



AC Drives/ Frequency Inverter/Solar Pumper Inverter/Solar Pump system/Soft starter

# KEWO SOFT STARTER, ONLINE SOFT STARTER AND SOFT STARTER PANEL CATALOG

EM-GJ3

EM-GW3

EM-GC SOFT STARTER

EM-GS3I ONLINE SOFT STARTER PANEL

***FOCUSING ON MOTOR DRIVES FOR 20 YEARS***



[www.kewoinverter.com](http://www.kewoinverter.com), [service@kewoinverter.com](mailto:service@kewoinverter.com)

Address: 3 Floor,Block8,St George Industrial Park,XinyuRoad,ShaJing,Bao'an, Shenzhen, Guangdong, China, 518126,

KEWO ELECTRIC TECHNOLOGY CO., LTD. ( hereinafter called KEWO ) is a professional manufacturer of kinds of AC drives, variable frequency inverter, soft start, and solar pump inverter, etc. We are not only focus on designing, manufacturing, sales and after sales service for above mentioned products, but also providing custom made automation solution and renewable energy technologies.

There are more than 150 staffs working in our factor, 60% of them are engineers. Thanks to our great R&D team hardworking and innovation, we mastered core and leading vector control technology for PMSM and IM. We also introduce and absorber latest servo motor control and motor control technology from aboard, that help us keep top position among Chinese manufactures. We have established 2 modernization production lines, digital quality control system, code bar tracking system and EPR management system, etc. And every piece of KEWO products have been tested with full load to ensure 100% good quality. Quality begins and ends with each person in our company. KEWO products is comprised of high level AC drives, variable speed drive, frequency inverter, solar pump drive with DC and AC input, etc. These products are widely using in industrial automation, cement, textile, metallurgy, HVAC, oil & gas, water treatment, chemical , machine tools, hoisting, agriculture, farming, irrigation...

### Sales after service:

**For oversea market, we adopt distributors selling and E-business together.**

18 month guarantee

We provide all kinds of spare parts, including power supply board, controller board, capacitors board, IGBT, rectifier for repairing during 20 months warranty as well, and provide maintain guiding with pictures, PPT, video..., onsite service providing as well if you need.

## Main AC Drives/ Frequency Inverter/VFD



AD800 High Performance vector control inverter-----180% rated starting torque, big allowance IGBT module using 32 bit high speed DSP, advanced current vector control technology, friendly interface, easy operation.



KEWO solar pump inverter-- Maximize your pumps delivery without wasting a watt with MPPT function , automatic start and stop with solar irradiation, self diagnostic and protection, Dual supply mode-Solar and Grid compatible.  
1. Receiving 150V-400V, output 160V-230V  
2. Receiving 250V-780V, output 380v to 460V.



EM-GJ3 motor soft starter is a traditional type motor starting and protection device that is integrated with power electronic technology, microprocessor and automatic control. It need match with by pass contactors working.



EM-GW online soft starter, Intelligent motor soft starter, the use of intelligent digital control, new generation technology applying, built in the by pass inside. Perfect motor protections, and multiple motor start mode. Compact design with minimum wiring.



EM-GS3I online soft starter panel, with new design and difference from traditional soft starter cabinet with install complete soft starter inside, multiple function with easy wiring and perfect motor protection function.

## 1. KEWO EM-GJ3 Digital Soft Starter

EM-GJ motor soft starter is a new type motor starting and protection device that is integrated with power electronic technology, microprocessor and automatic control. This soft starter is able to steadily start and stop motor without step change so as to avoid mechanical or electric impact resulted from using conventional starting modes such as direct starting, star-delta starting and auto voltage reducing starting, and effectively reduce starting current and distribution capacity for fear of more investment on capacity expansion.

### Specification:

**Control power:** AC110V--220V+15%

**Three-phase power supply:** AC380V, 660V, 1140V±30%

**Nominal current:** 15A-----1000A, totally 22 kinds of rated values.

**Applicable motor :** General squirrel cage asynchronous motor .



### Features:

#### Multiple starting modes

Current-limiting start, ramp current-limiting start and voltage ramp start can meet the site requirements to the maximum extent and realize the best starting effect.

#### High reliability

High performance microprocessor conducts digital processing for signals in control system, avoiding the excessive adjustment to analog line so as to obtain the best precision and execution speed.

#### Powerful anti-interference performance

All external control signals adopt optoelectronic isolation and are set with different anti-noise levels. The device is applicable for use in special industrial environment.

#### Optimized structure

The unique compact structure is designed to be easily integrated into user's existing system, saving expenses for restructuring of system.

#### Motor protection

Multiple motor protection functions such as over-current, input/output phase-failure, short circuit of thyristor and overheat protection can guarantee motor soft starter not to be damaged in case of fault or incorrect operation.

#### Easy maintenance

Pilot signal coding system composed of 4-digit number display monitors working condition

#### Typical Applications

- Bow Thruster, • Compressor, • Elevator, • Centrifugal pump
- Conveyor belt • Mixer, Centrifugal fan, • Crusher • Mill
- Conveyor belt (long) • Stirrer

### Nameplate explanation



- Soft starter model
- Soft starter power
- Input voltage and frequency
- Output voltage, current and frequency
- Product code and manufacturer

