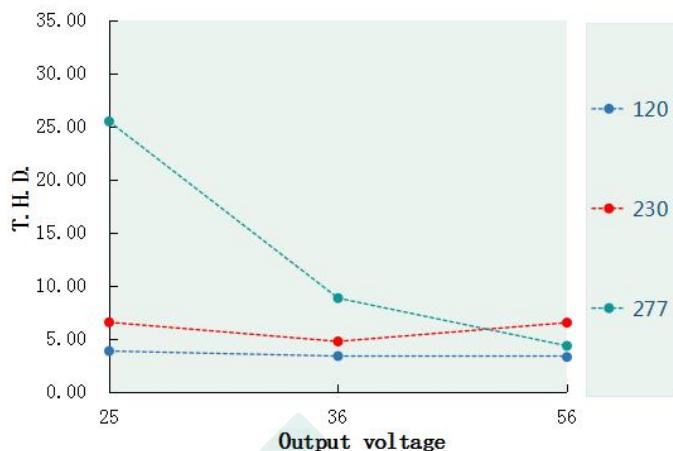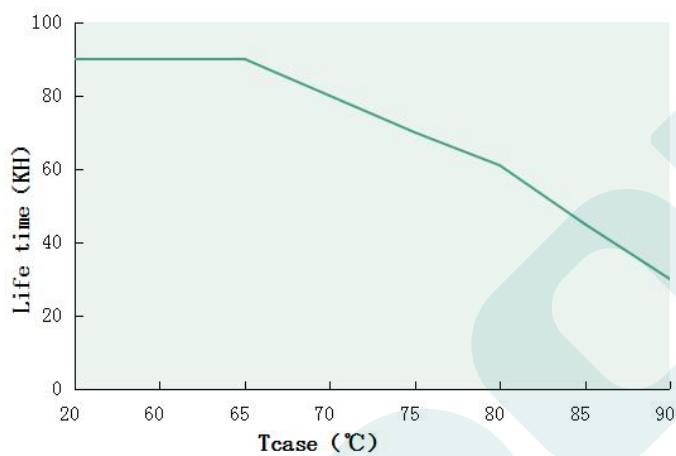
## T.H.D. VS Output voltage(DL-100W-V143A/P/X-MXG)
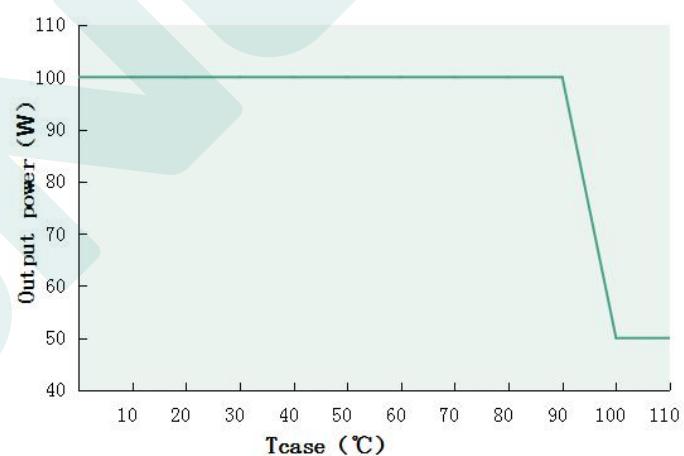
