

RBUI100H 能量回馈单元快速使用指南

本指南简要介绍了 RBUI100H 能量回馈单元的产品基础信息、端子、键盘、安装、接线、常用功能参数设置、常见故障及对策、产品尺寸。

拨打服务热线 400-700-9997 或访问 www.invt.com.cn 获取更多信息及资源下载。保修条款详见完整版电子说明书。



警告

危险

● 本指南仅包含基本的安装接线信息。若不遵守相关文档中的安全说明和安装接线说明，可能导致设备损坏、人身伤害、甚至人员死亡等事故。

● 只有培训合格的专业人员才允许进行相关操作。

● 禁止在电源接通的情况下进行接线、检查或更换器件等作业。进行这些作业前，须确认所有输入电源已断开，并等待不短于能量回馈单元上标注的时间。建议用户直接使用万用表监测能量回馈单元直流母线电压低于 36V 以下，才允许对能量回馈单元进行调整与检修。

1 产品型号

RBUI100H-055-4

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字段标识	字段详细说明
(A)	RBUI: 能量回馈单元
(B)	1: 技术版本
(C)	00: 预留区分代码
(D)	H: 重载型
(E)	功率代码
(F)	电压等级

2 技术特性

技术特性	说明
电压等级	AC 3PH 380V(-15%)~440V(+10%) AC 3PH 520V(-15%)~690V(+10%)
制动力矩	100%额定转矩可连续工作
交流侧电源	380VAC/660VAC, 50/60Hz
交流侧电源电压波动	-15%~+10%，相间不平衡小于 2%
交流侧电源频率波动	3Hz 以下
控制方式	角度为 120° 的电流控制方式
交流侧功率因数	0.9 以上
过载能力	150%额定电流 60s
操作方式	外部端子：键盘
故障输出	继电器输出
状态指示	LED 键盘
模拟量输出	电压信号（0~10V）
过流保护	330%直流侧额定电流
过压	直流侧 790V/1185V
过温	温度电阻检测
交流侧缺相故障	交流侧缺相
交流侧频率故障	波动大于 3Hz

3 产品额定值

RBUI100H 能量回馈单元的额定容量是指所需制动力矩为 100% 的电机功率。

表 3-1 AC 3PH 380V(-15%)~440V(+10%)

产品型号	额定容量 (kW)	直流侧额定电流 (A)	交流侧额定电流 (A)	输入电抗器	能量回馈输出电抗器
RBUI100H-022-4	22	37	30	GDL-ACL0051-4AL	GDL-ERL0030-4AL
RBUI100H-030-4	30	51	40	GDL-ACL0070-4AL	GDL-ERL0050-4AL
RBUI100H-045-4	45	77	60	GDL-ACL0110-4AL	GDL-ERL0060-4AL
RBUI100H-055-4	55	96	75	GDL-ACL0150-4AL	GDL-ERL0075-4AL
RBUI100H-090-4	90	150	120	GDL-ACL0220-4AL	GDL-ERL0120-4AL
RBUI100H-110-4	110	183	145	GDL-ACL0220-4AL	GDL-ERL0145-4AL
RBUI100H-132-4	132	220	176	GDL-ACL0265-4AL	GDL-ERL0176-4AL
RBUI100H-160-4	160	267	213	GDL-ACL0330-4AL	GDL-ERL0213-4AL
RBUI100H-200-4	200	333	266	GDL-ACL0390-4AL	GDL-ERL0292-4AL
RBUI100H-250-4	250	417	330	GDL-ACL0500-4AL	ERL0250-4

表 3-2 AC 3PH 520V(-15%)~690V(+10%)

产品型号	额定容量 (kW)	直流侧额定电流 (A)	交流侧额定电流 (A)	输入电抗器	能量回馈输出电抗器
RBUI100H-055-6	55	52	42	GDL-ACL0090-6AL	GDL-ERL0042-6AL
RBUI100H-090-6	90	86	68	GDL-ACL0110-6AL	GDL-ERL0068-6AL
RBUI100H-160-6	160	152	122	GDL-ACL0200-6AL	GDL-ERL0122-6AL
RBUI100H-200-6	200	190	152	GDL-ACL0250-6AL	GDL-ERL0167-6AL
RBUI100H-315-6	315	300	230	GDL-ACL0400-6AL	GDL-ERL0230-6AL
RBUI100H-400-6	400	400	330	GDL-ACL0480-6AL	GDL-ERL0330-6AL

注意：

- 380V 22kW~45kW 能量回馈单元标配内置能量回馈输出电抗器，380V 55kW~250kW 以及 660V 55kW~400kW 能量回馈单元标配外置能量回馈输出电抗器。

深圳南威电气股份有限公司
SHENZHEN NWT ELECTRIC CO., LTD.

RBUI100H 能量回馈单元快速使用指南

4 键盘

功能指示灯

单位指示灯

数据确认键

移位键

停止键/故障复位键

LED键盘显示区对应内容

数码显示

编程或退出键

运行键

UP递增键

DOWN递减键

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STOP/RST

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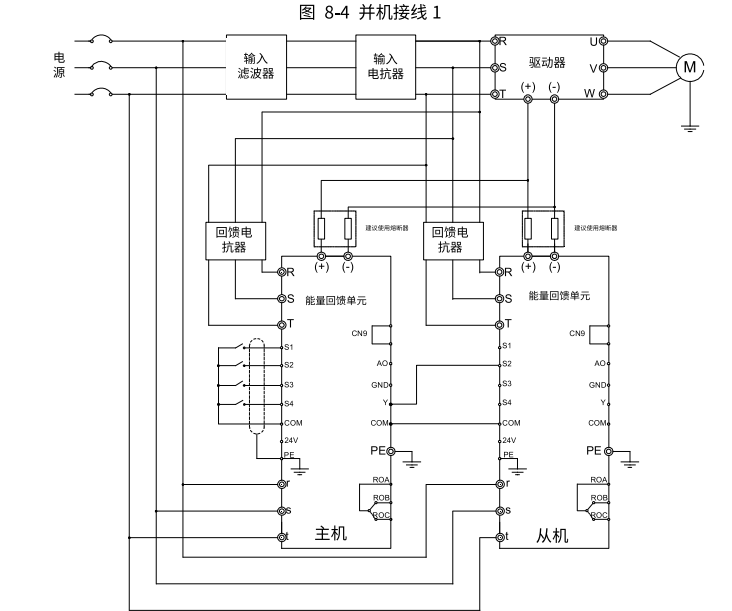
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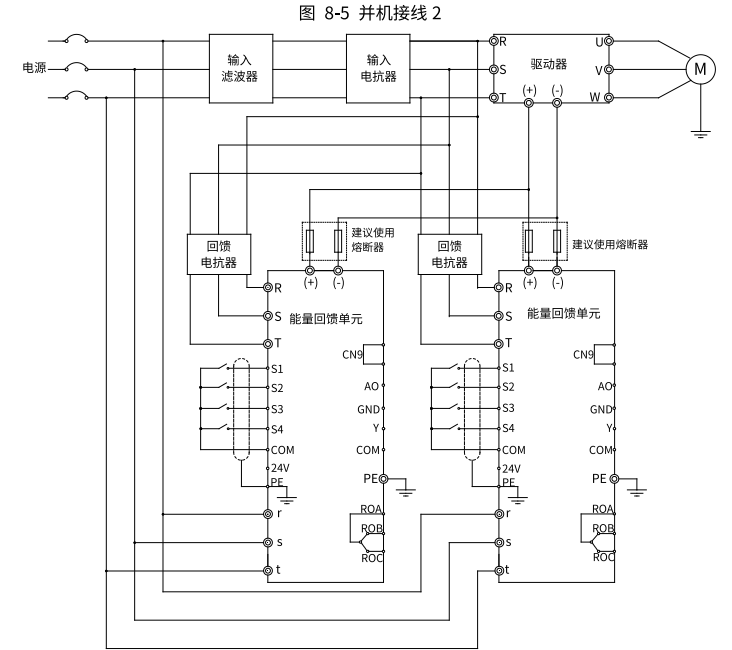