### Model explanation:

**EM-GJ3-015**

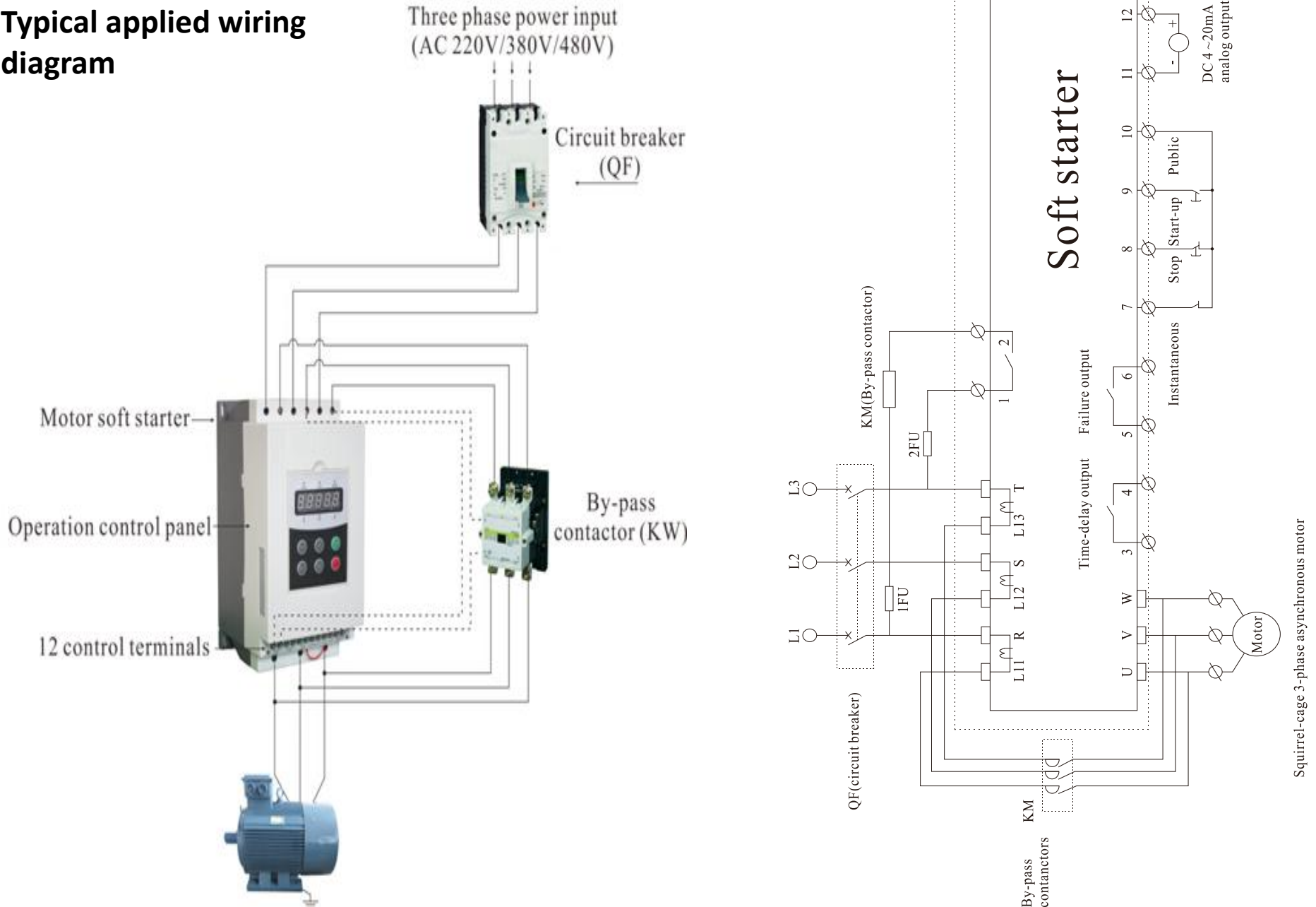
Code	Matching motor
5d5	5.5KW
015	15KW

Code	Voltage
GJ2	3 phase 220V
GJ3	3 phase 380V
GJ4	3 phase 480V

KEWO ELECTRIC TECHNOLOGIES CO., LTD

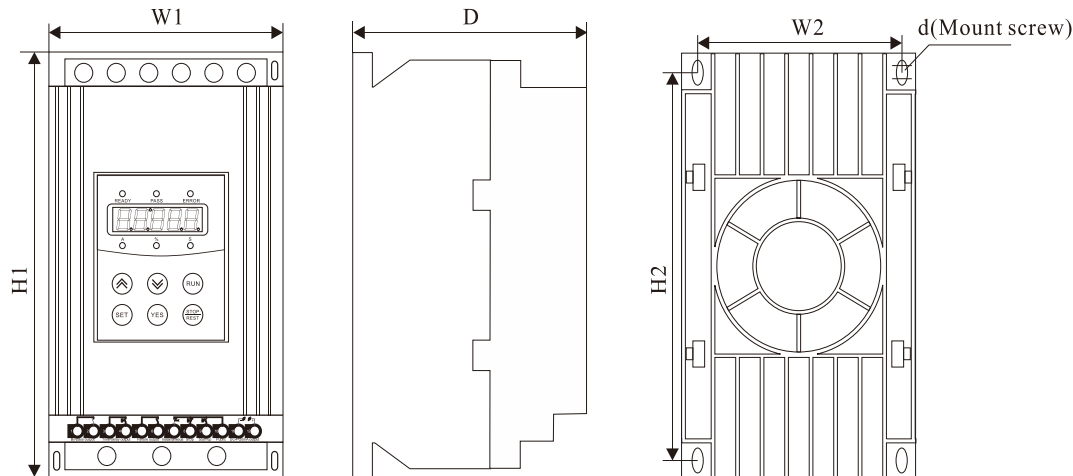
Item		Description
Input Power Supply	Input Voltage	Three-phase 220V/380V/480V/660 AC
	Frequency	50/60Hz
Adaptive Motor		Squirrel-cage three-phase asynchronous motor
Starting Times		It is recommended not to exceed 20 times per hour.
Control Mode		(1)Operation panel control.(2) Operation panel + external control. 3) External control.(4) External control + COM control. (5) Operation panel + external + COM control.(6) Operation panel + COM control. (7) COM control. (8) No start or stop operation.
Start Mode		(1) Current-limiting to start. (2) Voltage ramp to start. (3) Torque control + current-limiting to start. (4) Torque control + voltage ramp to start. (5) Current ramp to start. (6) Voltage current-limiting double closed-loop start.
Stop Mode		(1) Soft stop. (2) Free stop.
Protective Function		(1) Open loop protection for external instantaneous stop terminals. (2) Over-heat protection for soft starter. (3) Protection for too long starting time. (4) Input open phase protection. (5) Output open phase protection. (6) Unbalanced three-phase protection. (7) starting over current protection. (8) Running overload protection. (9) Under voltage protection for power voltage. (10) Overvoltage protection for power voltage. (11) Protection for fault parameter setting. (12) Load short circuit protection. (13) Auto restart or incorrect wiring protection. (14)Incorrect wiring protection of external control stop terminals.
Ambient	Place to be used	Indoor location with good ventilation free from corrosive gas and conductive dust.
	Altitude	Below 1000M. It have to rise the rate power when the altitude is more than 1000M.
	Temperature	-30 +55 °C
	Humidity	90%RH without dew condensation.
	Vibration	<0.5G
Structure	Protection Class	IP20
	Cooling	Natural wind cooling