## T.H.D. VS Output voltage(DL-100W-V56A/P/X-MXG)
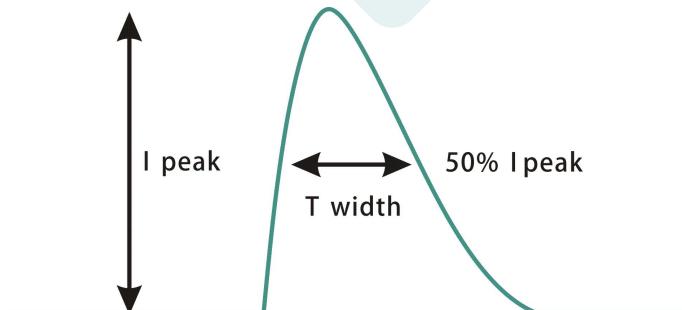
Tcase VS Lifetime (DL-100W-A/P/X-MXG)
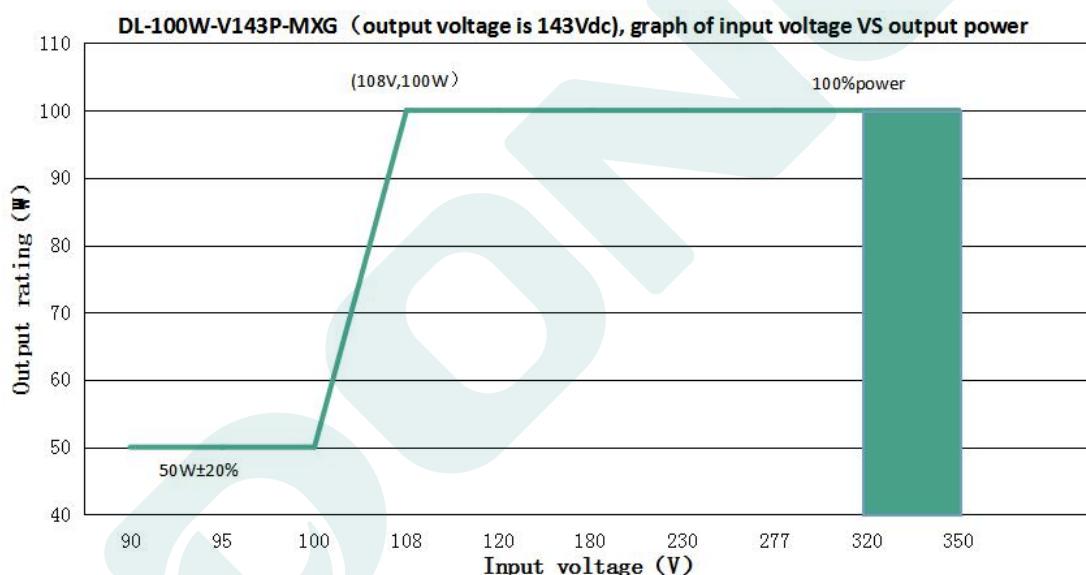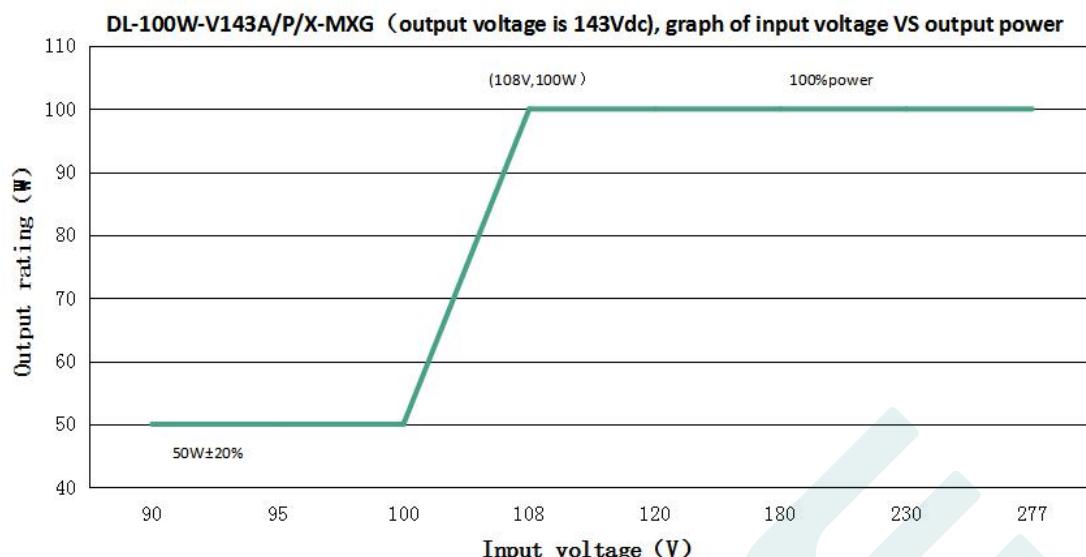