控制端子接线说明: 当多台能量回馈单元并联使用时，将第一台作为主机，则其他作为从机。第一台能量回馈单元的 Y 端子、COM 端子接至第二台能量回馈单元的 S2 端子、COM 端子，第三台能量回馈单元的端子 S2 端子、COM 端子，以此类推。

注意：

- 380V 22kW~45kW 能量回馈单元内置能量回馈输出电抗器，380V 55kW~250kW 及 660V 55kW~400kW 能量回馈单元标配能量回馈输出电抗器。
- 每台 RBU100H 能量回馈单元标配一台输入电抗器，并机时可以按照配套的驱动器的额定参数重新选择对应的输入电抗器，也可以将标配的输入电抗器并联的使用。
- 输入滤波器为选配件，请根据配套的驱动器的额定参数选择对应的输入滤波器。
- 熔断器为选配件，请按照 RBU100H 能量回馈单元直流侧额定电流的 1.5 倍配置。
- 采用并机模式时，RBU100H 能量回馈单元需考虑 90%的降额。
- 如需三台 RBU100H 并机，请联系咨询厂家技术人员。

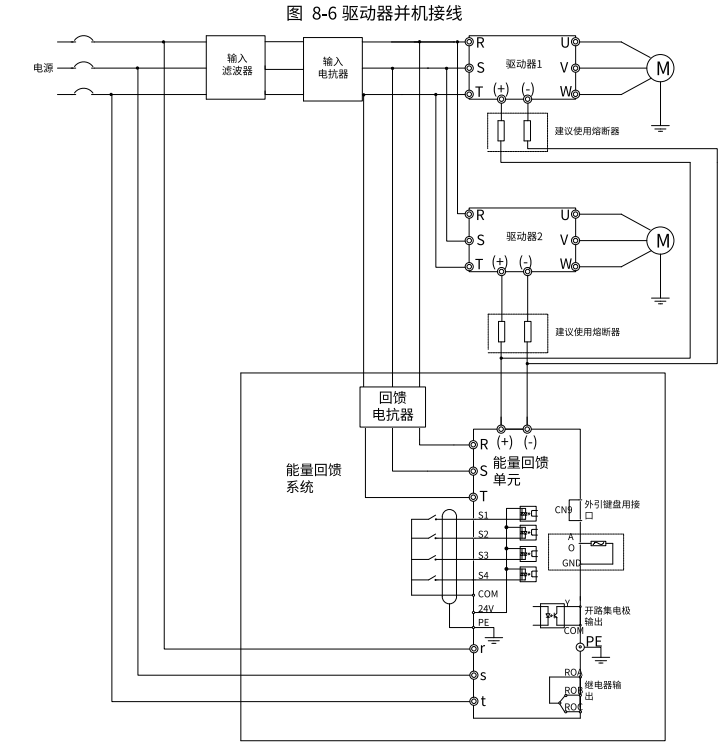
8.3.2 RBU100H 并机接线（主从不区分）



注意：

- 主机和从机都应设置为手动模式。
- 380V 22kW~45kW 能量回馈单元内置能量回馈输出电抗器，380V 55kW~250kW 及 660V 55kW~400kW 能量回馈单元标配能量回馈输出电抗器。
- 每台 RBU100H 能量回馈单元标配一台输入电抗器，并机时可以按照配套的驱动器的额定参数重新选择对应的输入电抗器，也可以将标配的输入电抗器并联的使用。
- 输入滤波器为选配件，请根据配套的驱动器的额定参数选择对应的输入滤波器。
- 熔断器为选配件，请按照 RBU100H 能量回馈单元直流侧额定电流的 1.5 倍配置。
- 采用并机模式时，RBU100H 能量回馈单元需考虑 90%的降额。
- 如需三台 RBU100H 并机，请联系咨询厂家技术人员。

8.3.3 驱动器并机接线（共直流母线）



注意：

- 输入电抗器为标准配件，输入电抗器要和能量回馈单元配套使用。
- 共直流母线要使用功率相同或相近的驱动器，能量回馈系统输出线要接在输入电抗器的输出端。
- 输入滤波器为选配件，请根据配套的驱动器的总功率选择对应的输入滤波器。
- 熔断器为选配件，须按驱动器直流母线电流的 1.5~2 倍进行选择。
- 回馈单元的输入电压等级与驱动器的输入电压等级要一致，且回馈单元的额定功率必须大于或等于电机制动时的最大再生功率。

