SOURCETRONIC
We love electrons

SOURCETRONIC – Quality electronics for service, lab and production

User Manual

Regenerative Braking Unit SRBU100H

Contents

Contents **1**
1 Safety Precautions **3**
1.1 Safety Definition 3
1.2 Warning 3
1.3 Safety Guidelines 3
1.3.1 Delivery and Installation 3
1.3.2 Commissioning and Running 4
1.3.3 Maintenance and Component Replacement 5
1.3.4 Disposal 5
2 Inspection **6**
2.1 Unpacking Inspection 6
2.2 Environment Checking 6
2.3 Checking After Installation 6
3 Product Overview **8**
3.1 Comprehensive Features 8
3.2 Model Definition 8
3.3 Product Ratings 9
3.4 Reactor Dimensions 10
3.4.1 Input Reactor Dimensions 10
3.4.2 Regenerative Braking Reactor Dimensions 12
4 Installation Guidelines **14**
4.1 Installation Environment 14
4.2 Installation Direction 15
4.3 Installation Procedures 15
4.3.1 Vertical Installation of Multiple Units 16
4.4 Terminals and Function 17
4.4.1 Terminals of the Main Circuit 17
4.4.2 Description of Main Circuit Terminals: 18
4.4.3 Description of Control Circuit Terminals: 19
4.5 Standard Wiring 20
4.5.1 Basic Principles 20
4.5.2 Standard Wiring 21
4.6 Parallel Wiring 22
4.6.1 SRBU100H Parallel Wiring (Master-Slave Configuration) 22
4.6.2 SRBU100H Parallel Wiring (No Master and Slave) 24

4.6.3 Drive Parallel Wiring (Common DC Bus).....25

5 Keypad Operation.....26

5.1 Keypad.....26

5.1.1 Keypad Diagram.....26
5.1.2 Button Function Descriptions.....26
5.1.3 Indicators.....27

6 Function Parameters.....28

6.1 Function Code.....28
6.2 Detailed Function.....30

7 Fault Analysis and Solutions.....32
8 Maintenance and Hardware Fault Diagnosis.....34

8.1 Periodical Inspection.....34
8.2 Cooling Fan.....35

8.2.1 Cooling Fan Replacement.....36

8.3 Capacitor.....36

8.3.1 Reforming the Capacitors.....36
8.3.2 Replace Electrolytic Capacitors.....37

9 Model Selection.....38

9.1 SRBU Model Selection.....38
9.2 Cable Selection.....38

9.2.1 Power Cable.....38
9.2.2 Crimp Terminal Selection.....40
9.2.3 Control Cable.....40

9.3 DC Fuse Model Selection.....41

10 Dimensions.....43

10.1 Dimension of the Keypad.....43
10.2 External Dimension and Weight of SRBU.....44

1 Safety Precautions

1.1 Safety Definition

Danger: Severe personal injury or even death can result if related requirements are not followed.

Warning: Personal injury or equipment damage can result if related requirements are not followed.

Note: Moderate personal injury can result if related requirements are not followed.

Trained and qualified professionals: People operating the equipment must have received professional electrical and safety training and obtained the certificates, and must be familiar with all steps and requirements of equipment installing, commissioning, running and maintaining and capable to prevent any emergencies.

1.2 Warning

Warnings caution you about conditions that can result in severe injury or death and/or equipment damage and advice on how to prevent dangers. The following table lists the warning symbols in this manual.

Symbol	Name	Description
	Danger	Severe personal injury or even death can result if related requirements are not followed.
	Warning	Personal injury or equipment damage can result if related requirements are not followed.
Note	Note	Moderate personal injury can result if related requirements are not followed.

1.3 Safety Guidelines

	**Only trained and qualified professionals are allowed to carry out related operations.** People operating the equipment must have received professional electrical and safety training and obtained the certificates, and must be familiar with all steps and requirements of equipment installing, commissioning, running and maintaining and capable to prevent any emergencies. Do not perform wiring, inspection or component replacement when power supply is applied.
	Do not refit the product unless authorized; otherwise fire, electric shock or other injury may result.

1.3.1 Delivery and Installation

	• The regenerative braking unit (SRBU) should be mounted on a flame-retardant surface, such as metal. • Do not use any SRBU with missing or damaged components. • After the SRBU is wired, high-voltage DC is present inside. Do not touch the unit, its internal components, or circuit boards to avoid the risk of electric shock.

Note:

- Select appropriate tools for delivery and installation to ensure the safe and proper running and avoid physical injury or death. To ensure personal safety, take mechanical protective measures like wearing safety shoes and working uniforms.
- Protect the SRBU against physical shock or vibration during the delivery and installation.
- Do not carry the product only by its front cover as the cover may fall off.
- The installation site must be away from children and other public places.
- If the installation altitude exceeds 2000 m, the SRBU may not meet the low-voltage protection requirements specified in IEC 61800-5-1.
- Use the SRBU in proper environments. (For details, see 4.1 Installation Environment.)
- To avoid electric shock, do not leave screws, cables, or other conductive objects inside before installing the front cover.
- Tighten the screws securely during wiring. Loose connections may cause fire, electric leakage, or other accidents.

1.3.2 Commissioning and Running

- Wiring is allowed only after confirming that the power is off and all capacitors are fully discharged.
- Only trained and qualified personnel are allowed to perform wiring operations on the SRBU.
- Make sure the wiring is correct before powering on the SRBU.
- Do not touch the terminals of control board when power on.
- Before running, ensure the master/slave selection and voltage class setting are correct.
- After power-off, wait for a period no shorter than the time indicated on the SRBU. It is recommended to use a multimeter to monitor the DC bus voltage of the SRBU, and only proceed with adjustments and maintenance when the DC bus voltage is below 36V.
- Do not touch any internal components during the running.
- The SRBU is an accessory device of the drive. Before the use, install a dedicated semiconductor fuse. Otherwise, in addition to the SRBU failure, the drive failure or damage may result. No matter whether the drive failure is related to the SRBU, we are not responsible for any drive failure.
- The SRBU is not equipped with a buffer circuit. It is recommended to use the SRBU with the BUB series buffer product or configure a buffer unit by yourself to avoid SRBU damage due to unbuffered power-on shock.

Note:

- Do not switch on or off the input power supply of the SRBU frequently.
- Ensure correct setting of the SRBU.
- Do not do any voltage test on the SRBU; otherwise damage to the semiconductor components may occur.
- Fans or other cooling device are needed in multiple installations.

1.3.3 Maintenance and Component Replacement

	• Only trained and qualified professionals are allowed to perform maintenance, inspection, and component replacement of the SRBU. • Disconnect all power supplies to the SRBU before the terminal wiring. • During maintenance and component replacement, take measures to avoid screws, cables and other conductive matters to fall into the SRBU.

Note:

- Use proper torque to tighten screws.
- During maintenance and component replacement, keep the SRBU and its parts and components away from combustible materials and ensure they have no combustible materials adhered.
- Do not carry out insulation voltage-endurance test on the SRBU, or measure the control circuits of the SRBU with a megohmmeter.
- During maintenance and component replacement, take proper anti-static measures on the SRBU and its internal parts.

1.3.4 Disposal

	There are heavy metals in the SRBU. Dispose of it as industrial waste.

2 Inspection

2.1 Unpacking Inspection

Check the following after receiving the product:

1) Check whether the packing box is damaged or dampened. if not, contact with local agents or Sourcetronic offices.

2) Whether the model identifier on the exterior surface of the packing box is consistent with the purchased model. if any problems are found, contact with local dealers or Sourcetronic offices.

3) After unpacking, check whether the interior surface of the packing box is abnormal, for example, in wet condition, and whether the equipment enclosure is damaged or cracked. if not, contact with local agents or Sourcetronic offices.

4) Check whether the product nameplate is consistent with the model identifier on the exterior surface of the packing box. if any problems are found, contact with local dealers or Sourcetronic offices.

2.2 Environment Checking

Check the following before the actual installation and usage:

1) Check that the ambient temperature of the SRBU is below 40°C. if exceeds, derate 3% for every additional 1°C. Additionally, the SRBU cannot be used if the ambient temperature is above 50°C.

2) Check whether the ambient temperature of the SRBU in actual usage is above -10°C. When the temperature is lower than -10°C, use heating devices.

3) Check whether the altitude of the application site exceeds 1000m. if exceeds, derate 1% for every additional 100m.