Output power VS Tcase (DL-100W-A/P/X-MXG)

Inrush current(DL-100W-A/P/X-MXG)

Input voltage	Peak current	T(@50% Peak current)
120Vac	25.4A	188us
230Vac	51.8A	188us
277Vac	61A	206us

Output power VS Input voltage

DL-100W-V143A/P/X-MXG（output voltage is 143Vdc), graph of input voltage VS output power

DL-100W-V143P-MXG（output voltage is 143Vdc), graph of input voltage VS output power
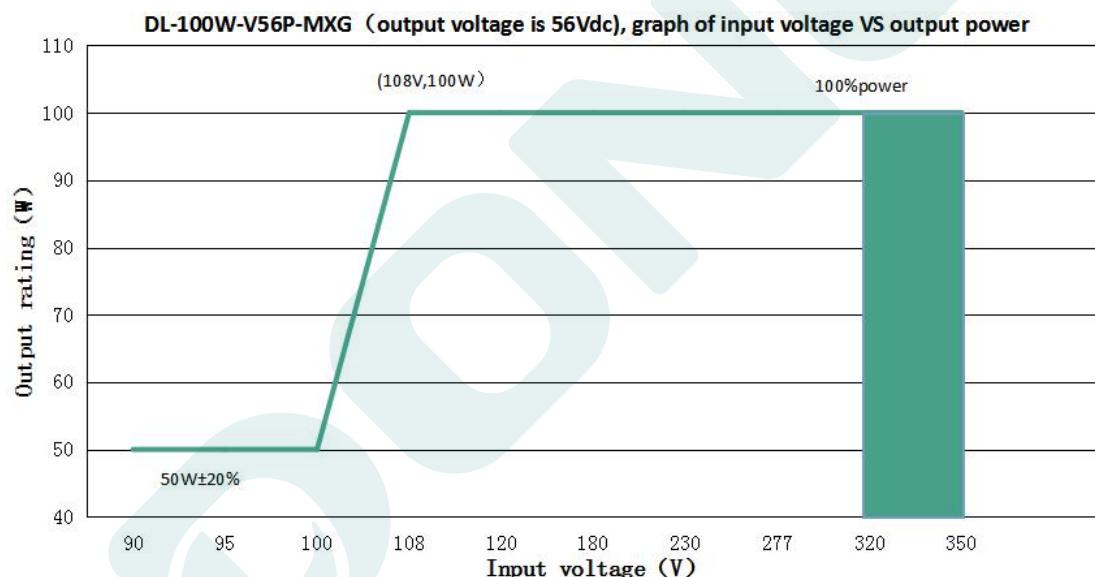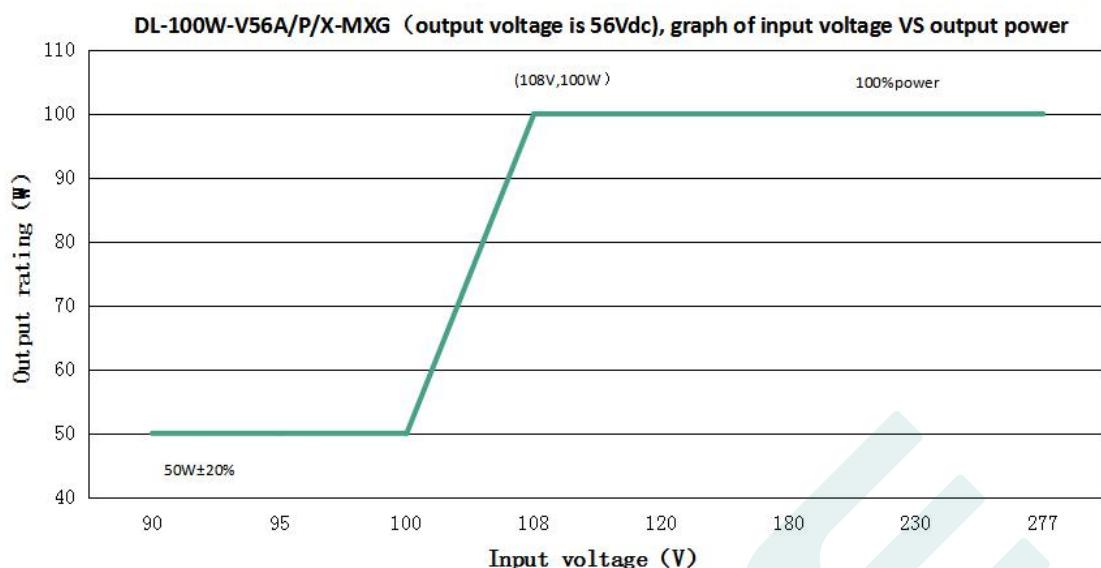
DL-100W-V143A/P/X-MXG (When the output voltage is 143Vdc, the rated output current value and output power corresponding to different input voltage)								
Input Voltage	90Vac	95Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.35A	0.35A	0.35A	0.7A	0.7A	0.7A	0.7A	0.7A
Pout	50W	50W	50W	100W	100W	100W	100W	100W

