

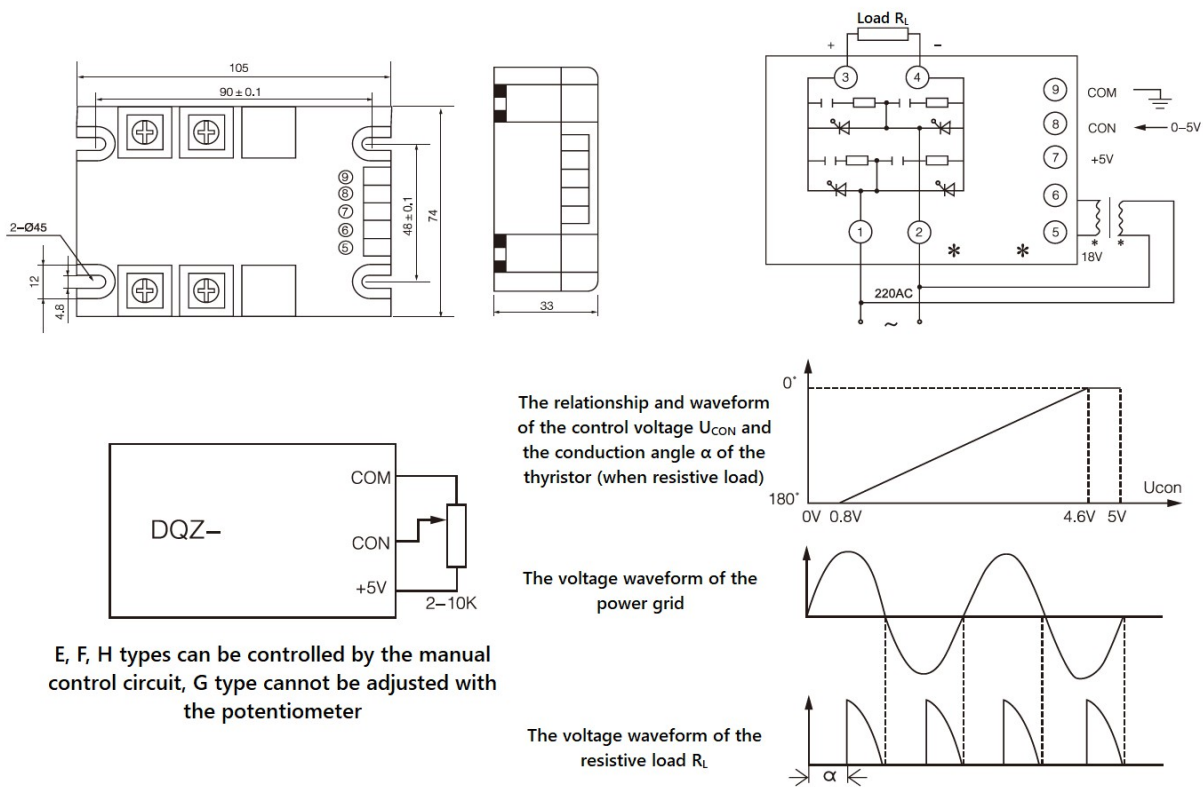
MGR-DQZ380D60E

FULL ISOLATION SINGLE PHASE FULLY-CONTROLLED
BRIDGE RECTIFIER MODULE



FULL ISOLATION SINGLE PHASE FULLY-CONTROLLED BRIDGE RECTIFIER MODULE (DQZ)

- The full isolation single phase fully-controlled bridge rectifier module (hereinafter referred to as the single phase rectifier module DQZ) integrates the fully-controlled bridge rectifier (consisting of four SCR thyristors), the phase-shift circuit and the trigger circuit. Under the AC synchronous voltage (18VAC) provided by external device, the conduction angle of the four SCR thyristors can be changed by the automatic control method or manual control method (i.e. the external potentiometer), which means the single phase AC voltage can be easily converted into the pulsed DC voltage with the continuously adjustable amplitude.
- According to the voltage of the single phase AC power grid, the single phase rectifier module DQZ can be divided into four types: 380V type (applicable to 180~450VAC), 220V type (applicable to 120~250VAC), 110V type (applicable to 50~120VAC), and 36V type (can be applied to 20~50VAC). According to different control signals, the single phase rectifier module DQZ can be divided into four types: E, F, G, and H types.
- For convenience of explanation, the following introduces with the 0~5V control signal as a standard



- ① and ② ports are the AC power supply input terminals of the module, and the voltage grade can be divided into 380VAC, 220VAC, 110VAC and 36VAC.
- ③ and ④ are DC output positive and negative terminals of the load voltage respectively
- ⑤ and ⑥ ports are the synchronous voltage input terminals, allowing the input voltage with amplitudes of 18 ± 5 VAC (synchronized with

AC power supply of ① and ② ports). ⑤ and ② ports are synchronous terminals.

⑦, ⑧ and ⑨ ports are +5V port, CON port and COM port respectively. COM port is the internal common ground terminal, CON port is the control terminal, and the +5V port is the power supply generated inside the module only for the manual control of potentiometer.

The strong current part (①, ②, ③, and ④ ports) and the weak current part (⑤, ⑥, ⑦, ⑧, and ⑨ ports) are fully isolated.