4) Check whether the ambient humidity is higher than 90% or condensation occurs. if yes, take additional protective measures.

5) Check whether there is direct sunlight or biological invasion in the environment where the SRBU is to be used. if yes, take additional protective measures.

6) Check whether there is dust or inflammable and explosive gas in the environment where the SRBU is to be used. if yes, take additional protective measures.

2.3 Checking After Installation

Check the following after the installation:

1) Check that the load range of the input and output cables meet the need of actual load.

2) Check correct setting of the SRBU.

3) Check that the SRBU is installed on non-flammable materials and the calorific accessories (such as reactors) are away from flammable materials.

4) Check that all control cables and power cables are run separately and the wiring layout complies with EMC requirement.

5) Check that all grounding systems are properly grounded according to the requirements of the SRBU.

6) Check that the free space during installation is sufficient according to the instructions in user's manual.

7) Check that the external connection terminals are tightly fastened and the torque is appropriate.

8) Check that there are no screws, cables and other conductive items left in the SRBU. if not, get them out.

3 Product Overview

3.1 Comprehensive Features

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	Higher than 0.9
Overload Capacity	60s with 150% of rated current
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: 790V/1185V
Over-Temperature	Temperature resistance detection
AC Side Phase Loss Fault	AC side phase loss
AC Side Frequency Fault	Fluctuation greater than 3Hz

3.2 Model Definition

Designation Key	Description
A	SRBU: Sourcetronic Regenerative Braking Unit
B	1: Technical version
C	00: Spare code
D	H: Heavy overload
E	Power Code; 055 means 55kW

F	4: AC 3PH 380V (-15%)–440V (+10%) 6: AC 3PH 520V (-15%)–690V (+10%)

3.3 Product Ratings

The rated power of SRBU100H is the motor power at 100% braking torque.

Table 3-1 Product Ratings

Frame	Model	Rated Capacity (kW)	Rated Current on DC Side (A)	Rated Current on AC Side (A)	Input Reactor	Regenerative Output Reactor
AC 3PH 380V(-15%)–440V(+10%)						
1	SRBU100H-022-4	22	37	30	GDL-ACL0051-4AL	GDL-ERL0030-4AL
	SRBU100H-030-4	30	51	40	GDL-ACL0070-4AL	GDL-ERL0050-4AL
	SRBU100H-045-4	45	77	60	GDL-ACL0110-4AL	GDL-ERL0060-4AL
2	SRBU100H-055-4	55	96	75	GDL-ACL0150-4AL	GDL-ERL0075-4AL
	SRBU100H-090-4	90	150	120	GDL-ACL0220-4AL	GDL-ERL0120-4AL
	SRBU100H-110-4	110	183	145	GDL-ACL0220-4AL	GDL-ERL0145-4AL
	SRBU100H-132-4	132	220	176	GDL-ACL0265-4AL	GDL-ERL0176-4AL
3	SRBU100H-160-4	160	267	213	GDL-ACL0330-4AL	GDL-ERL0213-4AL
	SRBU100H-200-4	200	333	266	GDL-ACL0390-4AL	GDL-ERL0292-4AL
	SRBU100H-250-4	250	417	330	GDL-ACL0500-4AL	ERL-250-4
AC 3PH 520V(-15%)–690V(+10%)						
2	SRBU100H-055-6	55	52	42	GDL-ACL0090-6AL	GDL-ERL0042-6AL
	SRBU100H-090-6	90	86	68	GDL-ACL0110-6AL	GDL-ERL0068-6AL
	SRBU100H-160-6	160	152	122	GDL-ACL0200-6AL	GDL-ERL0122-6AL
3	SRBU100H-200-6	200	190	152	GDL-ACL0250-6AL	GDL-ERL0167-6AL
	SRBU100H-315-6	315	300	230	GDL-ACL0400-6AL	GDL-ERL0230-6AL
	SRBU100H-400-6	400	400	330	GDL-ACL0480-6AL	GDL-ERL0330-6AL

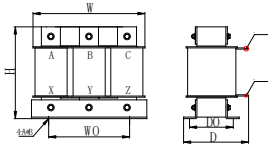
Note:

- The 380V 22–45kW SRBU comes standard with built-in energy regenerative output reactors. The 380V 55–250kW and 660V 55–400kW SRBUs come standard with external energy regenerative output reactors.
- Each SRBU100H has 1 standard input reactor.
- The input filter is optional. Select the input filter according to the rated parameters of the drive.
- The fuse is optional. See 9.3 DC Fuse Model Selection for details.

3.4 Reactor Dimensions

3.4.1 Input Reactor Dimensions

PictureA



PictureB

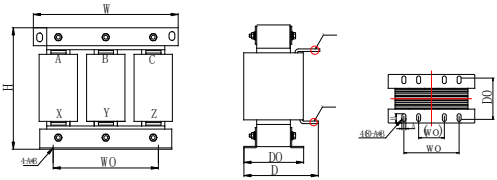
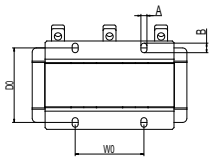
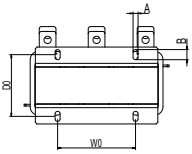


Table 3-2 Rated Parameters of 380V Input Reactor

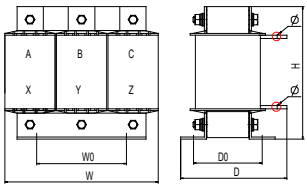
Model	Picture No.	Power (kW)	Rated Current (A)	Inductance (mH)	Net Weight (kg)	Loss (W)		Installation Dimensions (mm)				
						Copper Loss (W)	Iron Loss (W)	W*D*H	W0 (W0)	D0	A*B	Terminal Block Hole Diameter
GDL-ACL0051-4AL	A	22	51	0.24	3.88	59	8	168*138*138	120 (95)	72	8-6*15 (M5)	6-Ø8.5 (M8)
GDL-ACL0070-4AL		30	70	0.156	6.06	84	11	213*163*158	150 (120)	92	8-11*18 (M10)	6-Ø8.5 (M8)
GDL-ACL0110-4AL		45	110	0.094	8.22	105	25	208*163*143	150	88	4-11*18 (M10)	6-Ø8.5 (M8)
GDL-ACL0150-4AL		55	150	0.07	12.8	125	33	253*193*148	182 (150)	98	8-11*18 (M10)	6-Ø10.5 (M10)
GDL-ACL0220-4AL	B	90	220	0.056	19.7	145	35	248*174*228	214 (182)	98	8-11*18 (M10)	6-Ø11 (M10)
GDL-ACL0220-4AL		110	220	0.056	19.7	145	35	248*174*228	214 (182)	98	8-11*18 (M10)	6-Ø11 (M10)
GDL-ACL0265-4AL		132	265	0.048	20.95	160	40	248*180*231	214 (182)	103	8-11*18 (M10)	6-Ø11 (M10)
GDL-ACL0330-4AL		160	330	0.042	22.25	175	45	248*179*233	214 (182)	103	8-11*18 (M10)	6-Ø11 (M10)
GDL-ACL0390-4AL		200	390	0.036	25.3	200	54	248*196*249	214 (182)	108	8-11*18 (M10)	6-Ø12 (M10)
GDL-ACL0500-4AL		250	500	0.027	35.9	265	75	293*215*273	243	140	4-12*20 (M10)	6-Ø13 (M12)



Picture C



Picture D



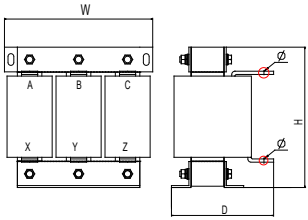


Table 3-3 Rated Parameters of 690V Input Reactor

Model	Picture No.	Power (kW)	Rated Current (A)	Inductance (mH)	Net Weight (kg)	Loss (W)		Installation Dimensions (mm)				
						Copper Loss (W)	Iron Loss (W)	W*D*H (max)	W0	D0	A*B	Terminal Block Hole Di-ameter
GDL-ACL0090-6AL	C	55	90	0.282	16.3	118.4	51.9	240*150*225	110	85	4-9*18 (M8)	6-Ø8.5 (M8)
GDL-ACL0110-6AL		90	110	0.23	20.4	123.4	68	240*175*225	110	100	4-9*18 (M8)	6-Ø9 (M8)
GDL-ACL0200-6AL	D	160	200	0.128	29.1	192.3	97.6	270*190*275	140	110	4-9*18 (M8)	6-Ø11 (M10)
GDL-ACL0250-6AL		200	250	0.102	32.1	216.7	90.3	270*190*275	140	110	4-9*18 (M8)	6-Ø11 (M10)
GDL-ACL0400-6AL		315	400	0.064	52.2	243.8	140.5	310*230*285	170	135	4-11*18 (M10)	12-Ø11 (M10)
GDL-ACL0480-6AL		400	480	0.053	70.1	374	211.8	370*235*380	190	135	4-13*26 (M12)	12-Ø11 (M10)

Note: Ø indicates the terminal block hole diameter of the reactor. M indicates the recommended screw size.

