65W Single Output Switching Power Supply — HVG-65 series

Features :

- Wide input range 180~528VAC
- Built-in active PFC function
- High efficiency up to 90%
- Protections: Short circuit / Over current / Over voltage / Over temperature
- Cooling by free air convection
- OCP point adjustable through output cable or internal potentiometer
- IP67 / IP65 design for indoor or outdoor installations
- Class 2 power unit
- Three in one dimming function (0~10Vdc or 10V PWM signal or resistance)
- Suitable for LED lighting and street lighting applications
- Compliance to worldwide safety regulations for lighting
- Suitable for dry / damp / wet locations
- 5 years warranty (Note.9)

TAIWAN EXCELLENCE 2014

IP65 IP67

HVG-65-12 A

A : IP65 rated. Output voltage and constant current level can be adjusted through internal potentiometer.
B : IP67 rated. Constant current level adjustable through output cable with 0~10Vdc or 10V PWM signal or resistance.
D (option) : IP67 rated. Timer dimming function, contact MEAN WELL for details.

SPECIFICATION

MODEL		HVG-65-12□	HVG-65-15□	HVG-65-20□	HVG-65-24□	HVG-65-30□	HVG-65-36□	HVG-65-42□	HVG-65-48□	HVG-65-54□
OUTPUT	DC VOLTAGE	12V	15V	20V	24V	30V	36V	42V	48V	54V
	CONSTANT CURRENT REGION Note.4	7.2 ~12V	9 ~ 15V	12 ~ 20V	14.4 ~ 24V	18 ~ 30V	21.6 ~ 36V	25.2 ~ 42V	28.8 ~ 48V	32.4 ~ 54V
	RATED CURRENT	5A	4.3A	3.25A	2.71A	2.17A	1.81A	1.55A	1.36A	1.21A
	RATED POWER	60W	64.5W	65W	65W	65.1W	65.2W	65.1W	65.3W	65.3W
	RIPPLE & NOISE (max.) Note.2	120mVp-p	150mVp-p	150mVp-p	150mVp-p	200mVp-p	200mVp-p	300mVp-p	300mVp-p	300mVp-p
	VOLTAGE ADJ. RANGE Note.6	10.8 ~ 13.5V	13.5 ~ 17V	17 ~ 22V	22 ~ 27V	27 ~ 33V	33 ~ 40V	38 ~ 46V	43 ~ 53V	49 ~ 58V
	CURRENT ADJ. RANGE	Can be adjusted by internal potentiometer A type only								
		3 ~ 5A	2.58 ~ 4.3A	1.95 ~ 3.25A	1.62 ~ 2.71A	1.3 ~ 2.17A	1.08 ~ 1.81A	0.93 ~ 1.55A	0.81 ~ 1.36A	0.72 ~ 1.21A
	VOLTAGE TOLERANCE Note.3	±2.0%	±2.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%	±1.0%
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	LOAD REGULATION	±1.5%	±1.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
	SETUP, RISE TIME	500ms, 80ms / 230VAC 400ms, 80ms / 347VAC / 480VAC at full load B type 500ms, 80ms / 230VAC 500ms, 80ms / 347VAC / 480VAC at 95% load								
	HOLD UP TIME (Typ.)	16ms / 347VAC 30ms / 480VAC at full load								
INPUT	VOLTAGE RANGE Note.5	180 ~ 528VAC 254VDC ~ 747VDC								
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF≧0.98/230VAC, PF≧0.97/277VAC, PF≧0.97/347VAC, PF≧0.93/480VAC at full load (Please refer to "Power Factor Characteristic"curve)								
	TOTAL HARMONIC DISTORTION	Total harmonic distortion will be lower than 20% when output loading is 60% or higher at 230VAC / 277VAC / 347VAC								
		Total harmonic distortion will be lower than 20% when output loading is 75% or higher at 480VAC								
	EFFICIENCY (Typ.)	86.5%	87.5%	88.5%	89%	89%	89.5%	89.5%	90%	90%
	AC CURRENT (Typ.)	0.22A / 347VAC 0.18A / 480VAC								
	INRUSH CURRENT (Typ.)	COLD START 25A(t_{width}=420μs measured at 50% I_{peak}) at 480VAC								
	LEAKAGE CURRENT	<0.75mA / 480VAC								
PROTECTION	OVER CURRENT	95 ~ 108%								
		Protection type : Constant current limiting, recovers automatically after fault condition is removed								
	SHORT CIRCUIT	Constant current limiting, recovers automatically after fault condition is removed								
	OVER VOLTAGE	14.4 ~ 16.8V	18 ~ 21V	23 ~ 27V	28 ~ 34V	34 ~ 38V	41 ~ 46V	47 ~ 53V	54 ~ 60V	59 ~ 65V
		Protection type : Shut down o/p voltage with auto-recovery or re-power on to recovery								
	OVER TEMPERATURE	Shut down o/p voltage, recovers automatically after temperature goes down								
ENVIRONMENT	WORKING TEMP.	-40 ~ +70℃ (Refer to "Derating Curve")								
	WORKING HUMIDITY	20 ~ 95% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +80℃, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/℃ (0 ~ 60℃)								
	VIBRATION	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes								
SAFETY & EMC	SAFETY STANDARDS Note.7	UL8750, CSA C22.2 No. 250.0-13, IP65 or IP67 approved								
	WITHSTAND VOLTAGE	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH								
	EMC EMISSION	Compliance to EN55015, EN61000-3-2 Class C (≧60% load) ; EN61000-3-3, FCC part 15 class B								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level (surge 4KV), criteria A								
OTHERS	MTBF	208K hrs min. MIL-HDBK-217F (25℃)								
	DIMENSION	189*61.5*36.8mm (L*W*H)								
	PACKING	0.77Kg; 18pcs/14.9Kg/0.89CUFT								