9 常用功能参数设置

“○”：表示该参数的设定值在驱动器处于停机、运行状态中，均可更改；

“◎”：表示该参数的设定值在驱动器处于运行状态时，不可更改；

“●”：表示该参数的数值是实际检测记录值，不能更改。

功能码	名称	说明	缺省值	更改
P0.00	控制方式选择	0~1 0: 键盘控制 1: 端子控制 端子 S1 有效: 自动模式 端子 S2 有效: 手动模式	1	◎
P0.01	键盘控制方式	0~1 0: 自动模式 自动运行时，回馈单元检测母线电压，自动执行运行停止。 当“驱动器母线电压”-“标准母线电压”>“开始回馈电压差 (P0.04)”设定值时，回馈开始。 当“驱动器母线电压”-“标准母线电压”<“停止回馈电压差 (P0.05)”设定值时，回馈停止。 1: 手动模式 当运行指令给定时，回馈单元一直回馈。	1	◎
P0.02	开关量滤波次数	1~10	1	◎
P0.03	直流母线电压建立时间	0~1000ms	1000ms	○
P0.04	开始回馈电压差	范围: 0.0~240.0V 380V 电压等级: 40.0V 660V 电压等级: 60.0V	机型确定	○
P0.05	停止回馈电压差	范围: 0.0~120.0V 380V 电压等级: 10.0V 660V 电压等级: 15.0V	机型确定	○
P0.06	回馈停止时间	0.1~10.0s	1.0s	○
P0.07	输入电源频率	0~1 0: 50Hz 1: 60Hz	0	◎
P0.08	端子 S3 功能选择	1~15 3: 外部故障 (S3 与 COM 短接后有效) 其它保留	3	◎
P0.09	端子 S4 功能选择	1~15 2: 故障复位 (S4 与 COM 短接后有效) 其它保留	2	◎
P0.11	AO 输出选择	0~8 0: 直流母线电压 (0~1000V/1500V/3000V) 1: 输出电流 (0~200.0%)	1	○

功能码	名称	说明	缺省值	更改
P0.12	AO 输出下限	2~8: 保留 0.0%~100.0%	0.0%	○
P0.13	下限对应 AO 输出	0.00V~10.00V	0.00V	○
P0.14	AO 输出上限	0.0%~100.0%	100.0%	○
P0.15	上限对应 AO 输出	0.00V~10.00V	10.00V	○
P0.16	冷却散热风扇运行模式	0~1 0: 启动后运行 1: 散热器温度大于 45 度时启动	1	○
P0.17	Y 开关量输出选择	0~15	0	○
P0.18	继电器输出选择	0: 无输出 1: 运行指令已有效 2: 回馈运行中 3: 保留 4: 故障输出 5~15: 保留	4	○
P0.19	欠电压保护	范围: 300.0~1500.0V 380V 电压等级: 380.0V 660V 电压等级: 470.0V	机型确定	○
P0.20	故障复位次数	0~3	0	◎
P0.21	故障复位时间	0.1~10.0s	3.0s	◎
P0.23	回馈限流点	100~500	330	◎
P0.24	运行时间	0~XXXXXh	-	●
P0.25	功能参数恢复，故障记录清除	0~2 0: 不变 1: 恢复出厂值 2: 清除故障记录	0	◎
P0.26	软件版本	-	-	●
P0.27	前三次故障类型	0~26	-	●
P0.28	前二次故障类型	0: 无故障 1~2: 保留	-	●
P0.29	前一次故障类型	3: 逆变单元保护 (OUT3) 4~5: 保留 6: 过电流 (OC3) 7~8: 保留 9: 过电压 (OV3) 10: 母线欠压故障 (UV) 11: 保留 12: 过载 (OL2) 13: 保留 14: 输入电源缺相 (SPO) 15: 保留 16: 模块过热故障 (OH2) 17: 外部故障 (EF) 18: 保留 19: 电流检测故障 (ItE) 20: 保留 21: EEPROM 操作故障 (EEP) 22~24: 保留 25: 控制电源故障 (CP) 26: 参数设定错误 (PEr)	-	●
P0.31	当前故障输出电流	-	-	●
P0.32	当前故障母线电压	-	-	●
P0.33	参数锁定	0: 无 1: 锁定	0	○
P1.00	厂家密码	0~65535	-	◎

10 常见故障及对策

故障通过键盘指示灯指示。当 TRIP 指示灯点亮时，表明能量回馈单元处于异常状态。同时键盘上闪烁故障信息。

能量回馈单元控制线路采用非隔离电路，操作与检查本装配时，请先断开 (+)、(-) 连线，并确认 (+)、(-) 间无电压。

故障代码	故障类型	故障原因	解决方案
OUT3	[3] 逆变单元保护	● IGBT 内部损坏 ● 干扰引起误动作 ● 接地是否良好	● 检查外围设备是否有强干扰源，按 STOP/RST 键复位 ● 寻求服务
OC3	[6] 运行过电流	● 回馈能量发生突变或异常 ● 能量回馈单元功率偏小	● 相位检测信号 r、s、t 接线是否对应三相电网电源 R、S、T ● 选用功率大一档的能量回馈单元 ● 寻求服务
OV3	[9] 运行过电压	● 回馈能量发生异常变动 ● 能量回馈电压阈值设置过高 ● 回馈单元容量不够	● 检查输入的回馈能量 ● 降低回馈电压阈值 ● 选用功率大一档的能量回馈单元 ● 寻求服务
UV	[10] 母线欠压故障	● 电网电压偏低	● 检查电网输入电源
OL2	[12] 能量回馈单元过载	● 回馈能量电压阈值设置过低 ● 回馈能量发生异常变动 ● 能量回馈单元功率偏小	● 重新设置回馈能量电压阈值 ● 减小回馈能量的突变 ● 选用功率大一档的能量回馈单元 ● 寻求服务
SPO	[14] 输入电源缺相	● 交流侧电源掉电	● 检测交流侧输入电源 ● 寻求服务
OH2	[16] 逆变模块过热	● 风道堵塞或风扇损坏 ● 环境温度过高	● 参见过流对策 ● 疏通风道或更换风扇 ● 降低环境温度

故障代码	故障类型	故障原因	解决方案
			● 检查并重新连接 ● 寻求服务
EF	[17] 外部故障	● S3 外部故障输入端子动作	● 检查外部设备输入 ● 寻求服务
ItE	[19] 电流检测电路故障	● 控制板连接器接触不良	● 检查连接器，重新插线 ● 寻求服务
EEP	[21] EEPROM 读写故障	● 控制参数的读写发生错误 ● EEPROM 损坏	● 按 STOP/RST 键复位 ● 寻求服务
CP	[25] 控制电源故障	● 辅助电源损坏	● 寻求服务
PEr	[26] 参数设定错误	-	-



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202505 (V1.1)

RBUI100H Regenerative Energy Unit Quick Start Guide

The guide provides a brief introduction to the basic product information, terminals, keypad, installation, wiring, common function parameter setting, common faults and solutions, and product dimensions for the RBUI100H regenerative energy unit.

Visit www.invt.com for more information and source download. For details, see the full version of corresponding product e-manual.

Scan the QR code to view the full version of RBUI100H regenerative energy unit e-manual.



⚠ Warning

- This guide only provides the basic installation and wiring information. Failure to comply with the safety instructions and installation and wiring instructions in the relevant documentation may result in accidents such as equipment damage, personal injury, or even death.
- Only trained and qualified professionals are allowed to carry out related operations.