3.4.2 Regenerative Braking Reactor Dimensions

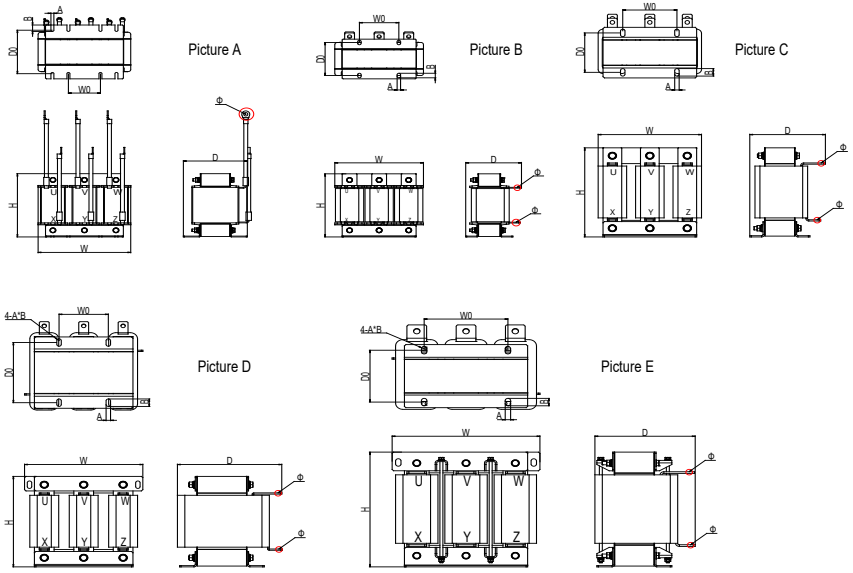


Table 3-4 Rated Parameters of 380V Regenerative Braking Output Reactor

Model	Picture No.	Power (kW)	Rated Current (A)	Inductance (mH)	Net Weight (kg)	Loss (W)		Installation Dimensions (mm)				
						Copper Loss (W)	Iron Loss (W)	W*D*H (max)	W0	D0	A*B	Terminal Block Hole Diameter
GDL-ERL0030-4AL	A	22	30	0.39	10.1	34.2	2.8	195*130*160	65	105	8-6*15.5 (M5)	3-ø8 (M6)
GDL-ERL0050-4AL		30	50	0.3	10.2	78.1	4.8	195*130*160	65	105	8-6*15.5 (M5)	3-ø8 (M6)
GDL-ERL0060-4AL		45	60	0.2	10.3	136.6	4.5	195*130*160	65	105	8-6*15.5 (M5)	3-ø8 (M6)
GDL-ERL0075-4AL	B	55	75	0.2	12	26.8	13.1	195*145*165	80	95	4-7*11 (M6)	6-ø8.5 (M8)
GDL-ERL0120-4AL	C	90	120	0.068	16.7	70.1	5.5	225*165*225	110	95	4-9*18 (M8)	6-ø9 (M8)
GDL-ERL0145-4AL		110	145	0.059	16.7	105.2	5.9	225*165*225	110	95	4-9*18 (M8)	6-ø9 (M8)
GDL-ERL0176-4AL		132	176	0.054	21.9	98.5	9.9	225*185*225	110	115	4-9*18 (M8)	6-ø11 (M10)
GDL-ERL0213-4AL	D	160	213	0.045	19.5	150.3	11.3	240*200*230	100	110	4-9*18 (M8)	6-ø11 (M10)
GDL-ERL0292-4AL		200	292	0.032	21.1	229.4	10.5	260*200*240	140	105	4-9*18 (M8)	6-ø13 (M12)
ERL-250-4		250	330	0.029	21.1	171.9	8.1	250*180*230	182	102	4-11*18 (M10)	6-ø12 (M10)

Table 3-5 Rated parameters of 690V regenerative braking output reactor

Model	Picture No.	Power (kW)	Rated Current (A)	Inductance (mH)	Net Weight (kg)	Loss (W)		Installation Dimensions (mm)				
						Copper Loss (W)	Iron Loss (W)	W*D*H (max)	W0	D0	A*B	Terminal Block Hole Diameter (ø)
GDL-ERL0042-6AL	B	55	42	0.38	8.2	56.2	4.7	190*125*165	80	80	4-7*11 (M6)	6-ø8.5 (M8)
GDL-ERL0068-6AL	C	90	68	0.36	23.1	64.3	9	230*175*225	110	115	4-9*18 (M8)	6-ø8.5 (M8)
GDL-ERL0122-6AL	D	160	122	0.195	29.3	142.3	20.8	240*230*230	100	145	4-9*18 (M8)	6-ø9 (M8)
GDL-ERL0167-6AL	E	200	167	0.38	39.3	363	36.4	300*245*250	170	130	4-11*18 (M10)	6-ø11 (M10)
GDL-ERL0230-6AL	D	315	230	0.106	31.6	228.7	18.7	260*210*240	140	125	4-9*18 (M8)	6-ø11 (M10)
GDL-ERL0330-6AL	E	400	330	0.077	44.5	311.8	20.8	300*220*290	170	125	4-11*18 (M10)	6-ø13 (M12)

Note: ø indicates the terminal block hole diameter of the reactor. M indicates the recommended screw size.

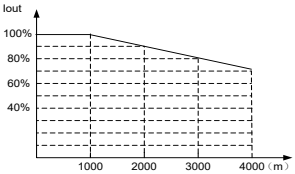
4 Installation Guidelines

	• Only trained and qualified professionals are allowed to carry out the operations mentioned in this chapter. Carry out operations according to instructions presented in 1 Safety Precautions. Ignoring these safety precautions may lead to physical injury or death, or device damage. • Ensure the power supply of the SRBU is disconnected before installation. if the SRBU has been powered on, wait for at least the time specified on the SRBU after the disconnection. It is recommended to use the multimeter to monitor that the DC bus voltage of the drive is under 36V. • The installation and design of the SRBU should be complied with the requirement of the local laws and regulations in the installation site. if the installation infringes the requirement, our company will exempt from any responsibility. if recommendations given by us are not followed, some damage beyond the assured maintenance range may occur.
	• Do not only hold the front cover during moving, otherwise the machine may fall.

4.1 Installation Environment

The installation environment is the safeguard for a full performance and long-term working of the SRBU. Check the installation environment as followings:

Environment	Condition
Installation Site	Indoor
Ambient Temperature	• -10–+40°C. It is not recommended to use the SRBU if the ambient temperature is above 40°C. • In order to improve the reliability of the device, do not use the SRBU if the ambient temperature changes frequently. • Provide a cooling fan or air conditioner to control the internal ambient temperature below the required one if the SRBU is used in a closed space such as in the control cabinet. • When the temperature is too low, if you want to use the SRBU that has been powered off for a long period, install an external heating device before the use to eliminate internal freezing. Otherwise, the SRBU may be damaged.
Humidity	• Relative humidity (RH): less than 90%. • No condensation is allowed. The max. RH should be equal to or less than 60% in corrosive air.
Storage Temperature	-30–+60°C
Running Environment Condition	The installation site should: • keep away from any electromagnetic radiation source; • keep away from oil mist, corrosive gas, and flammable gas; • ensure foreign objects, such as metal power, dust, oil, water cannot enter into the SRBU (do not install the SRBU on the flammable materials such as wood); • keep away from radioactive or flammable materials;

	• keep away from hazard gases or liquids; • keep away from low salt content; • keep away from direct sunlight;
Altitude	When the altitude exceeds 1000m, derate 1% for every additional 100m.  Iout 100% 80% 60% 40% 1000 2000 3000 4000（m）
Vibration	Max. Vibration amplitude: less than 5.8m/s^2 (0.6g).
Installation Direction	Install the product vertically to ensure good heat dissipation performance.