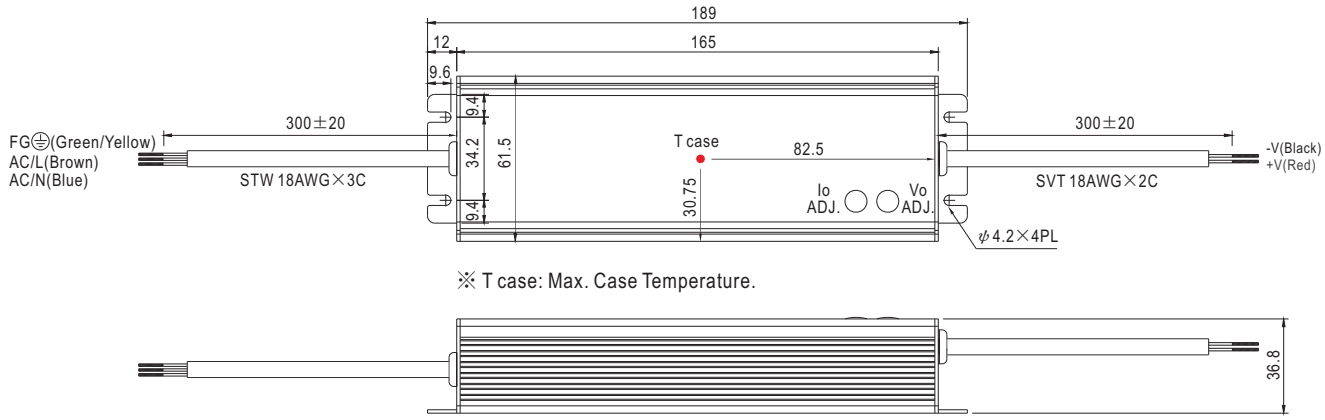
NOTE

1. All parameters NOT specially mentioned are measured at 347VAC input, rated load and 25℃ of ambient temperature.
2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor.
3. Tolerance : includes set up tolerance, line regulation and load regulation.
4. Please refer to "DRIVING METHODS OF LED MODULE".
5. Derating may be needed under low input voltages. Please check the static characteristics for more details.
6. A Type only.
7. Safety and EMC design refer to EN60598-1, CNS15233, GB7000.1.
8. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)
9. Refer to warranty statement.
10. To fulfill requirements of the latest ErP regulation for lighting fixtures, this LED power supply can only be used behind a switch without permanently connected to the mains.