⚠ Danger

- Do not perform any operations including wiring, inspection, or component replacement when power supply is applied. Before performing these operations, ensure that all input power supplies are disconnected and wait for a period no shorter than the time indicated on the regenerative energy unit. It is recommended that you directly use a multimeter to monitor the DC bus voltage of the regenerative energy unit, and only proceed with adjustments and maintenance when the DC bus voltage is below 36V.

1 Product model

RBUI100H-055-4	
(A)	(B)
(C)	(D)
(E)	(F)
Field identifier	Description
(A)	RBUI: Regenerative energy unit
(B)	1: Technical version
(C)	00: Spare code
(D)	H: Heavy load
(E)	Power code
(F)	Voltage class
	055: 55kW
	4: AC 3PH 380V(-15%)~440V(+10%)
	6: AC 3PH 520V(-15%)~690V(+10%)

2 Technical feature

Technological feature	Description
Voltage class	AC 3PH 380V(-15%) ~ 440V(+10%) AC 3PH 520V(-15%) ~ 690V(+10%)
Brake torque	Continuously run with 100% of rated torque
AC power	380VAC/660VAC, 50/60Hz
AC side power supply voltage fluctuation	-15%~+10%, the imbalance between phases less than 2%
AC side power supply frequency fluctuation	Less than 3Hz
Control mode	Current control with 120°
AC power factor	More than 0.9
Overload capacity	150% of the rated current for 60s
Operation method	External terminal: Keypad
Fault output	Relay output
Status indication	LED keypad
Analog output	Voltage signal (0~10V)
Overcurrent protection	330% of the rated current on DC side
Overvoltage	DC side: 830V/1250V
Overtemperature	Temperature resistance detection
AC side phase loss fault	AC side phase loss
AC side frequency fault	Fluctuation greater than 3Hz

3 Product ratings

The rated capacity of the RBUI100H regenerative energy unit is the motor power at 100% braking torque.

Table 3-1 AC 3PH 380V (-15%)~440V (+10%)

Model	Rated power (kW)	Rated current on DC side (A)	Rated current on AC side (A)	Input reactors	Regenerative output reactor
RBUI100H-022-4	22	37	30	GDL-ACL0051-4AL	GDL-ERL0030-4AL
RBUI100H-030-4	30	51	40	GDL-ACL0070-4AL	GDL-ERL0050-4AL
RBUI100H-045-4	45	77	60	GDL-ACL0110-4AL	GDL-ERL0060-4AL
RBUI100H-055-4	55	96	75	GDL-ACL0150-4AL	GDL-ERL0075-4AL
RBUI100H-090-4	90	150	120	GDL-ACL0220-4AL	GDL-ERL0120-4AL
RBUI100H-110-4	110	183	145	GDL-ACL0220-4AL	GDL-ERL0145-4AL
RBUI100H-132-4	132	220	176	GDL-ACL0265-4AL	GDL-ERL0176-4AL
RBUI100H-160-4	160	267	213	GDL-ACL0330-4AL	GDL-ERL0213-4AL
RBUI100H-200-4	200	333	266	GDL-ACL0390-4AL	GDL-ERL0292-4AL
RBUI100H-250-4	250	417	330	GDL-ACL0500-4AL	ERL0250-4

Table 3-2 AC 3PH 520V (-15%)~690V(+10%)

Model	Rated power (kW)	Rated current on DC side (A)	Rated current on AC side (A)	Input reactors	Regenerative output reactor
RBUI100H-055-6	55	52	42	GDL-ACL0090-6AL	GDL-ERL0042-6AL
RBUI100H-090-6	90	86	68	GDL-ACL0110-6AL	GDL-ERL0068-6AL
RBUI100H-160-6	160	152	122	GDL-ACL0200-6AL	GDL-ERL0122-6AL
RBUI100H-200-6	200	190	152	GDL-ACL0250-6AL	GDL-ERL0167-6AL
RBUI100H-315-6	315	300	230	GDL-ACL0400-6AL	GDL-ERL0230-6AL
RBUI100H-400-6	400	400	330	GDL-ACL0480-6AL	GDL-ERL0330-6AL

Note:

- The 380V 22kW~45kW Energy Feedback Units come standard with built-in energy feedback output reactors, and the 380V 55kW~250kW and 660V 55kW~400kW Energy Feedback Units come standard with external energy feedback output reactors.
- Each RBUI100H regenerative energy unit comes standard with an input reactor.

4 Keypad

Function indicator

Unit indicator

Digital display

Programming/exit key

Data confirmation key

Shift key

Run key

Stop key

UP key

DOWN key

Digital display on LED keypad

Display	Means	Display	Means	Display	Means	Display	Means
0	0	1	1	2	2	3	3
4	4	5	5	6	6	7	7
8	8	9	9	A	A	b	b
C	C	d	d	E	E	F	F
H	H	i	i	L	L	N	N
n	n	O	O	P	P	r	r
S	S	t	t	U	U	v	v
.	.	-	-				

Indicator	State	Meaning
RUN/TUNE	● ON	The unit is in a ready state and has a running signal.
	○ Off	The unit is in stopped state.
FWD/REV	● ON	The regenerative unit is in regeneration mode.
	○ Off	The regenerative unit is in non-regeneration mode.
LOCAL/REMOT	● ON	The unit is controlled remotely.
	● Blink	The unit is controlled through terminals.
TRIP	○ Off	The unit is controlled through the keypad.
	● ON	The unit is in fault state.
	○ Off	The unit is in normal state.
Unit indicator	LED on indicates the unit currently displayed on the keypad.	
	Hz	Frequency unit
	RPM	Rotation speed unit
	A	Current unit
	%	Percentage
	V	Voltage unit

Keys	Description
(PRG ESC)	Programming key
(DATA ENT)	Confirmation key
(▲)	UP key
(▼)	Down key
(↔ SHIFT)	Shifting key
(RUN)	Run key
(STOP RST)	Stop/Reset key

When the device is in running state, this key is used to stop the device and the function of this key is restricted by P0.00. When the device is in faulty state, this key can be used to reset faults and it is not restricted by P0.00.

5 Product dimensions

Figure 5-1 Wall-mounted outline and installation dimensions (mm)

Model	W2	W3	H2	W1	H1	H3	D	Mounting hole diameter	Recommend d mounting bolt	Gross weight (kg)
Voltage class: 380V										
22~45kW	130	140	563.5	220	577	622.6	236	Ø7	M6*16	41
55~132kW	130	140	563.5	320	577	622.6	261	Ø7	M6*16	32
160~250kW	250	250	732	440	750	782.9	326.2	Ø9	M8*16	70
Voltage class: 660V										
55~160kW	130	140	563.5	320	577	622.6	261	Ø7	M6*16	32
200~400kW	250	250	732	440	750	782.9	326.2	Ø9	M8*16	70

6 Installation

RBUI100H can be installed on the wall or in a cabinet. RBUI100H must be installed vertically. For details about the outline dimensions, see section 5 Product dimensions. The product has been updated with a lifting ring, which is detachable.