Note:

- The SRBU100H series products must be installed in a clean and well-ventilated environment based on the housing IP rating.
- The cooling air must be clean enough and free from corrosive gases and conductive dust.

4.2 Installation Direction

SRBU100H can be installed on the wall or in a cabinet. SRBU100H must be installed in an upright position. For details about the outline dimensions, see 10 Dimensions.

4.3 Installation Procedures

1) Mark the positions of the installation holes. For details about the hole positions, see 10 Dimensions.
2) Install screws or bolts at the marked positions.
3) Position the SRBU against the wall.
4) Tighten the fastening screws on the wall.

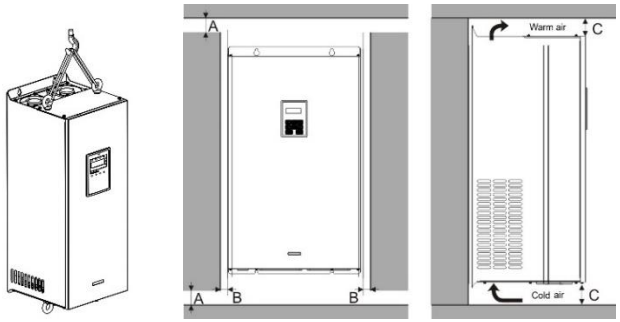


Figure 4-1 Installation Distance

Note: The minimum space of B and C is 100mm.

4.3.1 Vertical Installation of Multiple Units

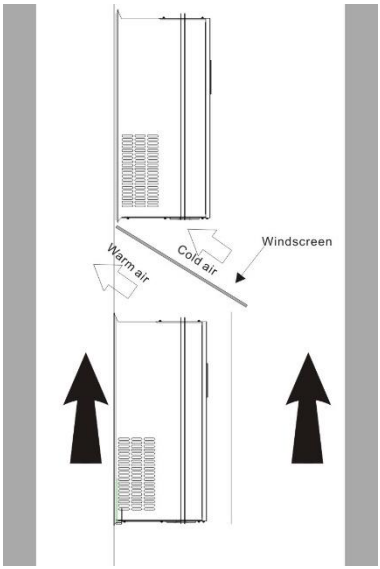


Figure 4-2 UP/DOWN Installation

Note: Windscreen should be added in vertical installation for avoiding mutual impact and insufficient cooling.

4.4 Terminals and Function

4.4.1 Terminals of the Main Circuit

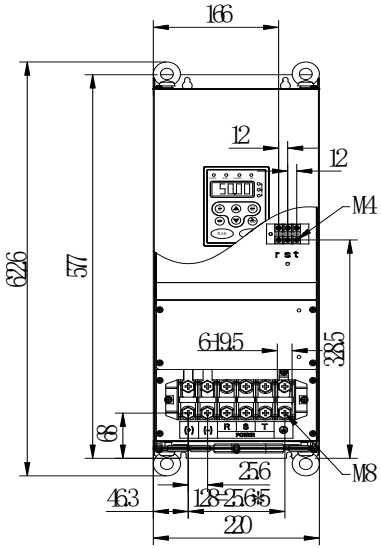


Figure 4-3 Main Circuit Terminal Diagram for 380V 22–45kW

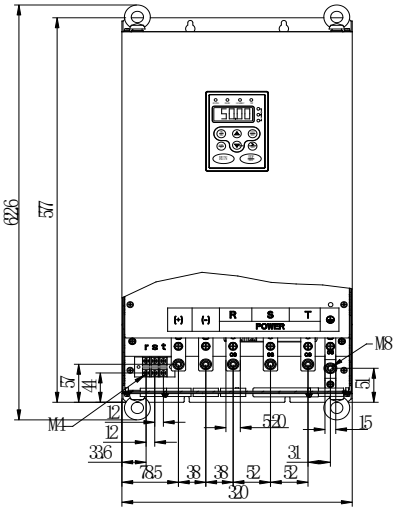


Figure 4-4 Main Circuit Terminal Diagram for 380V 55–110kW and 660V 55–160kW

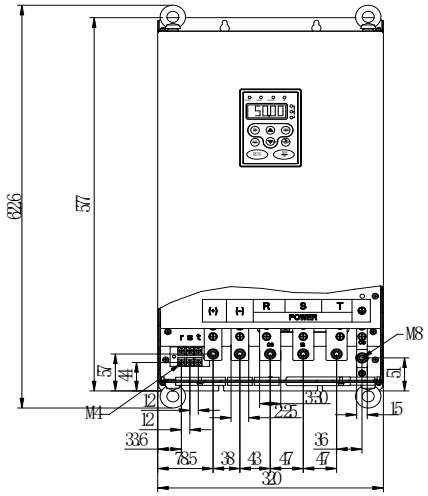


Figure 4-5 Main Circuit Terminal Diagram for 380V 132kW

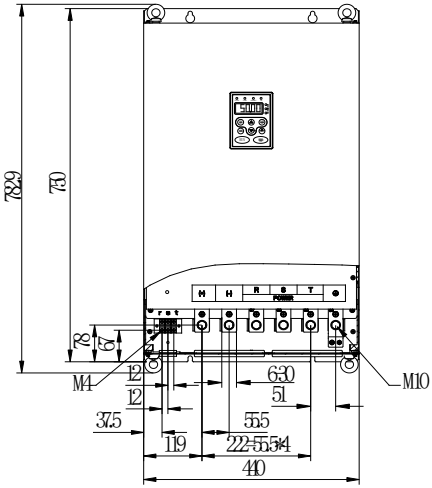


Figure 4-6 Main Circuit Terminal Diagram for 380V 160–250kW and 660V 200–400kW

Note: The lifting rings on the machine are removable.

4.4.2 Description of Main Circuit Terminals:

The functions of the main circuit terminals are described as follows:

Terminal	Function
r, s, t	Connect to a three-phase power supply

(+), (-)	Input terminals of SRBU
R, S, T	Connect to the regenerative output reactor or the drive
⏚	Grounding terminal (PE)

The main circuit of SRBU100H is very simple. When using this series of products in conjunction with a drive, connect the terminals "(+)" and "(-)" of the SRBU to the positive and negative poles of the drive; connect the terminals "R", "S" and "T" of the SRBU to the power supply of the drive input end directly or by means of output reactor; connect the terminals "r", "s" and "t" of the SRBU to the grid.

⚠	• It is necessary to use an external reactor on SRBU100H (the SRBU of 380V 22–45kW has internal reactor). The reactor terminals must match the SRBU terminals; otherwise the damage to SRBU and fire may occur. • During wiring, pay attention to the polarity of the DC input terminals (+) and (-) of the SRBU100H; otherwise the damage to the SRBU and fire may occur. • The "r", "s" and "t" of the SRBU connect to 3PH power terminals "R", "S", and "T" respectively (see 4.4.1 Terminals of the Main Circuit for details). Otherwise, breaker tripping or SRBU fault or even damage may occur.
⚠	Ground the PE terminal of the SRBU to avoid physical injuries.

4.4.3 Description of Control Circuit Terminals:

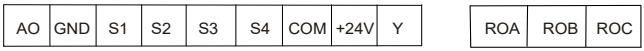


Figure 4-7 Terminals of the Control Circuit

The functions of the control circuit terminals are as follows:

Terminal	Function
S1–S4	Digital input terminal Forms the optical coupler isolation input with +24V and COM, effective when shorted to COM. • S1: Valid in terminal control. Automatic input. • S2: Valid in terminal control. Manual input. • S3: Multi-function terminal (as external fault input by default). • S4: Multi-function terminal (as fault reset input by default).
Y	Open-collector output terminal, with COM as the common terminal. **External Voltage Range:** 0–24V **Output Current Range:** 0–50mA
+24V	+24V power supply for the local device (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, ROB, ROC	RO relay output • ROA: common terminal • ROB: NC • ROC: NO **Contactor Capability:** AC250V/3A, DC30V/1A

4.5 Standard Wiring

4.5.1 Basic Principles

The SRBU100H series regenerative braking units are energy-saving devices that convert the braking energy generated by motors into AC power with the same frequency and phase as the grid, and feed it back to the power system. The following diagram shows the main circuit of the SRBU100H series regenerative braking units.

When using the system, you must connect the standard input reactor to the input side of the drive. Connect the DC bus of the SRBU100H to the DC bus of the drive. Then, connect the standard regenerative reactor between the output side of the SRBU and the input side of the drive.