■ Mechanical Specification

Case No.957 Unit:mm

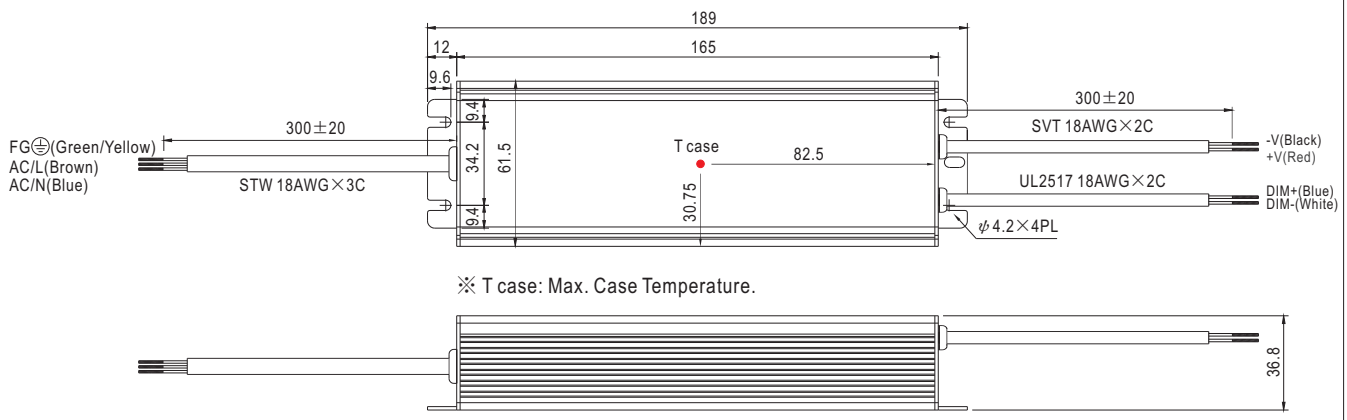
A Type:(HVG-65-_A)



※ T case: Max. Case Temperature.

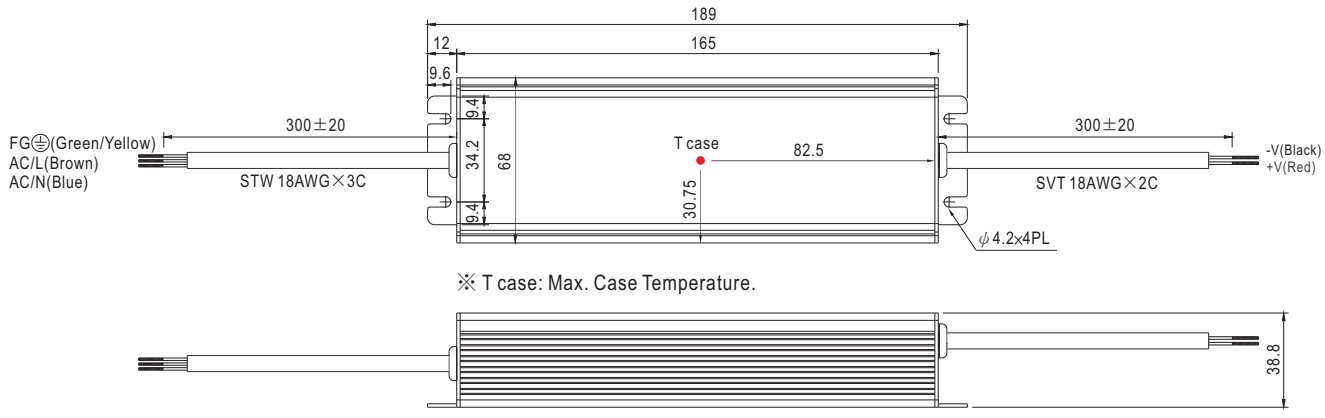
※ IP65 rated. Output voltage and constant current level can be adjusted through internal potentiometer.
(Can access by removing the rubber stopper on the case.)

B Type:(HVG-65-_B)



※ T case: Max. Case Temperature.