## Typical applied wiring diagram



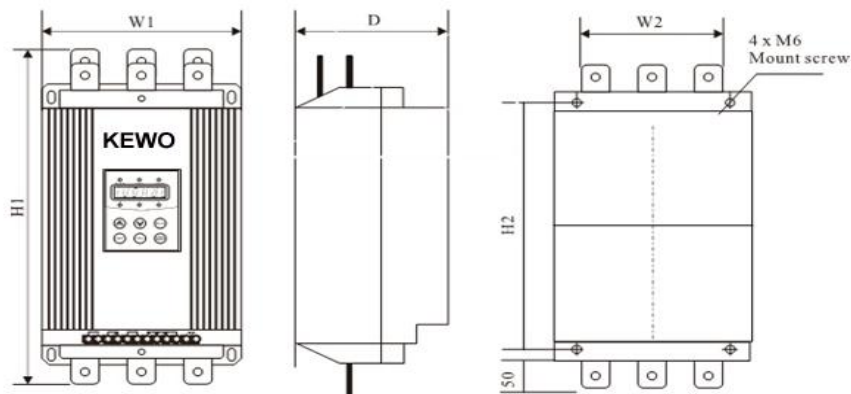
## The installation dimensions

The external shape and installation dimensions of 5.5KW ~75kw.



Model			Power (KW)	Current (A)	External Dimensions (mm)			Installation Dimensions (mm)			N.W (K.G)
220V	380V	480V			H1	W1	D	H2	W2	d	
---	EM-GJ3-5d5	EM-GJ4-5d5	5.5	11	270	146	160	248	132	M7	<5
---	EM-GJ3-7d5	EM-GJ4-7d5	7.5	15	270	146	160	248	132	M7	<5
EM-GJ2-5d5	EM-GJ3-011	EM-GJ4-011	5.5/11	23	270	146	160	248	132	M7	<5
EM-GJ2-7d5	EM-GJ3-015	EM-GJ4-015	7.5/15	30	270	146	160	248	132	M7	<5
---	EM-GJ3-018	EM-GJ4-018	18.5	37	270	146	160	248	132	M7	<5
EM-GJ2-011	EM-GJ3-022	EM-GJ4-022	11/22	43	270	146	160	248	132	M7	<5
EM-GJ2-015	EM-GJ3-030	EM-GJ4-030	15/30	60	270	146	160	248	132	M7	<5
EM-GJ2-018	EM-GJ3-037	EM-GJ4-037	18.5/37	75	270	146	160	248	132	M7	<5
EM-GJ2-022	EM-GJ3-045	EM-GJ4-045	22/45	90	270	146	160	248	132	M7	<5
EM-GJ2-030	EM-GJ3-055	EM-GJ4-055	30/55	110	270	146	160	248	132	M7	<5
EM-GJ2-037	EM-GJ3-075	EM-GJ4-075	37/75	150	270	146	160	248	132	M7	<5

The external shape and installation dimensions of 90KW ~ 600KW(Diagram 3.5).



Dimensional drawing

Mounting holes schematic

Model			Power	Current	External Dimensions (mm)			Installation Dimensions (mm)			N.W (K.G)
220V	380V	480V	(KW)	(A)	H1	W1	D	H2	W2	d	
EM-GJ2-045	EM-GJ3-090	EM-GJ4-090	45/90	180	515	257	198	382	192	M9	<21
EM-GJ2-055	EM-GJ3-115	EM-GJ4-115	55/115	230	515	257	198	382	192	M9	<21
---	EM-GJ3-132	EM-GJ4-132	132	264	515	257	198	382	192	M9	<21
EM-GJ2-075	EM-GJ3-160	EM-GJ4-160	75/160	320	515	257	198	382	192	M9	<21
EM-GJ2-090	EM-GJ3-185	EM-GJ4-185	90/185	370	515	257	198	382	192	M9	<21
EM-GJ2-100	EM-GJ3-200	EM-GJ4-200	100/200	400	515	257	198	382	192	M9	<21
EM-GJ2-132	EM-GJ3-250	EM-GJ4-250	132/250	500	515	257	198	382	192	M9	<21
EM-GJ2-160	EM-GJ3-280	EM-GJ4-280	160/280	560	515	257	198	382	192	M9	<21
EM-GJ2-185	EM-GJ3-320	EM-GJ4-320	185/320	640	560	285	248	460	260	M9	<25
---	EM-GJ3-355	EM-GJ4-355	320	640	560	285	248	460	260	M9	<25
EM-GJ2-200	EM-GJ3-400	EM-GJ4-400	200/400	800	590	331	248	497	265	M9	<30
EM-GJ2-220	EM-GJ3-450	EM-GJ4-450	220/450	900	590	331	248	497	265	M9	<30
EM-GJ2-250	EM-GJ3-500	EM-GJ4-500	250/500	1000	665	410	248	547	345	M9	<42