When the regeneration conditions are met, the SRBU100H will convert the returned energy into AC power with the same frequency and phase as the grid and feed it back to the grid.

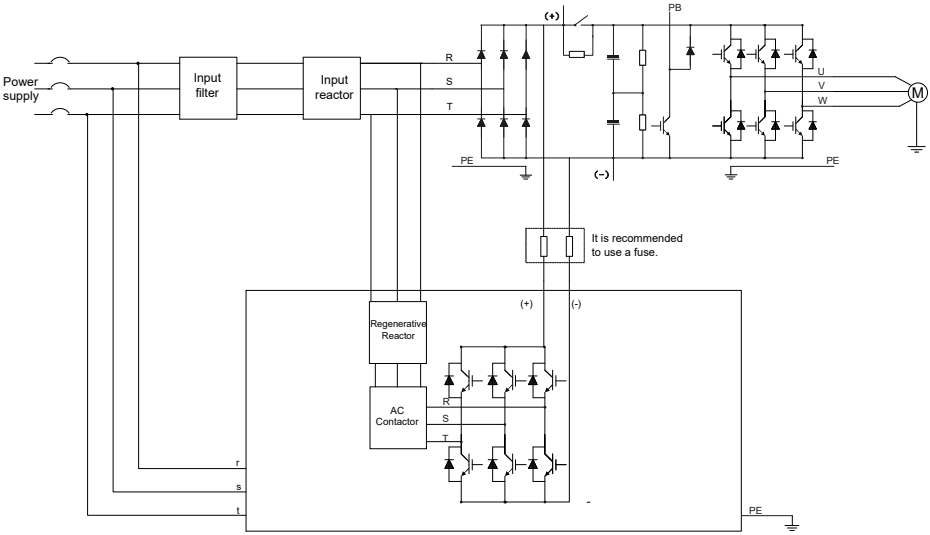


Figure 4-8 Main Circuit Diagram

4.5.2 Standard Wiring

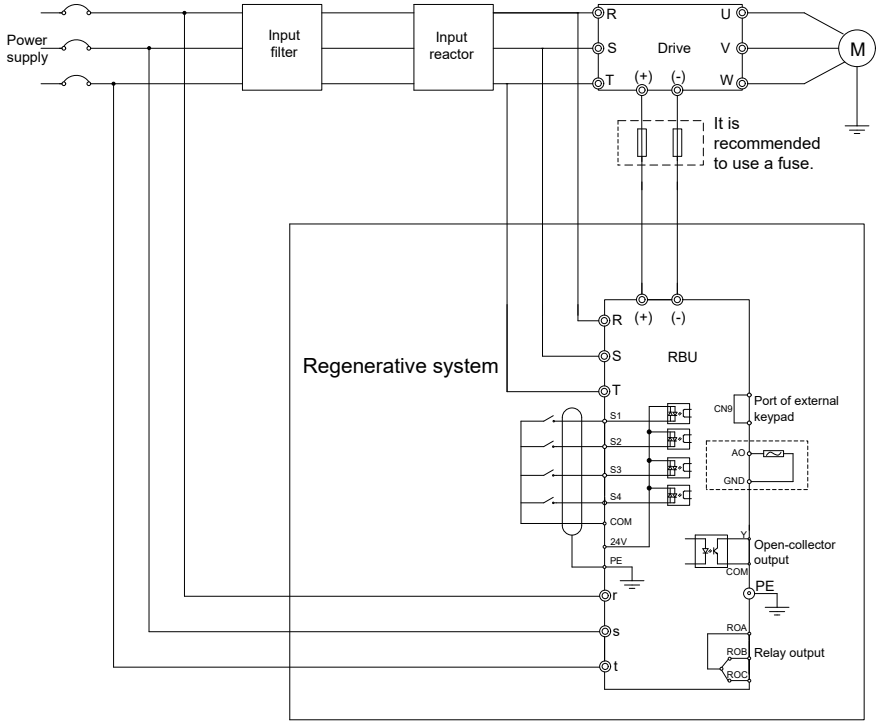


Figure 4-9 Standard Wiring of SRBU 380V 22–45kW

Note:

- The 380V 22–45kW SRBU has built-in energy regenerative output reactors.
- Input reactors are standard parts.
- The input filter is optional. Select the input filter according to the rated parameters of the drive.
- The fuse is optional. See 9.3 DC Fuse Model Selection for details.
- The r, s, and t are used for grid phase detection and should be connected to the grid side.

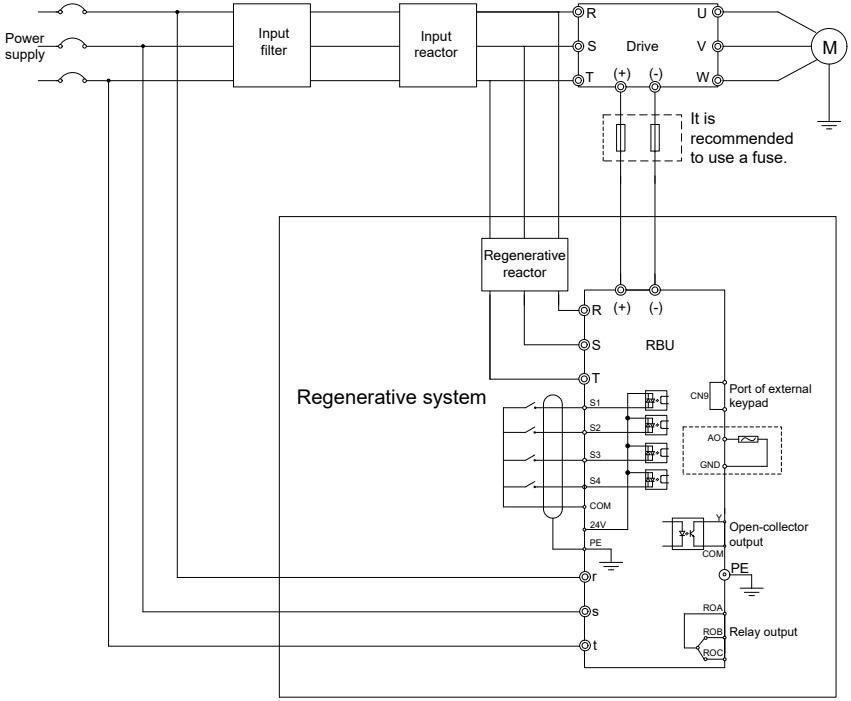


Figure 4-10 Standard Wiring of SRBU 380V 55–250kW and 660V 55–400kW

Note:

- Standard energy regenerative output reactors and input reactors are provided for SRBU 380V 55–250kW and 660V 55–400kW.
- The input filter is optional. Select the input filter according to the rated parameters of the drive.
- The fuse is optional. See 9.3 DC Fuse Model Selection for model selection.
- The r, s, and t are used for grid phase detection and should be connected to the grid side.

4.6 Parallel Wiring

4.6.1 SRBU100H Parallel Wiring (Master-Slave Configuration)

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

Master Setting Steps:

1) P0.17=2 (regenerative operation).

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

3) The master can be set to manual mode or automatic mode.

Slave Setting Steps:

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

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

3) The slave should be set to manual mode (when S2 is valid).

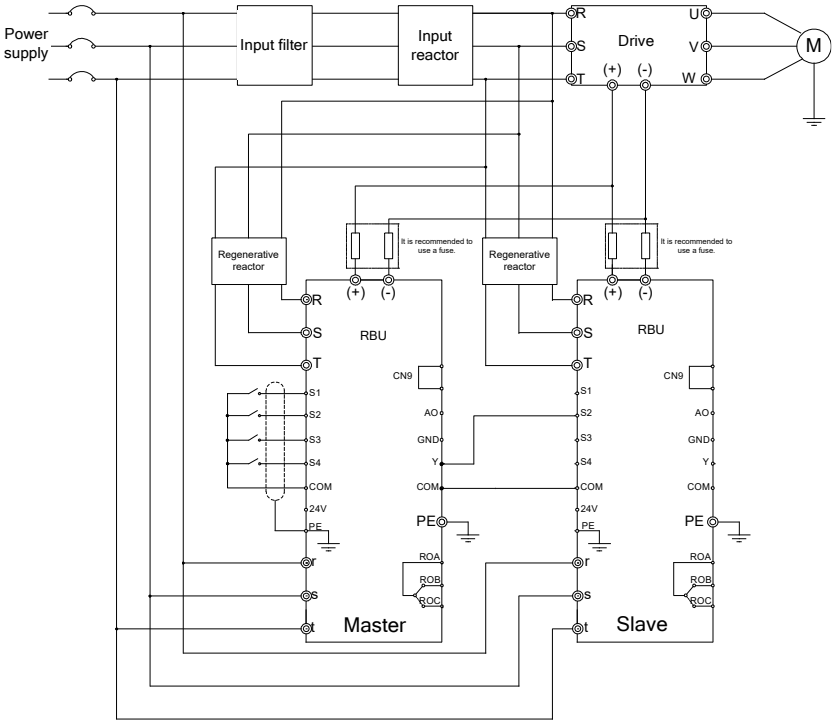


Figure 4-11 Parallel Wiring 1 of SRBU100H

Connection Instruction: Make the first SRBU the master and others the slave in parallel connection. Connect the Y and COM terminal of the first SRBU to the S2 and COM terminal of the second one, third one and so on.