6.1 Installation procedures

Step1 Mark the position of mounting holes. For details about the installation hole positions, see section 5 Product dimensions.

Step2 Mount the screws or bolts into the marked positions.

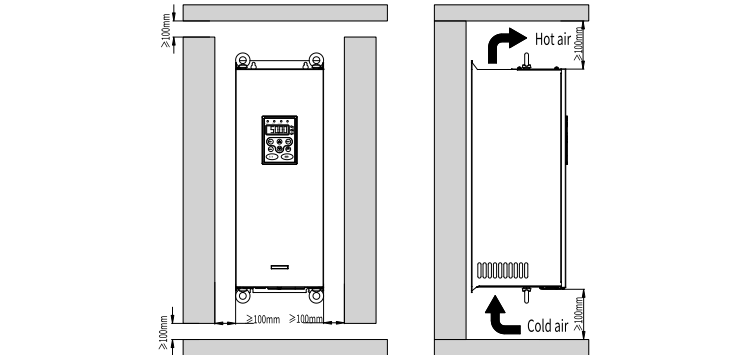
Step3 Place the regenerative energy unit against the wall.

Step4 Tighten the fastening screws on the wall.

6.2 Installation space

6.2.1 Single regenerative energy unit

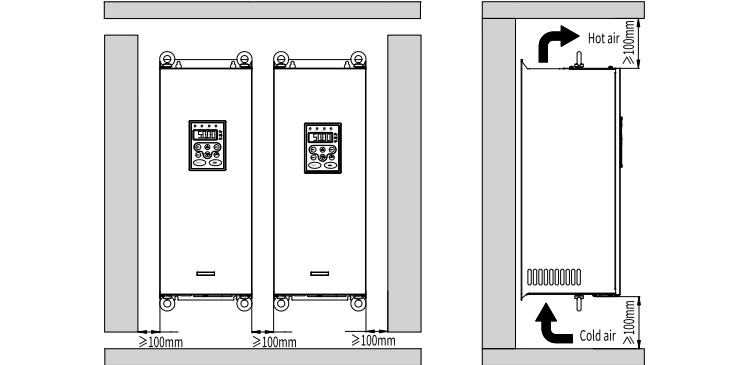
Figure 6-1 Installation space diagram of single regenerative energy unit



6.2.2 Multiple regenerative energy units

Parallel installation

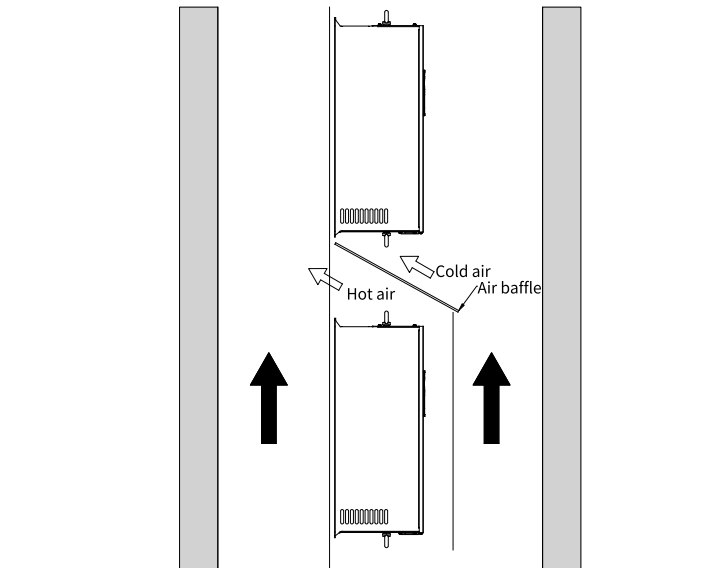
Figure 6-2 Parallel installation space diagram of multiple regenerative energy units



Note: When you install regenerative energy units in different sizes, align the top of each regenerative energy unit before installation for the convenience of future maintenance.

Vertical installation

Figure 6-3 Vertical installation space diagram of multiple regenerative energy units



Note: During vertical installation, you must install windshield, otherwise, the regenerative energy units will experience mutual interference, and the heat dissipation effect will be degraded.

7 Terminal

7.1 Main circuit terminals

Figure 7-1 Main circuit terminal diagram

Terminal	Function description
r, s, t	Connect to 3PH grid power supply (see Figure 8-2 and Figure 8-3 for details).
(+), (-)	Regenerative energy input terminals.
R, S, T	Connect to the regenerative energy output reactor or VFD (see Figure 8-2 and Figure 8-3 for details).
⊕	Connect to the power ground cable (PE)

7.2 Control circuit terminals

Figure 7-2 Control circuit terminals

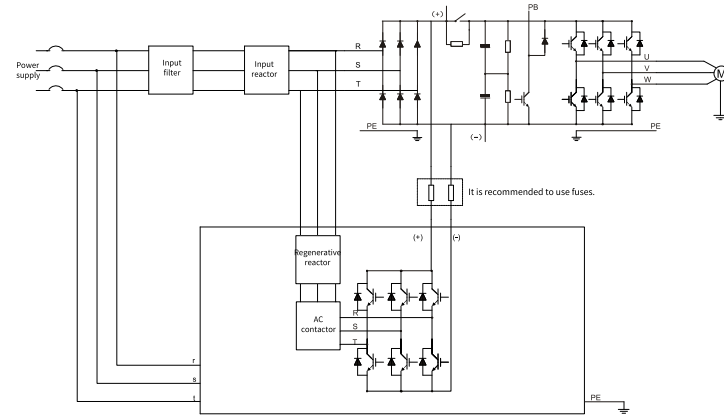
Terminal	Description
S1~S4	Digital input terminals, forming the optical coupler isolation input with +24V and COM, effective when shorted to COM. S1: Automatic mode input when terminal control is valid. S2: Manual mode input when terminal control is valid. S3: Multifunction terminal (external fault input is by default). S4: Multifunction terminal (fault reset input is by default).
Y	Open-collector output terminal, with COM as the common terminal. External voltage range: 0~24V. Output current range: 0~50mA.
+24V	Locally provided +24V power supply (current: 150mA)
COM	+24V common terminal
AO	Analog output terminal Output range: Voltage (0~10V).
GND	Reference zero potential of AO. Note: GND is isolated from COM.
ROA	RO relay output
ROB	ROA: common terminal, ROB: NC, ROC: NO.
ROC	Contact capacity: AC 250V/3A, DC 30V/1A.