Note:

1.Input voltage will fluctuate,resistance error and other factors.At the decrease or increase of power (Vin=108Vac),it will move left and right,with the range of 108V .

2.When the input voltage is 90-108Vac,the output power range is 50W±20%.

Output power VS Input voltage

DL-100W-V56A/P/X-MXG（output voltage is 56Vdc), graph of input voltage VS output power

(108V,100W）   100%power

Output rating (W)

50W±20%

Input voltage (V)

DL-100W-V56P-MXG（output voltage is 56Vdc), graph of input voltage VS output power

(108V,100W）   100%power

Output rating (W)

50W±20%

Input voltage (V)

DL-100W-V56A/P/X-MXG (When the output voltage is 56Vdc, the rated output current value and output power corresponding to different input voltage)							
Input Voltage	90Vac	95Vac	100Vac	108Vac	120Vac	180Vac	230Vac	277Vac
Iout	0.9A	0.9A	0.9A	1.8A	1.8A	1.8A	1.8A	1.8A
Pout	50W	50W	50W	100W	100W	100W	100W	100W
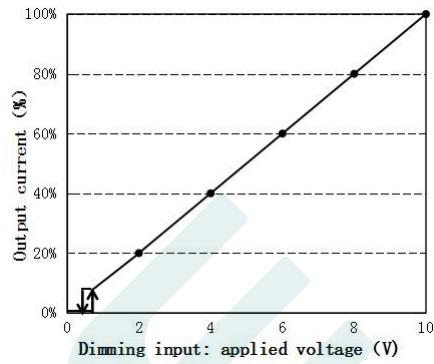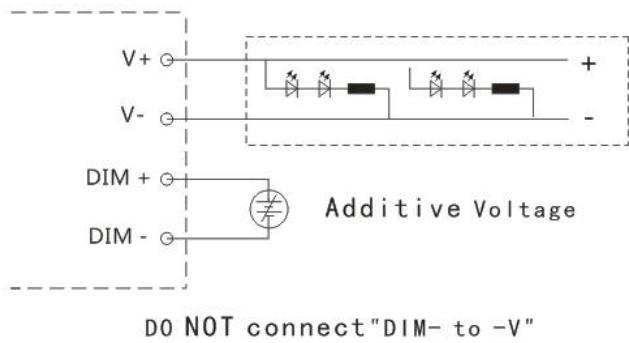
**Note:**

1.Input voltage will fluctuate,resistance error and other factors.At the decrease or increase of power (Vin=108Vac),it will move left and right,with the range of 108V .

2.When the input voltage is 90-108Vac,the output power range is 50W±20%.

Dimming operation
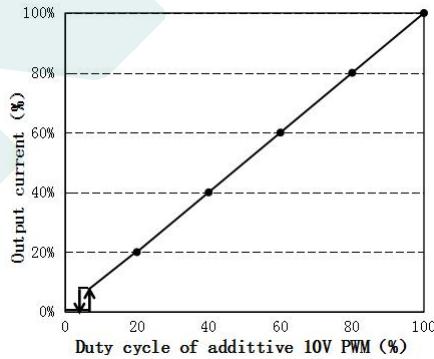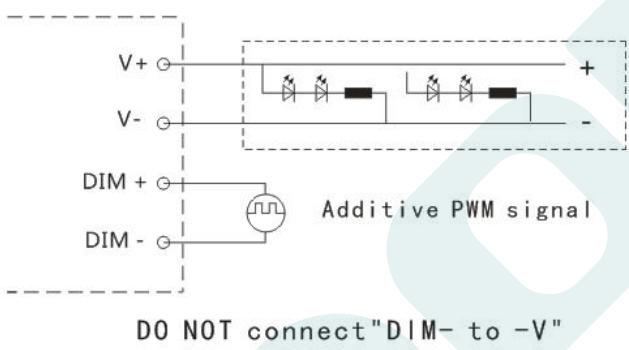
※ Three-in-one dimming function (X version only)