## Application examples

The parameters of the different loads are different, please refer to below diagram

The loading	Voltage ramp starting time(s)	Voltage ramp stopping time(s)	Initial voltage	Voltage ramp (current limit)	Current limit to start
Ball mill machine	20	6	60%	400%	350%
Fan	26	4	30%	400%	350%
Centrifugal	16	20	40%	400%	250%
Piston compressor	16	4	40%	400%	300%
hoister	16	10	60%	400%	350%
Stirring machine	16	2	50%	400%	300%
Breaker	16	10	50%	400%	350%
Screw compressor	16	2	40%	400%	300%
Rotating conveyor	20	10	40%	400%	200%
Light load	16	2	30%	400%	300%
Convey belt	20	10	40%	400%	250%
Heat pump	16	20	40%	400%	300%

## 2. KEWO EM-GW Online Soft Starter

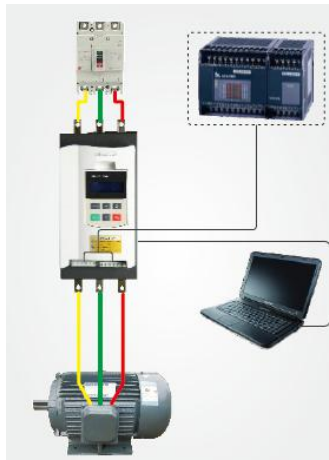
EM-GW motor soft starter is a new type motor starting and protection device that is integrated with power electronic technology, microprocessor and automatic control. This soft starter is able to steadily start and stop motor without step change so as to avoid mechanical or electric impact resulted from using conventional starting modes such as direct starting, star-delta starting and auto voltage reducing starting, and effectively reduce starting current and distribution capacity for fear of more investment on capacity expansion.

**No need to built by pass contactor with SCR controlling new technology applying.----innovation And cost saving.**

### Specification:

**Three-phase power supply:** AC380V, 690V, 11kw to 250kw.  
Provide online soft starter cabinet for above 320kw.

**Applicable motor :** General squirrel cage asynchronous motor .



### Features:

#### Fully and perfect protection function

Configure multiple motor protect function to ensure motor long term running well.

Multiple motor protection function

- Phase missing protection
- Over heat protection
- Over current and over load protection
- Output unbalance protection
- Under voltage and over voltage protection
- Load circuit protection
- Under load protection

#### Minimise fault Maintenance of online soft starter

Free of the maintaining of contactors due to reduce the by pass contactor with SCR controlling new technology.

No request by pass contactor

- Reduce the installation room
- Less the wiring and connection problem
- Labor cost saving
- No contactor fault problem

#### Stable communication control

Computer communication interface is optional, including the PC demo software, Device net interface, Modbus, Profibus...

#### Reliability quality guarantee

1. Whole machine with load testing
2. High-voltage insulation test
3. Every unit need 24 hours old aging after completely testing.

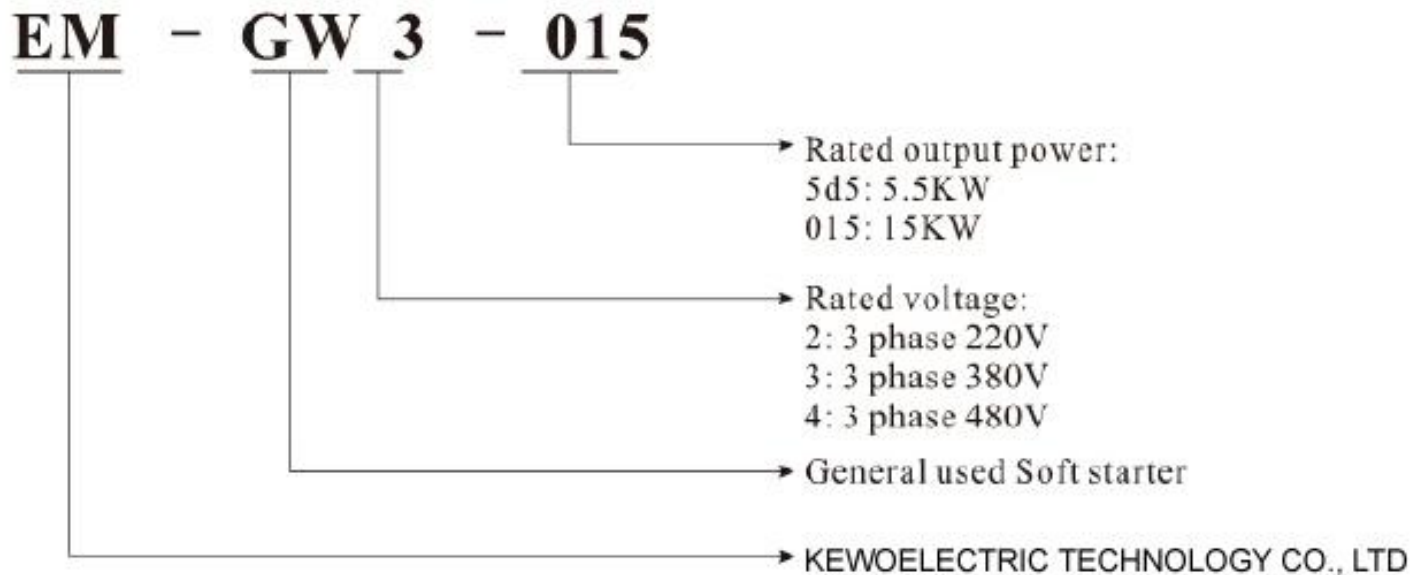
#### Smooth start and Smooth Stop function