		E Type: CON 0-5V	F Type: CON 0-10V	G Type: CON 4-20mA	H Type: CON 1-5V
36V Type	15A	MGR-DQZ36D15E	MGR-DQZ36D15F	MGR-DQZ36D15G	MGR-DQZ36D15H
	35A	MGR-DQZ36D35E	MGR-DQZ36D35F	MGR-DQZ36D35G	MGR-DQZ36D35H
	75A	MGR-DQZ36D75E	MGR-DQZ36D75F	MGR-DQZ36D75G	MGR-DQZ36D75H
	120A	MGR-DQZ36D120E	MGR-DQZ36D120F	MGR-DQZ36D120G	MGR-DQZ36D120H
	150A	MGR-DQZ36D150E	MGR-DQZ36D150F	MGR-DQZ36D150G	MGR-DQZ36D150H
	190A	MGR-DQZ36D190E	MGR-DQZ36D190F	MGR-DQZ36D190G	MGR-DQZ36D190H
110V Type	15A	MGR-DQZ110D15E	MGR-DQZ110D15F	MGR-DQZ110D15G	MGR-DQZ110D15H
	35A	MGR-DQZ110D35E	MGR-DQZ110D35F	MGR-DQZ110D35G	MGR-DQZ110D35H
	75A	MGR-DQZ110D75E	MGR-DQZ110D75F	MGR-DQZ110D75G	MGR-DQZ110D75H
	120A	MGR-DQZ110D120E	MGR-DQZ110D120F	MGR-DQZ110D120G	MGR-DQZ110D120H
	150A	MGR-DQZ110D150E	MGR-DQZ110D150F	MGR-DQZ110D150G	MGR-DQZ110D150H
	190A	MGR-DQZ110D190E	MGR-DQZ110D190F	MGR-DQZ110D190G	MGR-DQZ110D190H
220V Type	15A	MGR-DQZ220D15E	MGR-DQZ220D15F	MGR-DQZ220D15G	MGR-DQZ220D15H
	35A	MGR-DQZ220D35E	MGR-DQZ220D35F	MGR-DQZ220D35G	MGR-DQZ220D35H
	75A	MGR-DQZ220D75E	MGR-DQZ220D75F	MGR-DQZ220D75G	MGR-DQZ220D75H
	120A	MGR-DQZ220D120E	MGR-DQZ220D120F	MGR-DQZ220D120G	MGR-DQZ220D120H
	150A	MGR-DQZ220D150E	MGR-DQZ220D150F	MGR-DQZ220D150G	MGR-DQZ220D150H
	190A	MGR-DQZ220D190E	MGR-DQZ220D190F	MGR-DQZ220D190G	MGR-DQZ220D190H
380V Type	15A	MGR-DQZ380D15E	MGR-DQZ380D15F	MGR-DQZ380D15G	MGR-DQZ380D15H
	35A	MGR-DQZ380D35E	MGR-DQZ380D35F	MGR-DQZ380D35G	MGR-DQZ380D35H
	75A	MGR-DQZ380D75E	MGR-DQZ380D75F	MGR-DQZ380D75G	MGR-DQZ380D75H
	120A	MGR-DQZ380D120E	MGR-DQZ380D120F	MGR-DQZ380D120G	MGR-DQZ380D120H
	150A	MGR-DQZ380D150E	MGR-DQZ380D150F	MGR-DQZ380D150G	MGR-DQZ380D150H
	190A	MGR-DQZ380D190E	MGR-DQZ380D190F	MGR-DQZ380D190G	MGR-DQZ380D190H

Note: The current grade in this table is the maximum rms current of the module.

Related technical specifications and precautions

- When the output terminal of the module is connected in parallel with an electrolytic capacitor to filter, the voltage across the capacitor cannot be abruptly changed, so in this high-voltage and large-capacity case, the module will be damaged due to overcurrent. Therefore, before the module is powered on, it must ensure that the voltage on the control terminal CON is 0V, and after power-on, the voltage on the control terminal CON must be gradually increased from 0V to ensure the minimum surge current of the capacitor.
- CON must be positive relative to COM, and if the polarity is opposite, the output terminal will be out of control (fully open or fully closed). When the control terminal CON changes from 0V to 5V, the voltage on the AC load can be adjusted from 0V to the maximum value (for resistive loads). When the control voltage on CON is around 0V~0.8V (Fully-closed Region), the control signal can reliably shut down the output of the module. When the control voltage on CON is around 0.8V~4.6V (Adjustable Region), the conduction angle α decreases linearly from 180° to 0° as the control voltage increases, and the voltage on the AC load increases from 0V to the maximum value. When the control voltage on CON is around 4.6V~5V (Full-open Region), the voltage on the AC load is the maximum value (close to the power grid voltage).
- The input impedance between CON and COM is divided into E, F and H type (the impedance of these three types are greater than or equal to 30K Ω), and G type (the impedance is 250 Ω). The +5V voltage signal is only provided for the manual potentiometer (the selected resistance is between 2~10K Ω), not for other uses. Note: The G type (4~20mA as control signal) cannot be manually adjusted by the potentiometer, so the +5V port is useless for the G type.
- When ⑤ and ② ports are not synchronous, the whole module has no output, but such problem can be solved by switching the two cables on ⑤ and ⑥ ports. The synchronous transformer power can be 2W, and our company can

supply synchronous transformers with 220V/18V (2W), 380V/18V (2W) specification.

- The heat of the whole module = Actual load current (Amps) * 3.0 W/Amps. Customers can select MG-L, MG-H series heat sink according to actual needs.
- The insulation voltage between the strong current part, the weak current part, and the module backplane is greater than 2000VAC.
- The single phase rectifier module must be applied to a 50 Hz frequency power grid. Besides, the 380V type must be applied to the 180~450VAC power grid; the 220V type must be applied to 120~250VAC power grid; the 110V type must be applied to 50~120VAC power grid; the 36V type must be applied to 20~50VAC. And the synchronous voltage on ⑤ and ⑥ ports must be 18 ± 5 VAC.
- For specifications and precautions for selecting the current grade, device protection, etc., please refer to the instruction of single phase AC solid state relays.