A. Connect a resistor 0-100K or 0-10V DC voltage or 10V PWM signal between DIM+ and DIM- to adjust the output current.

B. Output current of dimming port: 100uA (typical value).
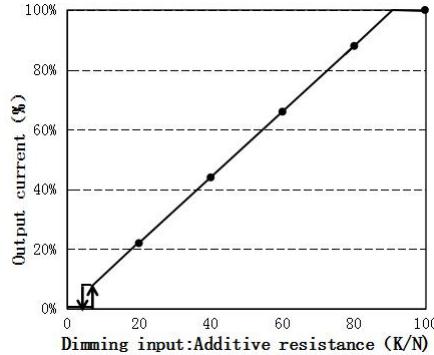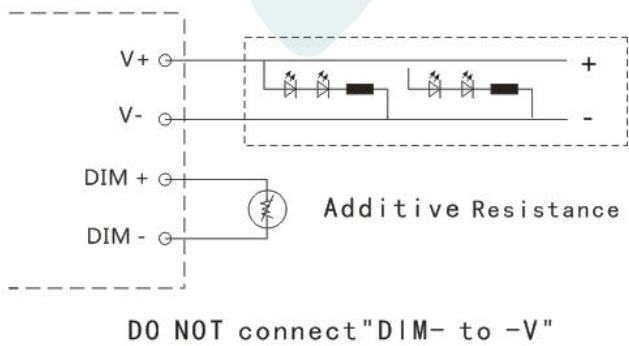
### ◎ With an applied voltage of 0-10V:

◎ Applying additive 10V PWM signal（Frequency range：300Hz-2K Hz）：


◎ With an additional 0-100K resistor:

Remark:

1. Positive and negative logic dimming can be programmed.

2. Dimming off only applies to positive logic. For other requirements, please contact technical personnel.
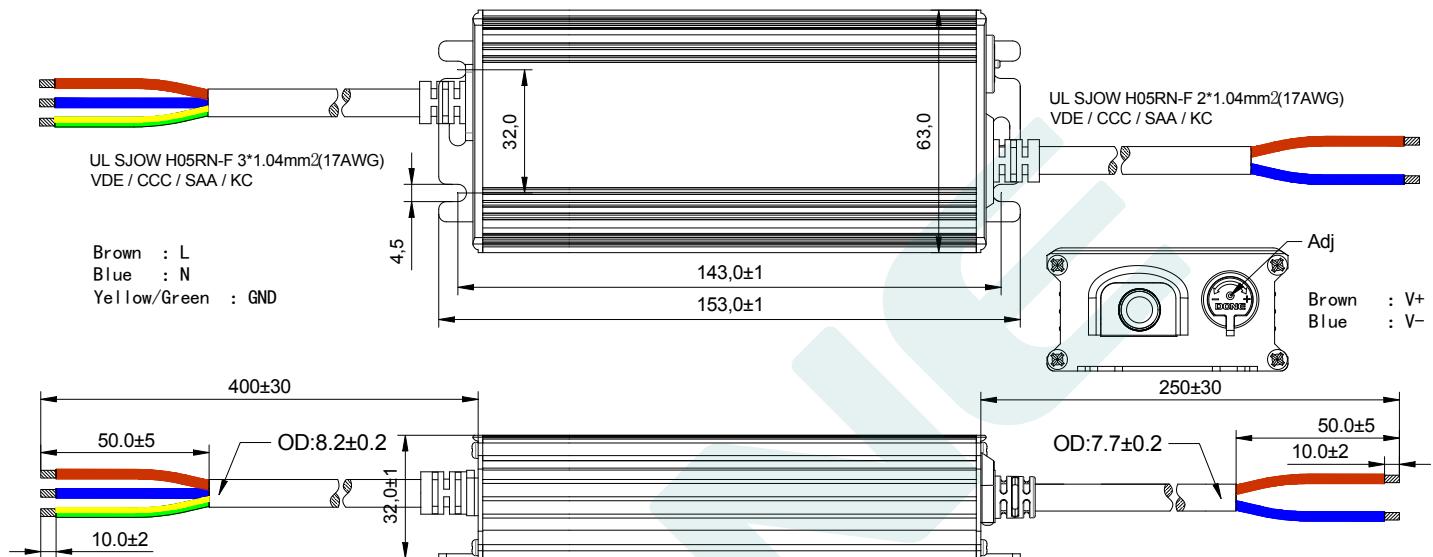
Mechanical specification