### Nameplate explanation

<b>KEWO</b> Soft Starter <b>CE</b>	
Model	EM-GJ3-015
Power	15KW
Input	3PH 380V 50~60Hz
Output	3PH 30A 50~60Hz
 Made In China www.kewoinverter.com EMGJ30152013030700001 KEWO ELECTRIC TECHNOLOGIES CO.,LTD	

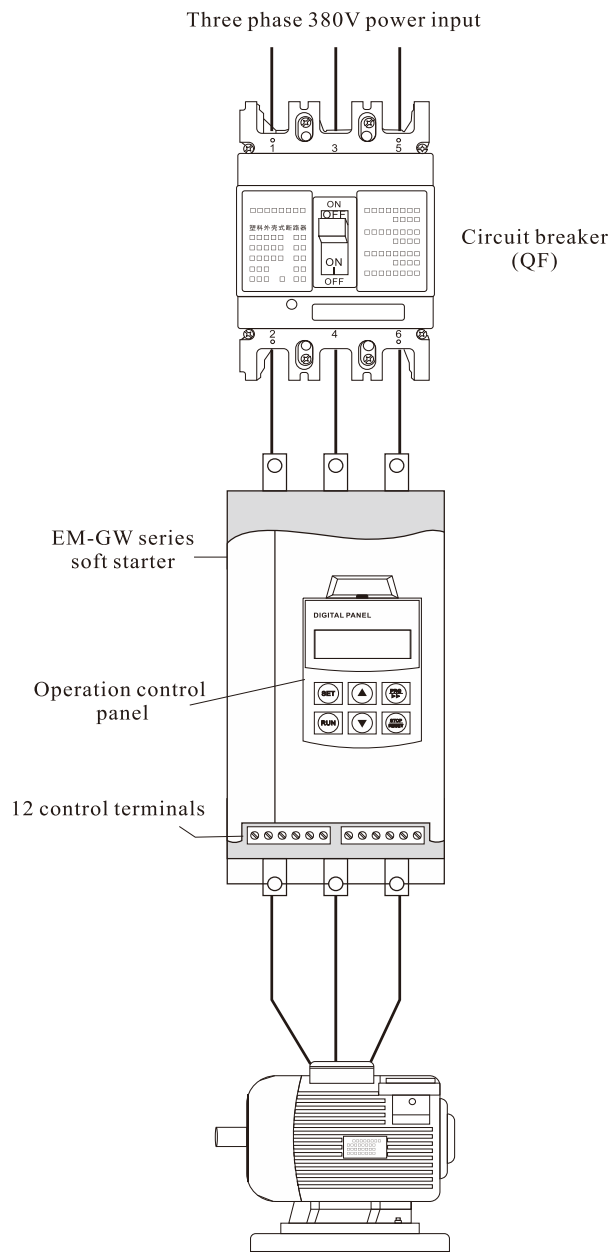
- Soft starter model
- Soft starter power
- Input voltage and frequency
- Output voltage, current and frequency
- Product code and manufacturer

### Model explanation:

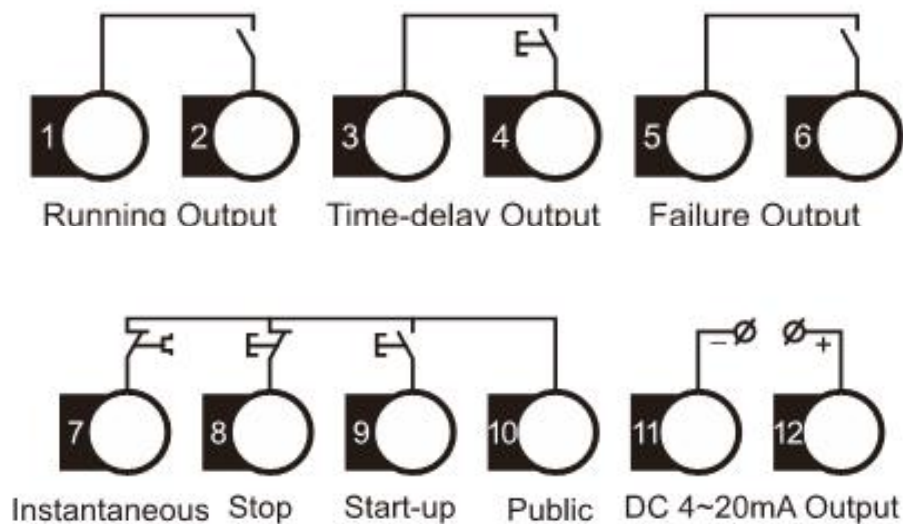


Item		Description
Input Power Supply	Input Voltage	Three-phase 380V/690 AC
	Frequency	50/60Hz
Adaptive Motor		Squirrel-cage three-phase asynchronous motor
Starting Times		It is recommended not to exceed 20 times per hour.
Control Mode		(1) Operation panel control.(2) Operation panel + external control. 3) External control.(4) External control + COM control. (5) Operation panel + external + COM control.(6) Operation panel + COM control. (7) COM control. (8) No start or stop operation.
Start Mode		(1) Current-limiting to start. (2) Voltage ramp to start. (3) Torque control + current-limiting to start. (4) Torque control + voltage ramp to start. (5) Current ramp to start. (6) Voltage current-limiting double closed-loop start.
Stop Mode		(1) Soft stop. (2) Free stop.
Protective Function		(1) Open loop protection for external instantaneous stop terminals. (2) Over-heat protection for soft starter. (3) Protection for too long starting time. (4) Input open phase protection. (5) Output open phase protection. (6) Unbalanced three-phase protection. (7) starting over current protection. (8) Running overload protection. (9) Under voltage protection for power voltage. (10) Overvoltage protection for power voltage. (11) Protection for fault parameter setting. (12) Load short circuit protection. (13) Auto restart or incorrect wiring protection. (14) Incorrect wiring protection of external control stop terminals.
Ambient	Place to be used	Indoor location with good ventilation free from corrosive gas and conductive dust.
	Altitude	Below 1000M. It have to rise the rate power when the altitude is more than 1000M.
	Temperature	-30 +55 °C
	Humidity	90%RH without dew condensation.
	Vibration	<0.5G
Struc	Protection Class	IP20