8 Wiring

8.1 Basic principles

RBUI100H series regenerative energy unit is an energy-saving device that converts the energy generated by braking the motor into AC power with the same frequency and phase as that of the power grid and feeds it back to the power grid. The following figure shows the main circuit diagram of RBUI100H series regenerative energy unit. When used, it is necessary to connect the standard input reactor to the input of the drive, connect the bus of the RBUI100H regenerative energy unit to the bus of the drive, and connect the standard feedback reactor between the output of the regenerative energy unit and the input of the drive. When the conditions of feedback are reached, the RBUI100H regenerative energy unit converts the feedback energy into alternating current with the same frequency and phase as that of the grid and feeds it back to the power grid.

Figure 8-1 Main circuit diagram

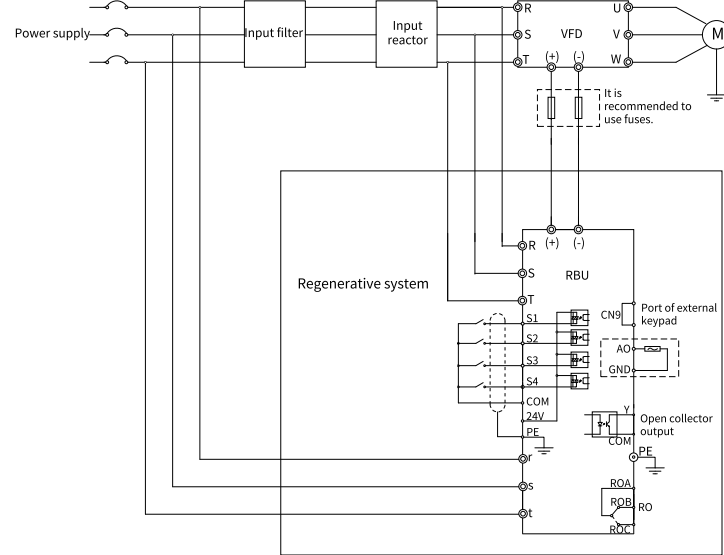


8.2 Wiring of single unit

When using this series of products in conjunction with a VFD, it is necessary to correctly connect the DC input terminals (+) and (-) of the main circuit of the RBUI100H regenerative energy unit to the positive and negative terminals of the DC bus of the VFD. The AC feedback output terminals R, S, and T of the regenerative unit should be connected either directly or through a regenerative energy output reactor to the same power supply as the VFD input. Connect r, s, and t to the grid power supply.

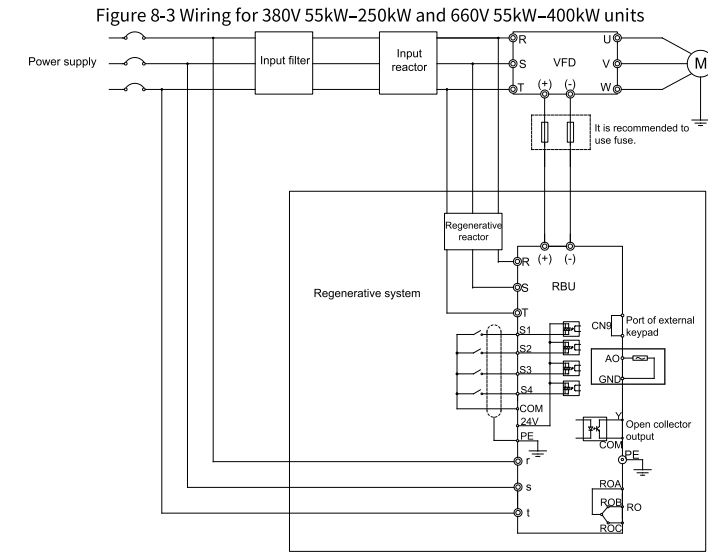
- The RBUI100H regenerative energy unit features the external reactor structure (380V 22~45kW units have built-in regenerative reactors). When you use the RBUI100H, an external reactor must be connected. During wiring, the terminals of the reactor must correspond exactly to the terminals on the regenerative unit; incorrect terminal sequence may lead to damage to the regenerative unit or even fire hazard.
- During wiring, you shall pay attention to the polarity of the DC input terminals (+) and (-) of the RBUI100H regenerative energy unit. Reversing the polarity may cause damage to the equipment or even fire hazard.
- The "r", "s" and "t" of the RBUI100H connect to 3PH power terminals "R", "S", and "T" respectively (see Figure 8-2 and Figure 8-3 for details). Otherwise, breaker tripping or RBUI100H fault or even damage may occur.
- To prevent electric shock hazards, the grounding terminal PE of RBUI100H must be reliably grounded.

Figure 8-2 Wiring for 380V 22kW~45kW units



Note:

- The 380V 22kW~45kW regenerative energy units have built-in regenerative energy output reactors.
- Input reactors are standard parts.
- When input filters are optional parts, please select the corresponding input filter according to the rated parameters of the associated VFD.
- The fuse is an optional part, and you need to configure it according to 1.5 times the rated current on the DC side of the RBUI100H regenerative energy unit.
- r, s, and t are the phase detection lines that need to be connected to the grid side.



Note:

- The 380V 55kW-250kW and 660V 55kW-400kW regenerative energy units come standard with regenerative energy output reactors and input reactors.
- When input filters are optional parts, please select the corresponding input filter according to the rated parameters of the associated VFD.
- The fuse is an optional part, and you need to configure it according to 1.5 times the rated current on the DC side of the RBU100H regenerative energy unit.
- r, s, and t are the phase detection lines that need to be connected to the grid side.

8.3 Wiring of paralleled units

8.3.1 RBU100H parallel wiring (master-slave configuration)

The setting steps for master-slave configuration are as follows:

- Master setting steps:

Step1 Set P0.17 = 2 (regenerative operation).

Step2 Select P0.00 = 1 (terminal control) .

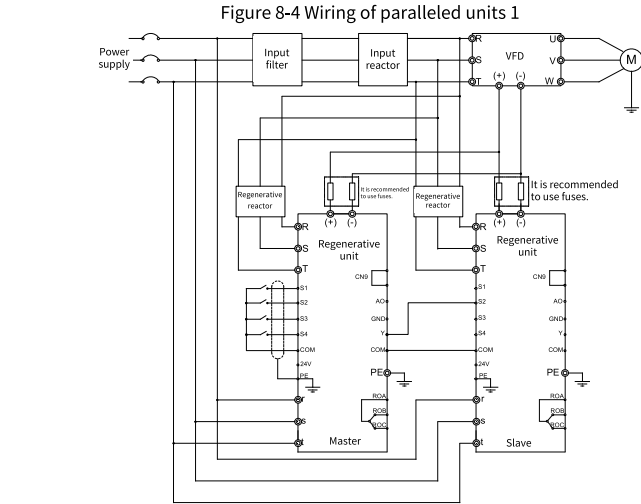
Step3 The master can be set to manual mode or automatic mode.