Size（mm）	L153*W63*H32

General product dimension drawing
DL-100W-V56A-MXG
DL-100W-V143A-MXG

UL SJOW H05RN-F 3*1.04mm2(17AWG)
VDE / CCC / SAA / KC

Brown : L
Blue : N
Yellow/Green : GND

32,0

63,0

4,5

143,0±1

153,0±1

UL SJOW H05RN-F 2*1.04mm2(17AWG)
VDE / CCC / SAA / KC

Adj

Brown : V+
Blue : V−

400±30

50.0±5

OD:8.2±0.2

10.0±2

32,0±1

250±30

OD:7.7±0.2

50.0±5

10.0±2
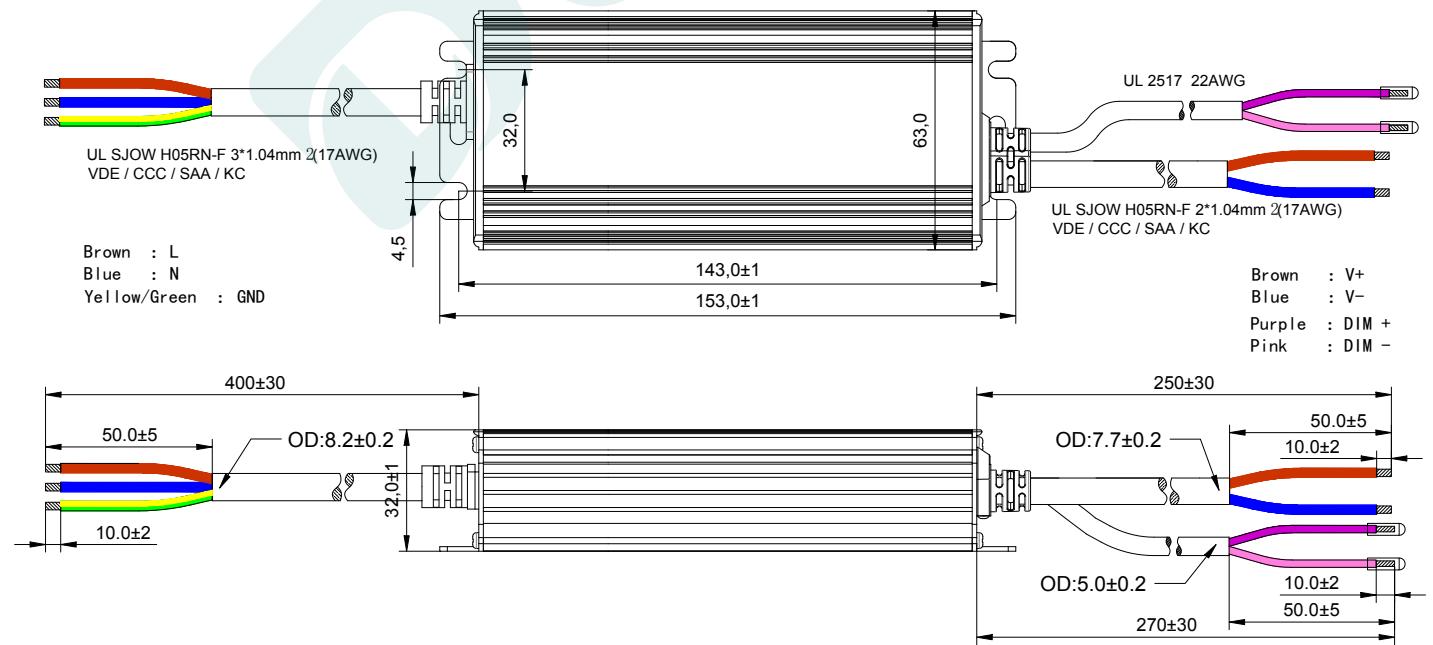
General product dimension drawing
DL-100W-V56P-MXG
DL-100W-V143P-MXG