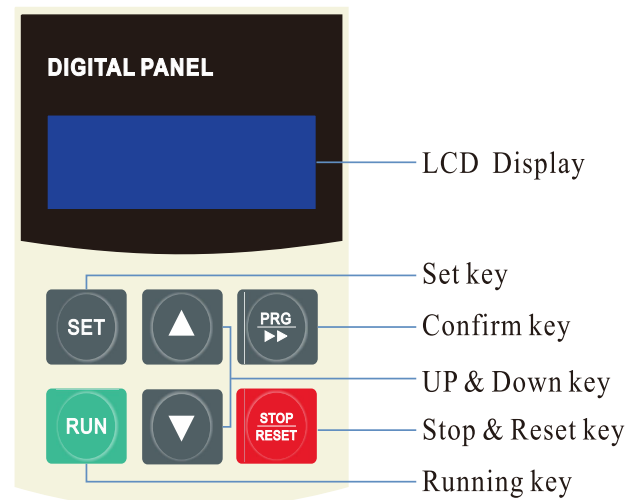
## The diagram connection



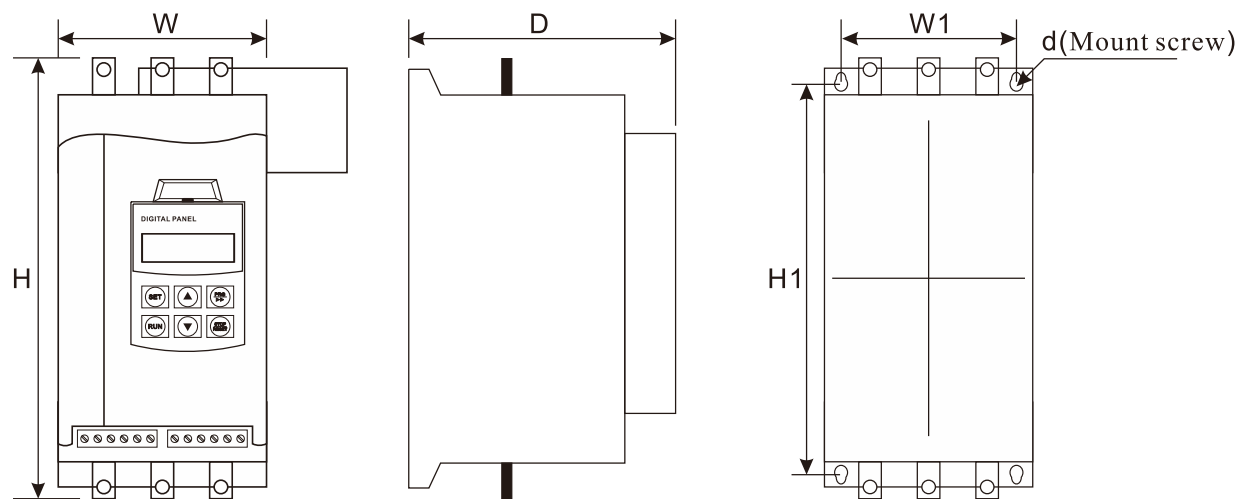
## The external terminal



## Keypad

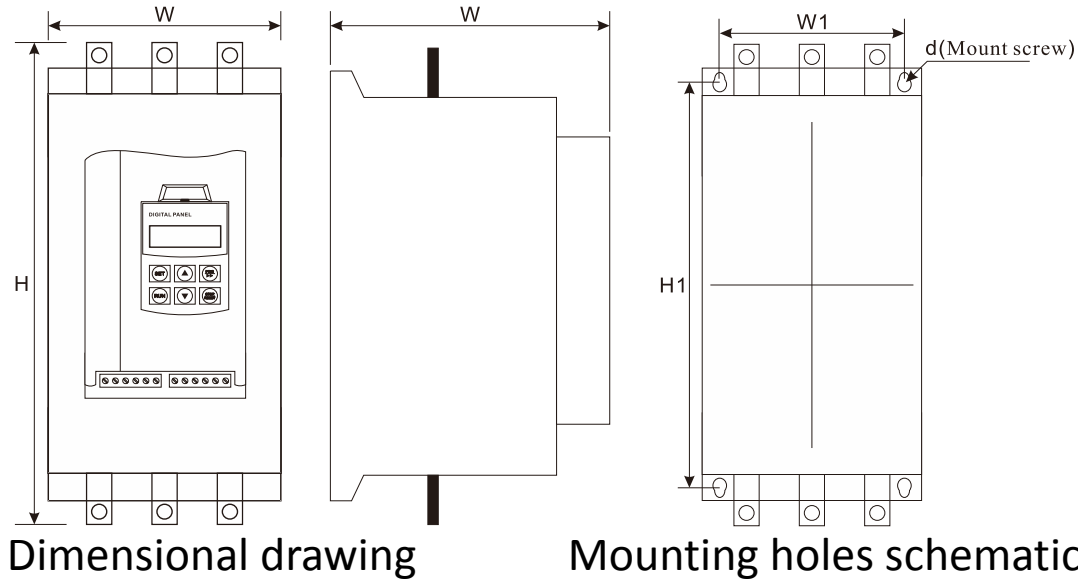


The external shape and installation dimensions of 11KW ~ 55KW.