Note:

- The 380V 22–45kW SRBU has built-in energy regenerative output reactors. The 380V 55–250kW and 660V 55–400kW SRBUs come standard with energy regenerative output reactors.
- Each SRBU100H comes standard with one input reactor. When operating in parallel, you can select input reactors according to the rated parameters of the matched drive, or you can connect the standard input reactors in parallel for use.
- The input filter is optional. Select the input filter according to the rated parameters of the drive.
- The fuse is optional. See 9.3 DC Fuse Model Selection for model selection.

- Derate 90% of the SRBU100H in parallel connection.
- If three SRBU100H units need to be operated in parallel, contact us for technical support.

4.6.2 SRBU100H Parallel Wiring (No Master and Slave)

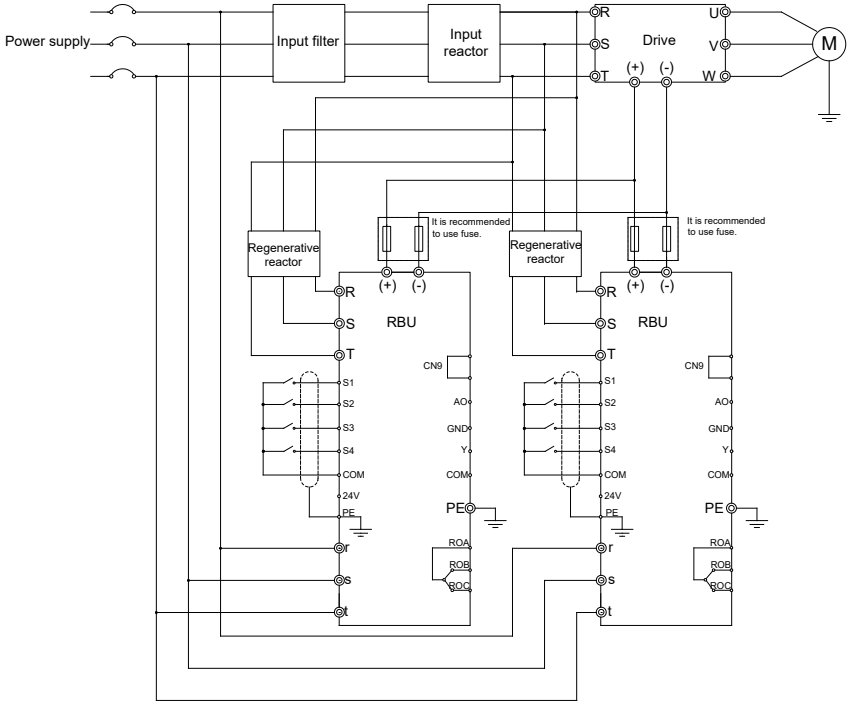


Figure 4-12 Parallel Wiring 2 of SRBU100H

Note:

- The master and the slave should be set to manual mode.
- The 380V 22–45kW SRBU has built-in energy regenerative output reactors. The 380V 55–250kW and 660V 55–400kW SRBUs have standard energy regenerative output reactors.
- Each SRBU100H comes standard with one input reactor. When operating in parallel, you can select input reactors according to the rated parameters of the matched drive, or you can connect the standard input reactors in parallel for use.
- The input filter is optional. Select the input filter according to the rated parameters of the drive.
- The fuse is optional. See 9.3 DC Fuse Model Selection for model selection.
- Derate 90% of the SRBU100H in parallel connection.
- If three SRBU100H units need to be operated in parallel, contact us for technical support.

4.6.3 Drive Parallel Wiring (Common DC Bus)

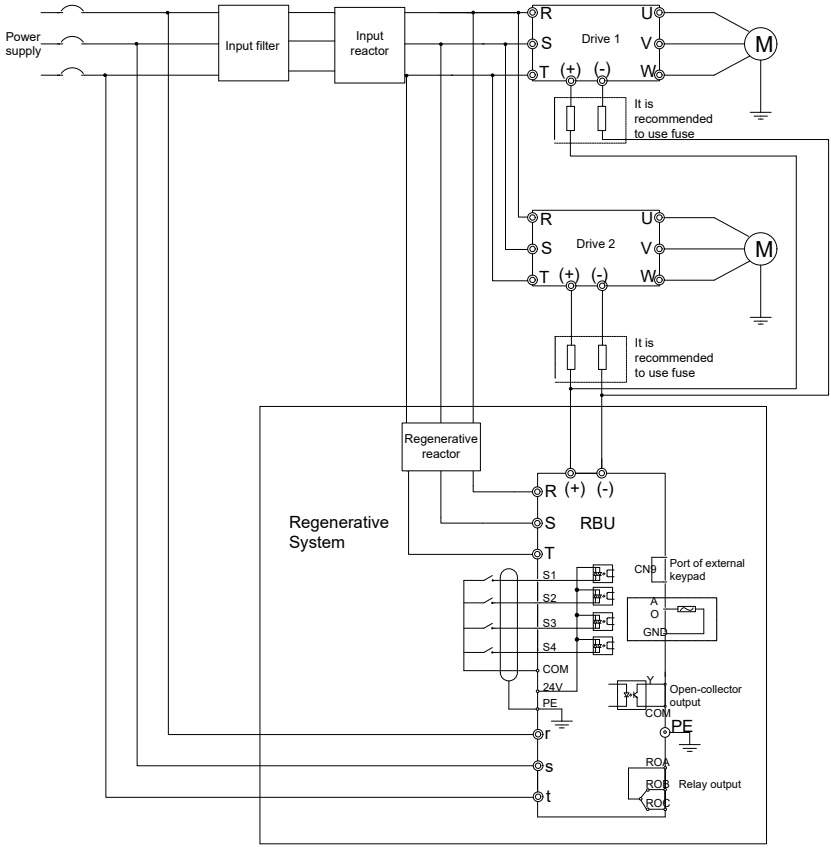


Figure 4-13 Drive Parallel Wiring

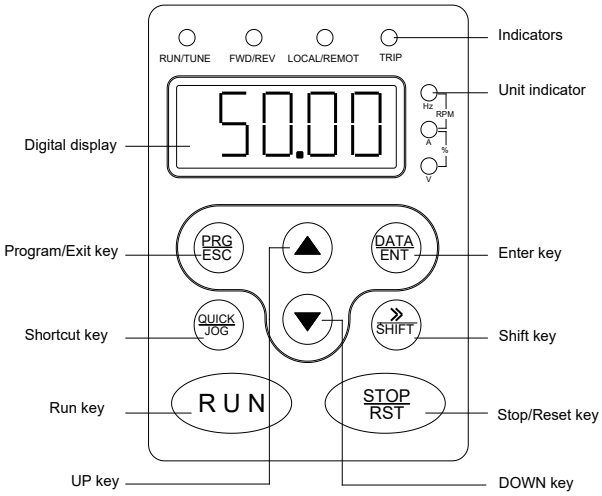
Note:

- The input reactor is a standard accessory and must be used together with the SRBU.
- When sharing a common DC bus, a drive with the same or similar power rating must be used. The output line of the SRBU should be connected to the output side of the input reactor.
- The input filter is an optional accessory; select the appropriate input filter according to the total power of the matched drive.
- The fuse is an optional accessory and must be selected at 1.5 to 2 times the DC bus current of the drive.
- The input voltage class of the SRBU must be consistent with that of the drive, and the rated power of the SRBU must be greater than or equal to the maximum regenerative power generated during motor braking.