D Type(option):(HVG-65-_D)

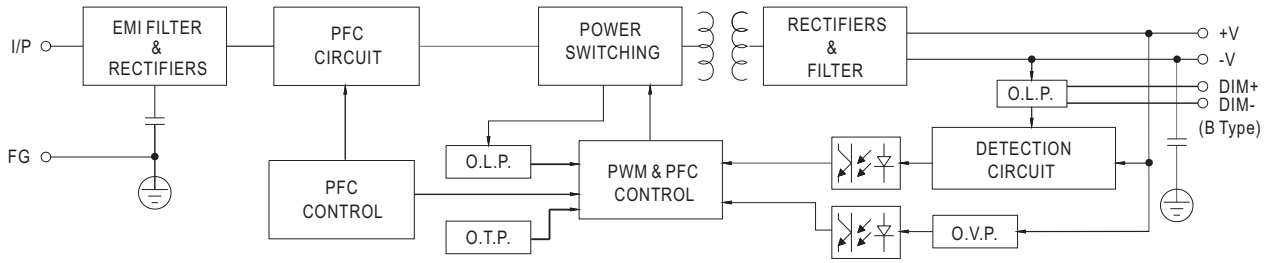


※ T case: Max. Case Temperature.

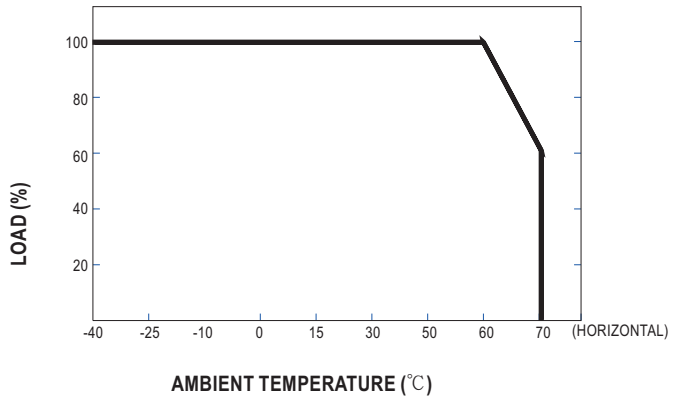
※ IP67 rated. Timer dimming function, contact MEAN WELL for details.