Dimensional drawing			Mounting holes schematic						
Model	Power	Current	External Dimensions (mm)			Installation Dimensions (mm)			N.W
	(KW)	(A)	H	W	D	H1	W1	d	(Kg)
EM-GW3-011	11	23	315	145	215	298	85	M6	<6
EM-GW3-015	15	30	315	145	215	298	85	M6	<6
EM-GW3-018	18.5	37	315	145	215	298	85	M6	<6
EM-GW3-022	22	45	315	145	215	298	85	M6	<6
EM-GW3-030	30	60	315	145	215	298	85	M6	<6
EM-GW3-037	37	75	315	145	215	298	85	M6	<6
EM-GW3-045	45	90	315	145	215	298	85	M6	<6

The external shape and installation dimensions of 55KW ~ 250KW.



Model	Power (KW)	Current (A)	External Dimensions (mm)			Installation Dimensions (mm)			N.W
			H	W	D	H1	W1	d	
EM-GW3-055	55	110	360	210	255	343	150	M8	<14
EM-GW3-075	75	150	360	210	255	343	150	M8	<14
EM-GW3-090	90	180	360	210	255	343	150	M8	<14
EM-GW3-115	115	230	465	330	255	440	260	M8	<30
EM-GW3-132	132	260	465	330	255	440	260	M8	<30
EM-GW3-160	160	320	465	330	255	440	260	M8	<30
EM-GW3-185	185	370	562	490	295	535	335	M8	<60
EM-GW3-200	200	400	562	490	295	535	335	M8	<60
EM-GW3-250	250	500	562	490	295	535	335	M8	<60


### 3. EM-GC3 Soft Starter built in by pass contactor in side

(Built-in Bypass Contactor)



#### Features

- 3 phase 380V/480V/660V input
- Rated power 11kw to 75kw
- Built in Chinese brand contactor inside
- The contactor selecting as customer required is available

Model	Voltage	Power	Current	G.W	Size	Picture
	(V)	(KW)	(A)	(KG)	W/H/D(mm)	
EM-GC3-011	380	11	22	9	145/315/215	
EM-GC3-015	380	15	30			
EM-GC3-018	380	18	37	14	35/490/205	
EM-GC3-022	380	22	44			
EM-GC3-030	380	30	60			
EM-GC3-037	380	37	75	19	300/530/233	
EM-GC3-045	380	45	90			
EM-GC3-055	380	55	110			
EM-GC3-075	380	75	150			



## 4. GS3I online soft starter control panel



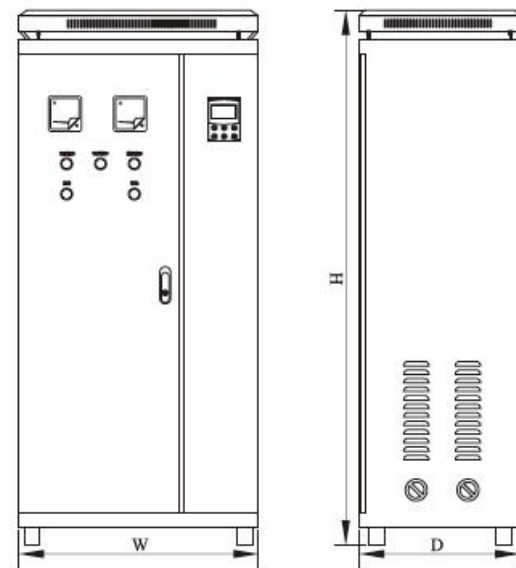
### KEWO EM GS3I Online Soft Starter control panel (online soft starter cabinet)

EM-GS3I is KEWO automation developed new generation soft starter panel, that with completely function, easy operation, no need commissioning, minimum the maintenance. This products break through traditional soft starter cabinet configuring, which need built in soft starter and by pass inside with high cost. EM-GS3I online soft starter control panel cabinet is a economic , practical and convenience one, very popular in various industrial application filed.

### EM-GS3I online sot starter panel Features

- provide soft starter and motor protector function, equipped online protection function, 3 input and 3 output design.
  - Reduce the motor starting current, and reduce the investing cost of power distributor capability.
  - Reduce machine starting stress to extend machine working service lifespan.
  - No request the secondary wiring, configure multiple protection function, reliability function and long service time is available.
  - LCD Chinese and English display for easy operating, testing and maintain.
  - Compatibility with kinds of communication mode.
  - Fully digital control system with kinds starting mode
  - Apply micro control unit, fuzzy control and big current 0 point separate technology.
  - Strong load adaptability and strong EMC capability, high running reliability
  - Easy operation and maintaining.
  - No using the Ac contactor to enhance the reliability.
  - Accept widely voltage input,  $\pm 15\%$  tolerance.
- **Strong motor protection**
  - Built it MCCB, also configure short circuit protection.
  - Configure interval delay starting function to avoiding start frequently.
  - Input and output phase missing protection.
  - Online running monitoring.