5 Keypad Operation

5.1 Keypad

5.1.1 Keypad Diagram



5.1.2 Button Function Descriptions

Button	Name	Function
PRG ESC	Program Key	Enter or escape from the first level menu to delete the parameter quickly
DATA ENT	Enter Key	Progressively enter menu and confirm parameters.
▲	UP Key	Progressively increase data or function codes.
▼	DOWN Key	Progressively decrease data or function codes.
>> SHIFT	Shift Key	Scroll through display parameters in stopped or running state. Select digits to change during parameter setting.
RUN	Run Key	Press it to run when using the keypad for control.
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.

5.1.3 Indicators

Table 5-1 Indicator Description

Indicator	Description
RUN/TUNE	**Off:** The SRBU is in stopped state. **On:** The SRBU is in running state.
LOCAL/REMOT	Indicator indicating which method (the keypad, terminals, or remote communication) is used for control. **Off:** The keypad is used for control. **Blinking:** Terminals are used for control. **On:** Remote communication is used for control.
TRIP	Fault indicator **Off:** The machine is in normal state. **On:** The machine is in fault state.
FWD/REV	Regeneration status indicator **Off:** Regeneration stopped **On:** SRBU regeneration in operation

Table 5-2 Unit Indicator Description

Symbol	Description
Hz	Frequency unit
A	Current unit
V	Voltage unit
RPM	Rotation speed unit
%	Percentage
	Temperature

Digital Display:

5-digit LED, which can display all kinds of monitoring data and alarm codes such as bus voltage, grid voltage, output current, and temperature.

6 Function Parameters

6.1 Function Code

Code	Name	Description	Default	Modify
P0.00	Control Mode	0–1 0: Keypad 1: Terminal control (S1 valid: automatic mode; S2 valid: manual mode)	1	◎
P0.01	Keypad Control Mode	0–1 0: Automatic mode 1: Manual mode	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-Dependent	○
P0.05	Regenerative Voltage Difference During Stopping	**Range:** 0.0–120.0V 380V voltage class: 10.0V 660V voltage class: 15.0V	Model-Dependent	○
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: Valid after S3 and COM are short-circuited. Others are reserved.	3 (External Fault)	◎
P0.09	S4 Function	1–15 2: Valid after S4 and COM are short-circuited. Others are reserved.	2 (Fault Reset)	◎
P0.10	Reserved	–	–	–
P0.11	AO Output	0–8 0: DC bus voltage (0–1000V/1500V/3000V) 1: Output current (0–200.0%) 2–8: reserved	1	○
P0.12	Lower Limit of AO Output	0.0%–100.0%	0.0%	○

P0.13	Corresponding Output of Lower Limit of AO	0.00V–10.00V	0.00V	○
P0.14	Upper Limit of AO Output	0.0%–100.0%	100.0%	○
P0.15	Corresponding Output of Upper Limit of AO	0.00V–10.00V	10.00V	○
P0.16	Running Mode of the Cooling Fan	0–1 0: Operate after starting 1: Start when the temperature of the heat sink exceeds 45°C	1	○
P0.17	Y Switch Output Selection	0–15	0	○
P0.18	Relay Output	0: No output 1: Running command valid 2: Regenerative output 3: Reserved 4: Fault output 5–15: reserved	4	○
P0.19	Undervoltage Protection	Range: 300.0–1500.0V 380V voltage class: 380.0V 660V voltage class: 470.0V	Model-Dependent	○
P0.20	Fault Reset Count	0–3	0	◎
P0.21	Fault Reset Time	0.1–10.0s	3.0s	◎
P0.22	Reserved	–	–	–
P0.23	Regenerative Current Limit Point	100–500	330	◎
P0.24	Running Time	0–XXXXXH	–	●
P0.25	Function Parameters Reset/Fault History Clear	0–2 0: No Change 1: Restore to default values 2: Clear fault history	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)	0	●
P0.28	2nd-Last Fault Type		0	●
P0.29	Last Fault Type		0	●
P0.30	Present Fault Type		0	●

		10: Reserved 11: Reserved 12: Overload (OL2) 13: Reserved 14: Input power S 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: Parameter setting fault (PEr)		
P0.31	Output Current at Present Fault	–	–	●
P0.32	Bus Voltage at Present Fault	–	–	●
P0.33	Parameter Locking	0–1 0: Null 1: Lock	0	○
P1.00	Factory Password	0–65535	*****	◎

6.2 Detailed Function

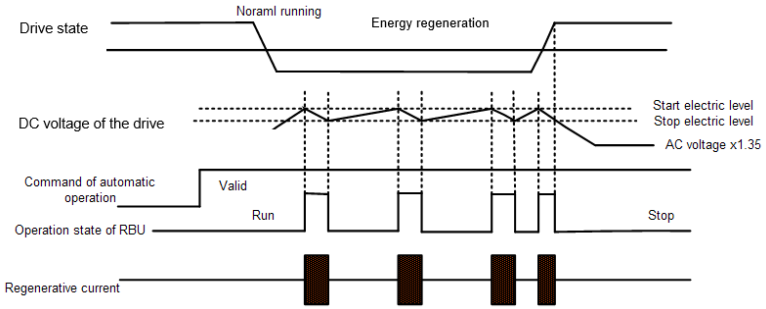
Code	Name	Description	Default
P0.00	Control mode	0–1 0: Keypad 1: Terminal control (S1 valid: automatic mode; S2 valid: manual mode)	1
P0.01	Keypad control mode	0–1 0: Automatic mode 1: Manual mode	0

Automatic Mode:

In automatic running, the SRBU detects the bus voltage and automatically starts or stops running.

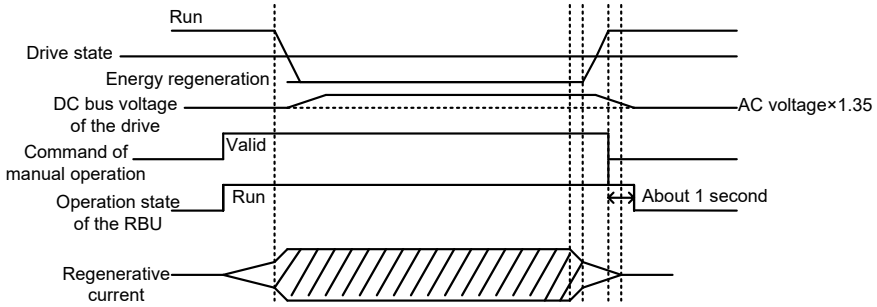
When "Drive bus voltage" minus "Standard bus voltage" exceeds the set value of "Regenerative voltage difference during starting (P0.04)", regeneration starts.

When "Drive bus voltage" minus "Standard bus voltage" is less than the set value of "Regenerative voltage difference during stopping (P0.05)", regeneration stops.



Manual Mode:

When the run command is given, the SRBU keeps feeding back power.



7 Fault Analysis and Solutions

The fault is indicated by keypad indicators. When the TRIP indicator is on, the SRBU is in an abnormal state. At the same time, fault information will flash on the keypad display.

Refer to the table below to check the possible faults in order. Most fault causes and their corresponding solutions can be identified this way. if you cannot find out the causes of alarms or faults, contact the local Sourcetronic office.

Fault Code	Fault Type	Fault Cause	Solution
OUt3	Inverter Unit Fault	• 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	Overcurrent During Running	• Sudden change or abnormality in regenerative energy. • The power of the SRBU is too small.	• Check whether the wiring of the phase detection signals r, s, and t corresponds to the main circuit terminals R, S, and T. • Select a SRBU with larger power. • Ask for technical support.
OV3	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.
OL2	SRBU Overload	• The regenerative energy voltage threshold is set too low. • Abnormal change in regenerative energy. • The power of the regenerative energy unit is too small.	• Reset the regenerative energy voltage threshold. • Reduce sudden changes of regenerative energy. • Select a regenerative energy unit with larger power. • Ask for technical support.
SPO	Input Power Phase Loss	Power failure on the AC side.	• Check the input power on AC side. • Ask for technical support.
OH2	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	External Fault	S3 external fault input terminal acts.	• Check external device input. • Ask for technical support.
ItE	Current Detection Circuit Fault	Poor contact of the connector of control board.	• Check the connector and re-plug. • Ask for technical support.
EEP	EEPROM Read/Write Fault	• Error in reading or writing control parameters. • EEPROM is damaged.	• Press STOP/RST to reset. • Ask for technical support.
CP	Control Power Fault	Auxiliary power is damaged.	Ask for technical support.
PEr	Incorrect Parameter Setting	–	–

	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!