- Slave setting steps:

Step1 Connect the Y and COM terminals of the master to S2 and COM terminals of the slaves, respectively.

Step2 Select P0.00 = 1 (terminal control).

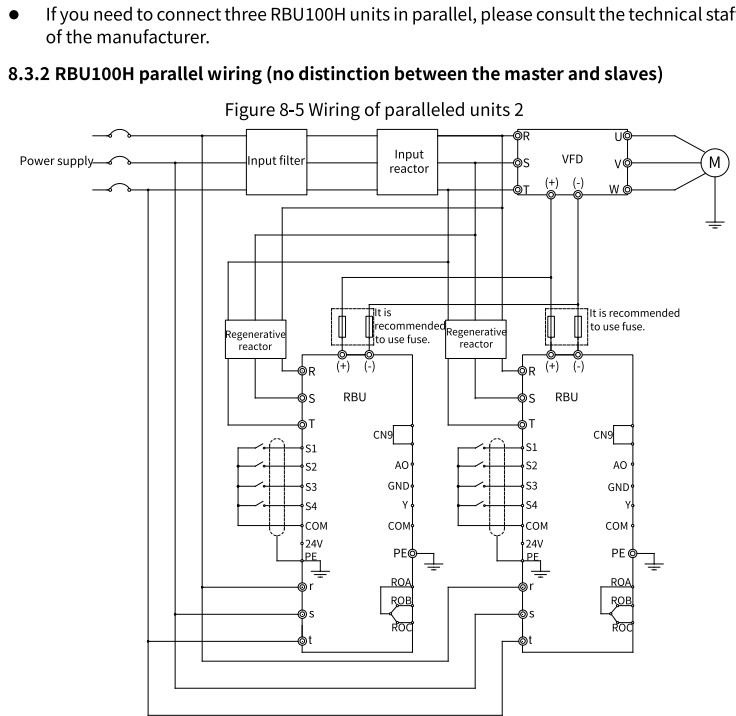
Step3 The slave should be set to manual mode (S2 valid).



Control terminal wiring instructions: When multiple regenerative energy units are used in parallel, set the first unit as the master and the others as slaves. Y and COM terminals of the first regenerative energy unit should be connected to the S2 and COM terminals of the second regenerative energy unit, and so on for S2 and COM terminals of the third unit, continuing in this manner.

Note:

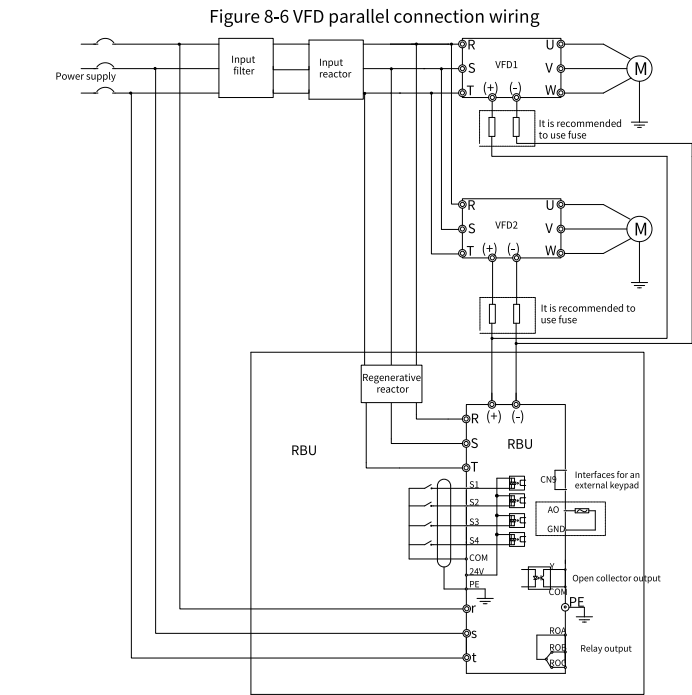
- The 380V 22kW-45kW regenerative energy units have built-in regenerative energy output reactors, while the 380V 55kW-250kW and 660V 55kW-400kW regenerative energy units come standard with regenerative energy output reactors.
- Each RBU100H regenerative energy unit is equipped with one input reactor as standard. When paralleling the unit, the input reactor can be re-selected according to the rated parameters of the matching drive, or the standard input reactors can be used in parallel.
- When input filters are optional parts, please select the corresponding input filter according to the rated parameters of the associated VFD.
- The fuse is an optional part, and you need to configure it according to 1.5 times the rated current on the DC side of the RBU100H regenerative energy unit.
- When using the parallel mode, a 90% derating should be applied to the RBU100H regenerative energy unit.



Note:

- Both the master and slave units should be set to manual mode.
- The 380V 22kW-45kW regenerative energy units have built-in regenerative energy output reactors, while the 380V 55kW-250kW and 660V 55kW-400kW regenerative energy units come standard with regenerative energy output reactors.
- Each RBU100H regenerative energy unit is equipped with one input reactor as standard. When paralleling the unit, the input reactor can be re-selected according to the rated parameters of the matching drive, or the standard input reactors can be used in parallel.
- When input filters are optional parts, please select the corresponding input filter according to the rated parameters of the associated VFD.
- The fuse is an optional part, and you need to configure it according to 1.5 times the rated current on the DC side of the RBU100H regenerative energy unit.
- When using the parallel mode, a 90% derating should be applied to the RBU100H regenerative energy unit.
- If you need to connect three RBU100H units in parallel, please consult the technical staff of the manufacturer.

8.3.3 VFD parallel connection wiring (common DC bus)



Note:

- The input reactor is a standard accessory and must be used with the regenerative energy unit.
- A common DC bus is to be used with drives of equal or similar power, and the energy return system output line is to be connected to the output of the input reactor.
- The input filter is an optional accessory. Please select the appropriate input filter based on the total power of the matched VFD.
- The fuse is an optional accessory and should be configured to 1.5-2 times the rated

- current on the DC side of the VFD.
- The input voltage level of the feedback unit and the input voltage level of the drive should be the same, and the rated power of the feedback unit must be greater than or equal to the maximum regenerative power of the motor during braking.

9 Common function parameter setup

"○" indicates that the value of the parameter can be modified when the VFD is in stopped or running state.

"⊙" indicates that the value of the parameter cannot be modified when the VFD is in running state.

"●" indicates that the value of the parameter is detected and recorded, and cannot be modified.