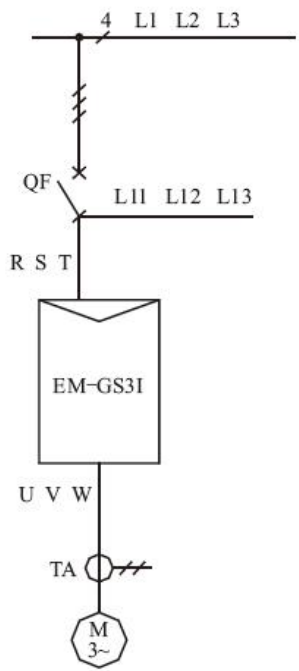
Models	Voltage	Frequency	Current	H power	L power	Dimen
EM-GS3 [6] I-011	380[690]	50/60	23[15]	11	7.5	图A
EM-GS3 [6] I-015	380[690]	50/60	30[23]	15	11	图A
EM-GS3 [6] I-018	380[690]	50/60	37[30]	18.5	15	图A
EM-GS3 [6] I-022	380[690]	50/60	45[37]	22	18.5	图A
EM-GS3 [6] I-030	380[690]	50/60	60[45]	30	22	图A
EM-GS3 [6] I-037	380[690]	50/60	75[60]	37	30	图A
EM-GS3 [6] I-045	380[690]	50/60	90[75]	45	37	图A
EM-GS3 [6] I-055	380[690]	50/60	110[90]	55	45	图A
EM-GS3 [6] I-075	380[690]	50/60	150[110]	75	55	图A
EM-GS3 [6] I-090	380[690]	50/60	180[150]	90	75	图A
EM-GS3 [6] I-115	380[690]	50/60	230[180]	115	90	图A
EM-GS3 [6] I-132	380[690]	50/60	260[200]	132	115	图A
EM-GS3 [6] I-160	380[690]	50/60	320[240]	160	132	图A
EM-GS3 [6] I-185	380[690]	50/60	370[280]	185	160	图A
EM-GS3 [6] I-200	380[690]	50/60	400[300]	200	185	图A
EM-GS3 [6] I-250	380[690]	50/60	500[380]	250	200	图A
EM-GS3 [6] I-280	380[690]	50/60	560[420]	280	250	图A
EM-GS3 [6] I-320	380[690]	50/60	630[480]	320	280	图A
EM-GS3 [6] I-355	380[690]	50/60	710[530]	355	320	图A
EM-GS3 [6] I-400	380[690]	50/60	800[600]	400	355	图A
EM-GS3 [6] I-450	380[690]	50/60	900[680]	450	400	图A
EM-GS3 [6] I-500	380[690]	50/60	1000[750]	500	450	图A
EM-GS3 [6] I-600	380[690]	50/60	1200[900]	600	500	图A



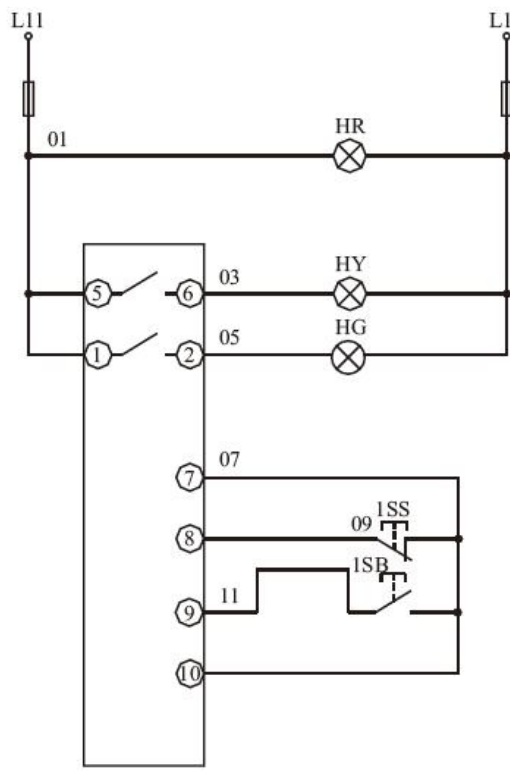
图A

Power (kw)	Dimension		
	H	W	D
11~75	1000	420	380
90	1100	450	450
115~200	1200	600	500
220~355	1450	700	500
400~600	1700	700	500

# Wire diagram



Main circuit loop



Power supply LED  
MCCB or Fuse

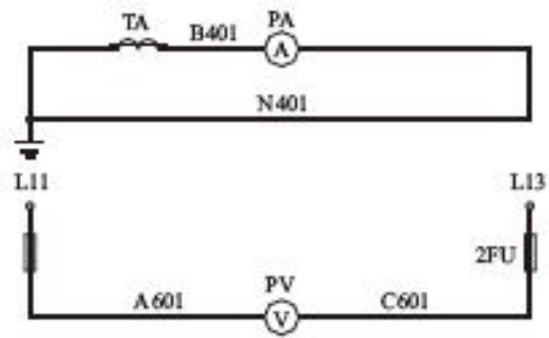
Fault indicator  
Running indicator

Soft stop  
Sot start

Common point

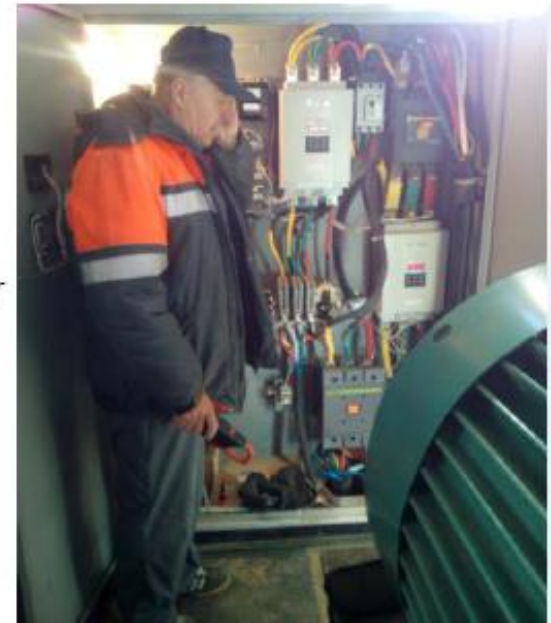


No need  
install the by  
pass Ac  
contactor



Ampere meter

Voltage meter



On line soft starter which working no need by pass contactor