Block Diagram

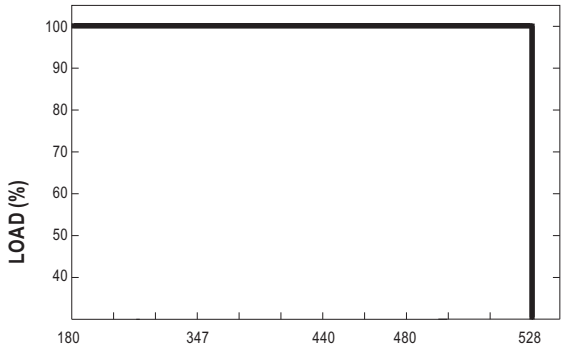
PFC fosc : 65KHz
PWM fosc : 65KHz



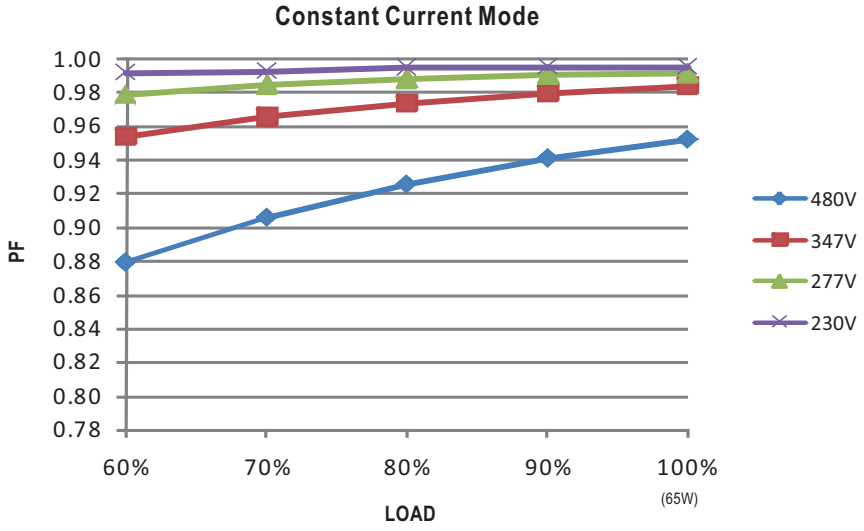
Derating Curve



Static Characteristics

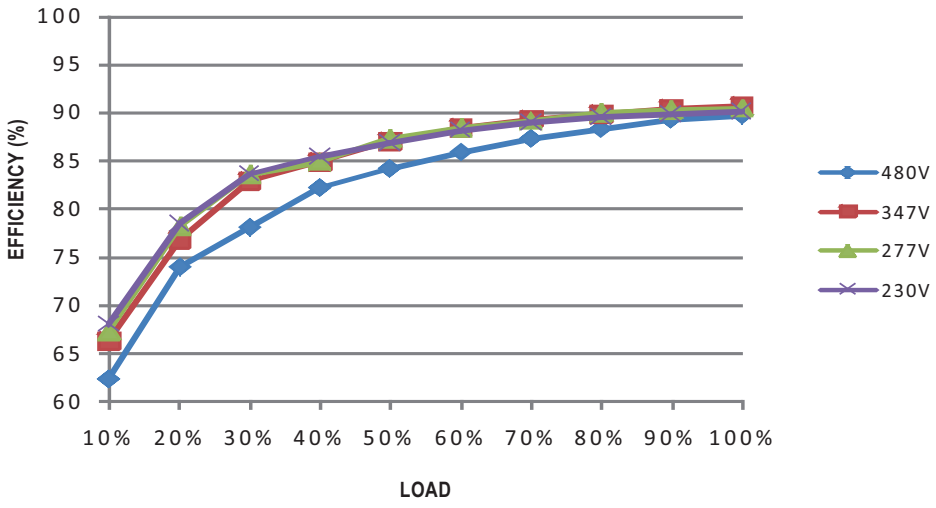


Power Factor Characteristic



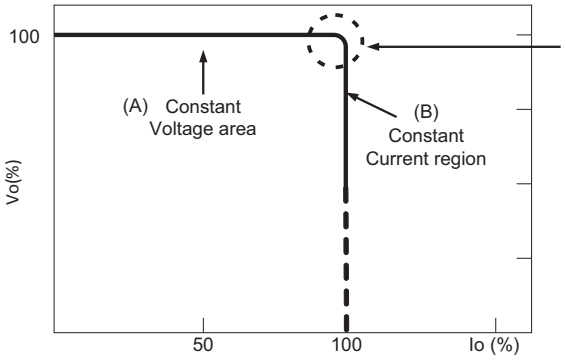
■ EFFICIENCY vs LOAD (48V Model)

HVG-65 series possess superior working efficiency that up to 90% can be reached in field applications.



■ DRIVING METHODS OF LED MODULE

There are two major kinds of LED drive method "direct drive" and "with LED driver".
A typical LED power supply may either work in "constant voltage mode (CV) or constant current mode (CC)" to drive the LEDs.
Mean Well's LED power supply with CV+ CC characteristic can be operated at both CV mode (with LED driver, at area (A) and CC mode (direct drive, at area (B).



Typical LED power supply I-V curve

In the constant current region, the highest voltage at the output of the driver depends on the configuration of the end systems.
Should there be any compatibility issues, please contact MEAN WELL.

Original :Constant Current area

Original :Solid line

■ DIMMING OPERATION (for B-type only)

※ Built-in 3 in 1 dimming function, IP67 rated. Output constant current level can be adjusted through output cable by connecting a resistance or 0 ~ 10Vdc or 10V PWM signal between DIM+ and DIM-.

※ Please DO NOT connect "DIM-" to "-V".

※ Reference resistance value for output current adjustment (Typical)

Resistance value	Single driver	Short	10KΩ	20KΩ	30KΩ	40KΩ	50KΩ	60KΩ	70KΩ	80KΩ	90KΩ	100KΩ	OPEN
	Multiple drivers (N=driver quantity for synchronized dimming operation)	Short	10KΩ/N	20KΩ/N	30KΩ/N	40KΩ/N	50KΩ/N	60KΩ/N	70KΩ/N	80KΩ/N	90KΩ/N	100KΩ/N	-----
Percentage of rated current		0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

※ 0 ~ 10V dimming function for output current adjustment (Typical)

Dimming value	0V	1V	2V	3V	4V	5V	6V	7V	8V	9V	10V	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