Function code	Name	Description	Default	Modify
P0.00	Control mode	0-1 0: Keypad 1: Terminal Terminal S1 valid: Automatic mode Terminal S2 valid: Manual mode	1	⊙
P0.01	Keypad control mode	0-1 0: Automatic mode In automatic running, the regenerative unit detects the bus voltage and automatically starts or stops operation. When "VFD bus voltage" - "Standard bus voltage" > Set value of "Regenerative voltage difference during starting (P0.04)", feedback begins. When "VFD bus voltage" - "Standard bus voltage" < Set value of "Regenerative voltage difference during stopping (P0.05)", feedback stops. 1: Manual mode When the run command is given, the regenerative unit continuously provides feedback.	1	⊙
P0.02	Digital filter times	1-10	1	⊙
P0.03	DC bus voltage establishment time	0-10000ms	10000ms	○
P0.04	Regenerative voltage difference during starting	Range: 0.0-240.0V 380V voltage class: 40.0V 660V voltage class: 60.0V	Model depended	○
P0.05	Regenerative voltage difference during stopping	Range: 0.0-120.0V 380V voltage class: 10.0V 660V voltage class: 15.0V	Model depended	○
P0.06	Regenerative stop time	0.1-10.0s	1.0s	○
P0.07	Input power frequency	0-1 0: 50Hz 1: 60Hz	0	⊙
P0.08	S3 function	1-15 3: External fault (Valid after S3 and COM are short-circuited.) Others are reserved.	3	⊙
P0.09	S4 function	1-15 2: Fault reset (Valid after S4 and COM are short-circuited.) Others are reserved.	2	⊙
P0.11	AO output selection	0-8 0: DC bus voltage (0-1000V/1500V/3000V) 1: Output current (0-200.0%) 2-8: Reserved	1	○
P0.12	AO output lower limit	0.0%-100.0%	0.0%	○
P0.13	AO output corresponding to lower limit	0.00V-10.00V	0.00V	○
P0.14	AO output upper limit	0.0%-100.0%	100.0%	○
P0.15	AO output corresponding to upper limit	0.00V-10.00V	10.00V	○
P0.16	Running mode of cooling fan	0-1 0: Operate after starting 1: Start when the temperature of the heat sink exceeds 45°C	1	○
P0.17	Y digital output	0-15 0: No output 1: Running command valid 2: Regenerative running 3: Reserved	0	○
P0.18	Relay output	0: No output 1: Running command valid 2: Regenerative running 3: Reserved	4	○

Function code	Name	Description	Default	Modify
P0.19	Undervoltage protection	4: Fault output 5-15: Reserved Range: 300.0-1500.0V 380V voltage class: 380.0V 660V voltage class: 470.0V	Model depended	○
P0.20	Fault reset count	0-3	0	⊙
P0.21	Fault reset time	0.1-10.0s	3.0s	⊙
P0.23	Regenerative current limit point	100-500	330	⊙
P0.24	Running time	0-XXXXXh	-	●
P0.25	Function parameter restoration/Fault record clearing	0-2 0: No Change 1: Restore to default values 2: Clear fault records	0	⊙
P0.26	Software version	-	-	●
P0.27	3rd-last fault type	0-26 0: No fault 1-2: Reserved 3: Inverter unit protection (OUT3) 4-5: Reserved 6: Overcurrent (OC3) 7-8: Reserved 9: Overvoltage (OV3) 10: Bus undervoltage fault (UV) 11: Reserved 12: Overload (OL2) 13: Reserved 14: Input power phase loss (SPO) 15: Reserved 16: Module overheating fault (OH2) 17: External fault (EF) 18: Reserved 19: Current detection fault (ItE) 20: Reserved 21: EEPROM operation fault (EEP) 22-24: Reserved 25: Control power fault (CP) 26: Incorrect parameter setting (PEr)	-	●
P0.28	2nd-last fault type		-	●
P0.29	Last fault type		-	●
P0.30	Present fault type		-	●
P0.31	Output current at present fault	-	-	●
P0.32	Bus voltage at present fault	-	-	●
P0.33	Parameter locking	0-1 0: None 1: Lock	0	○
P1.00	Factory password	0-65535	-	⊙

10 Common faults and solutions

The fault is indicated by keypad indicators. When the TRIP indicator is on, it indicates the regenerative energy unit is in abnormal state. At the same time, the fault information will flash on the keypad.

	The control circuit of the regenerative energy unit uses a non-isolated circuit. Before operating or inspecting this assembly, please disconnect the (+) and (-) wires and ensure that there is no voltage between the (+) and (-) terminals.
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Fault code	Fault type	Fault cause	Solution
OUT3	[3] Inverter unit protection	- The IGBT is damaged. - Misoperation caused by interference. - Check whether the grounding is proper.	- Check whether there is strong interference surrounding the peripheral device, and press STOP/RST to reset. - Ask for technical support.
OC3	[6] Overcurrent during running	- Regenerative energy transient or exception occurred. - The power of the regenerative energy unit is too small.	- Check whether the wiring of the phase detection signals r, s, t corresponds to 3PH grid power R, S, T. - Select a regenerative energy unit with larger power. - Ask for technical support.
OV3	[9] Overvoltage during running	- Abnormal change in regenerative energy. - The regenerative energy voltage threshold is set too high. - The capacity of the regenerative unit is insufficient.	- Check the input regenerative energy. - Lower the regenerative voltage threshold. - Select a regenerative energy unit with larger power. - Ask for technical support.
UV	[10] Bus undervoltage	Grid voltage is too low.	Check the grid input power.
OL2	[12]	The regenerative energy	Reset the regenerative energy

Fault code	Fault type	Fault cause	Solution
	Regenerative energy unit overload	voltage threshold is set too low. - Abnormal change in regenerative energy. - The power of the regenerative energy unit is too small.	voltage threshold. - Reduce sudden changes of regenerative energy. - Select a regenerative energy unit with larger power. - Ask for technical support.
SPO	[14] Input power phase loss	Power failure on the AC side.	- Check the input power on AC side. - Ask for technical support.
OH2	[16] Inverter module overheating	- Air duct is blocked or fan is damaged. - Ambient temperature is too high.	- See solutions for overcurrent. - Ventilate the air duct or replace the fan. - Lower the ambient temperature. - Check and connect again. - Ask for technical support.
EF	[17] External fault	S3 external fault input terminal acts.	- Check external device input. - Ask for technical support.
ItE	[19] Current detection circuit fault	Poor contact of the connector of control board.	- Check the connector and re-plug. - Ask for technical support.
EEP	[21] EEPROM read/write fault	- Error in reading or writing control parameters - EEPROM damaged.	- Press STOP/RST to reset. - Ask for technical support.
CP	[25] Control power fault	Auxiliary power is damaged.	Ask for technical support.
PEr	[26] Incorrect parameter setting	-	-