UL SJOW H05RN-F 3*1.04mm 2(17AWG)
VDE / CCC / SAA / KC

Brown : L
Blue : N
Yellow/Green : GND

32,0

63,0

4,5

143,0±1

153,0±1

UL 2517 22AWG

UL SJOW H05RN-F 2*1.04mm 2(17AWG)
VDE / CCC / SAA / KC

Brown : V+
Blue : V−
Purple : DIM +
Pink : DIM −

400±30

50.0±5

OD:8.2±0.2

10.0±2

32,0±1

250±30

OD:7.7±0.2

50.0±5

10.0±2

OD:5.0±0.2

10.0±2

50.0±5

270±30

13

DL-100W-V56X-MXG

DL-100W-V143X-MXG

UL 21996 22AWG

UL SJOW H05RN-F 3*1.04mm²(17AWG)
VDE / CCC / SAA / KC

32,0

63,0

4,5

143,0±1

153,0±1

Brown : L
Blue : N
Yellow/Green : GND

UL SJOW H05RN-F 2*1.04mm²(17AWG)
VDE / CCC / SAA / KC

UL21996 22AWG
Purple   : DIM +   Brown : V+
Pink   : GND   Blue : V−
Black/White : Vaux +

400±30

50.0±5

OD:8.2±0.2

32.0±1

10.0±2

250±30

50.0±5

OD:7.7±0.2

10.0±2

OD:5.2±0.2

10±1

50±5

270±30
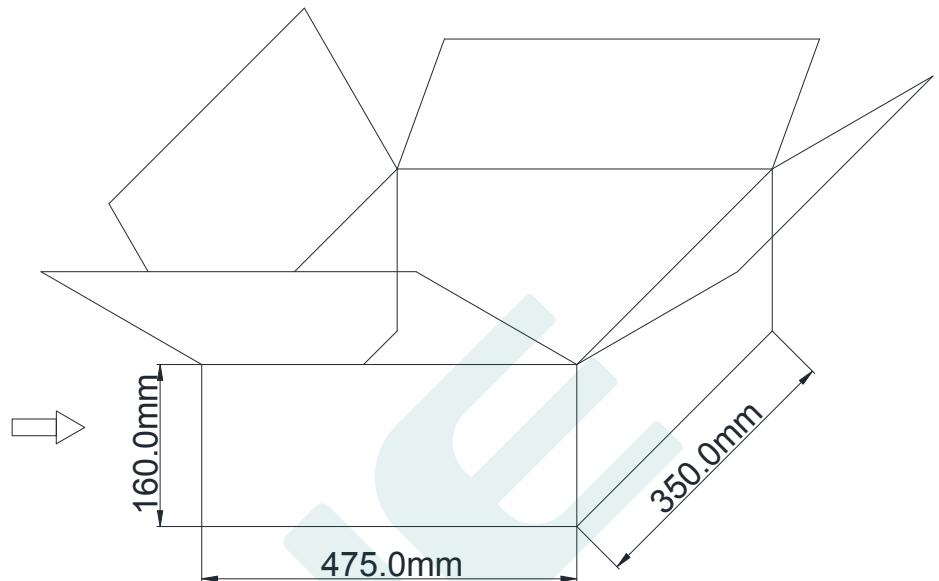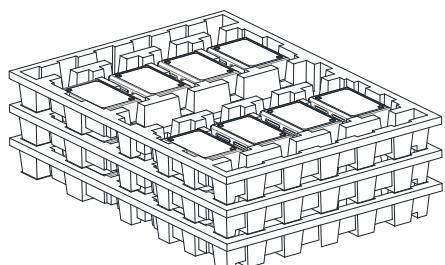
Weight

Weight	545 g

Packaging

Packaging（mm）	L475*W350*H160

Note：One Carton 3 layers and 8 pcs each layer, total 24pcs/carton.

Note:

1. According to the certificate obtained by the LED DRIVER, the LED DRIVER with the English label is sold in Europe, America and India.

2. The LED DRIVER with Chinese label is only used for China market.

Version

DATE	DESCRIPTION	REV.	CHECK
2022.4.1	Initial version.	V1.0	
2022.10.15	Update wire and efficiency description	V1.1	
2022.12.24	Add P version optional input over-voltage protection.	V1.2	

MANUFACTRUER		
EDIT	CHECK	APPROVE