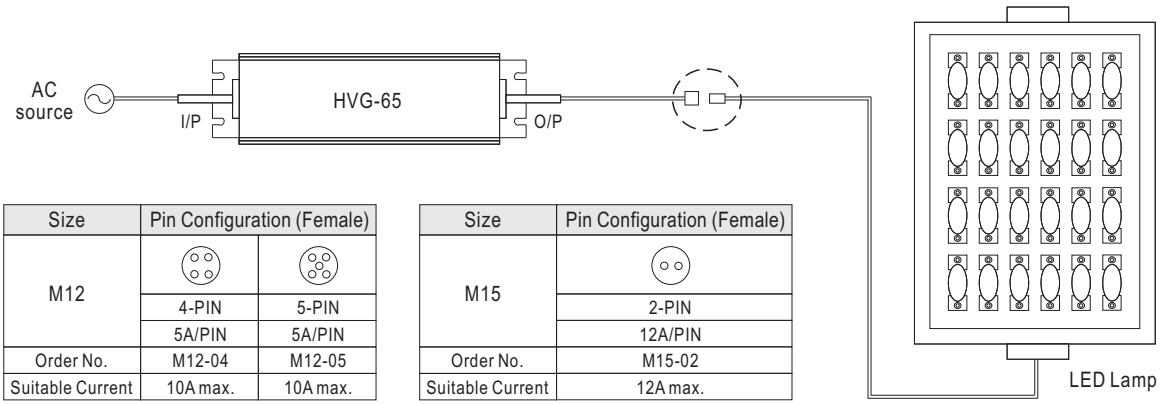
※ 10V PWM signal for output current adjustment (Typical): Frequency range :100Hz ~ 3KHz

Duty value	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	OPEN
Percentage of rated current	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	95%~108%

■ WATERPROOF CONNECTION

◎ Waterproof connector

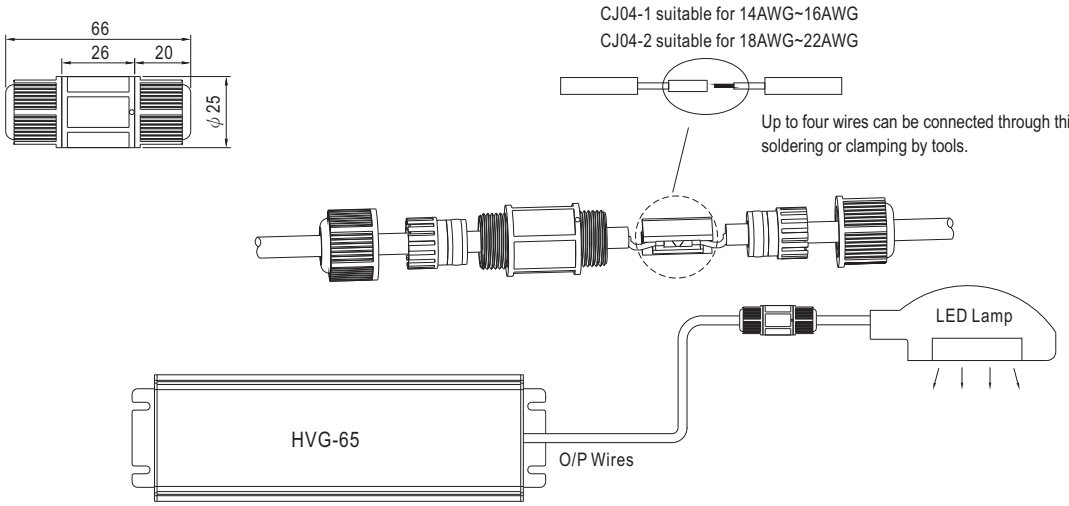
Waterproof connector can be assembled on the output cable of HVG-65 to operate in dry/wet/damp or outdoor environment.



Size	Pin Configuration (Female)	
M12		
	4-PIN	5-PIN
	5A/PIN	5A/PIN
Order No.	M12-04	M12-05
Suitable Current	10A max.	10A max.

Size	Pin Configuration (Female)
M15	
	2-PIN
	12A/PIN
Order No.	M15-02
Suitable Current	12A max.

◎ **Cable Joiner**



※CJ04 cable joiner can be purchased independently for user's own assembly.
MEAN WELL order No. : CJ04-1, CJ04-2.