8 Maintenance and Hardware Fault Diagnosis

8.1 Periodical Inspection

Little maintenance is required when the SRBU is installed in an environment that meets requirements. The following table describes the routine maintenance periods recommended by us.

Scope		Item	Method	Expected Result
Ambient Environment		Check the temperature, and humidity, and whether there is vibration, dust, gas, oil spray, and water droplets in the environment.	Visual inspection and instrument measurement	The requirements stated in this manual are met.
		Check whether there are foreign matters, such as tools, or dangerous substances placed nearby.	Visual inspection	There are no tools or dangerous substances placed nearby.
Voltage		Check the voltage of the main circuit and control circuit.	Use multimeters or other instruments for measurement	The requirements stated in this manual are met.
Main Circuit	Common	Check whether bolts are loose or fall off.	Screw them up	No exception occurs.
		Check whether the machine or original machine body is deformed, cracked, or damaged, or their color changes due to overheating and aging.	Visual inspection	No exception occurs.
		Check whether there are stains and dust attached.	Visual inspection	No exception occurs. **Note:** Discoloration of copper bars does not mean that they cannot work properly.
	Conductor And Wire	Check whether conductors are deformed or color change for overheat.	Visual inspection	No exception occurs.
		Check whether the wire sheaths are cracked or their color changes.	Visual inspection	No exception occurs.
	Terminal Block	Check whether there is damage.	Visual inspection	No exception occurs.
	Resistor	Check whether there is displacement or the original machine body is cracked caused due to overheat.	Smell and visual inspection	No exception occurs.

		Check whether there are any broken wires.	Visual inspection, or remove one end of the connection cable and use a multimeter for measurement.	Resistance range: ±10% (of the standard resistance)
Control Circuit	Control PCB And Connector	Check whether the screws and connectors are loose.	Screw them up.	No exception occurs.
		Check whether there is unusual smell or discoloration.	Olfactory and visual inspection	No exception occurs.
		Check whether there are cracks, damage, deformation, or rust.	Visual inspection	No exception occurs.
		Check whether there is electrolyte leakage or deformation.	Visual inspection, and determine the service life based on the maintenance information.	No exception occurs.
Cooling System	Cooling Fan	Check whether there are unusual sounds or vibration.	Auditory and visual inspection, and turn the fan blades with your hand.	The rotation is smooth.
		Check whether the bolts loose.	Screw them up.	No exception occurs.
		Check whether there is decoloration caused due to overheating.	Visual inspection, and determine the service life based on the maintenance information.	No exception occurs.
	Ventilation Duct	Check whether there are foreign matters blocking or attached to the cooling fan, air inlets, or air outlets.	Visual inspection	No exception occurs.

For more details about maintenance, contact our office or visit our website.

8.2 Cooling Fan

The SRBU's cooling fan has a minimum life span of 25,000 operating hours. The actual life span depends on the SRBU usage and ambient temperature.

The increase of the bearing noise indicates a fan fault. if the SRBU is applied in a key position, replace the fan once the fan starts to generate unusual noise. You can purchase spare fans from Sourcetronic.

8.2.1 Cooling Fan Replacement

⚠	**Read Chapter 1 Safety Precautions carefully and follow the instructions to perform operations!** Ignoring the instructions may cause physical injury or death, or damage to the equipment.

1) Stop and disconnect the power supply and wait for at least the time designated on the SRBU.
2) Use a screwdriver to pry the fan mounting plate up from the cabinet and lift the fan mounting plate upward.
3) Open the cable clamp to loose the fan cable.
4) Remove the fan cable.
5) Remove the fan installation plate.
6) Install the new fan holder including the fan in reverse order.
7) Restore power.

8.3 Capacitor

8.3.1 Reforming the Capacitors

If the SRBU has been left unused for a long time, you need to follow the instructions to reform the DC bus capacitor before using it. The storage time is calculated from the date the SRBU is delivered.

Time	Operating Principle
Less than 1 year	No charging operation is required.
1 to 2 years	The SRBU needs to be powered on for 1 hour before the first running command.
2 to 3 years	Use a voltage controlled power supply to charge the SRBU: • Add 25% rated voltage for 30 minutes • Add 50% rated voltage for 30 minutes • Add 75% rated voltage for 30 minutes • Add 100% rated voltage for 30 minutes
More than 3 years	Use a voltage controlled power supply to charge the SRBU: • Add 25% rated voltage for 2 hours • Add 50% rated voltage for 2 hours • Add 75% rated voltage for 2 hours • Add 100% rated voltage for 2 hours

The method of using a voltage controlled power supply to charge the SRBU:

The selection of a voltage controlled power supply depends on the supply power of the SRBU. For the SRBU with single/three-phase 220V AC as its input voltage, you can use a single-phase 220V AC/2A voltage controlled power supply. Single-phase or three-phase SRBU can be charged by a single-phase voltage controlled power supply (connect L+ to R, and N to S or T). All DC bus capacitors charge at the same time because they share a common rectifier.

High-voltage SRBU needs enough voltage (for example, 380V) during charging. The small capacitor power (2A is enough) can be used because the capacitor nearly does not need current when charging.

The method of using a resistor (incandescent lamp) to charge the SRBU:

The charging time is at least 60 minutes if you directly charge the DC bus capacitor of the drive device through supply power. The charging operation must be performed at a normal indoor temperature without any connected load, and you must connect a resistor in series within the three-phase power supply circuit.

For a 380V drive device, use a resistor of 1kΩ/100W. if the voltage of the power supply is no higher than 380V, you can also use an incandescent lamp of 100W. if an incandescent lamp is used, it may go off or the light may become very weak.

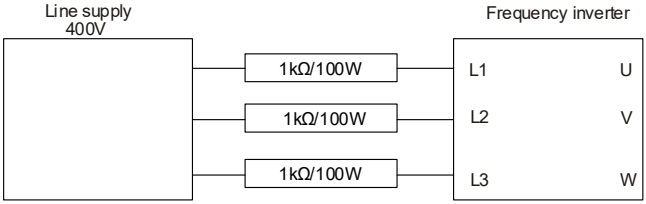


Figure 8-1 Charging Circuit Example for 380V Drive Device

8.3.2 Replace Electrolytic Capacitors

⚠	**Read Chapter 1 Safety Precautions carefully and follow the instructions to perform operations!** Ignoring the instructions may cause physical injury or death, or damage to the equipment.

Replace electrolytic capacitors if the working hours of electrolytic capacitors in the SRBU are above 35000. For details about the replacement, contact the local Sourcetronic office.

9 Model Selection

⚠	**Read Chapter 1 Safety Precautions carefully and follow the instructions to perform operations!** Ignoring the instructions may cause physical injury or death, or damage to the equipment.

1) Stop the device, disconnect the power supply, and wait for a time no shorter than the waiting time designated on the SRBU.

2) Check the tightness of the power cable connections.

3) Connect to the power.

9.1 SRBU Model Selection

The SRBU is an energy-saving device that feeds the power from the drive back into the grid. in general, the following guidelines can be used for model selection:

- The input voltage class of the SRBU must match that of the drive.
- The regenerative power capacity of the SRBU must be greater than or equal to the maximum regenerative power generated during motor braking.
- The selection of the SRBU also depends on the drive and the driven load. in most cases, a SRBU with the same power rating as the drive is recommended.

9.2 Cable Selection

Cables mainly include power cables and control cables. For the selection of cable types, see the following table.

Cable Type		Symmetrical Shielded Cable	Four-Core Cable	Twisted-Pair Double-Shielded Cable	Twisted-Pair Single-Shielded Cable
Power Cable	Input Power Cable	✓	–	–	–
	Motor Cable	✓	–	–	–
Control Cable	Analog Signal Control Cable	–	–	✓	–
	Digital Signal Control Cable	–	–	✓	✓

9.2.1 Power Cable

Power cables mainly include input power cables and motor cables. Comply with local regulations to select cables.

To meet the EMC requirements stipulated in the CE standards, it is recommended to use symmetrical shielded cables as input motor cables and power cables, as shown in the following figure. Compared with four-core cables, symmetrical shielded cables can reduce electromagnetic radiation as well as the current and loss of the motor cables.

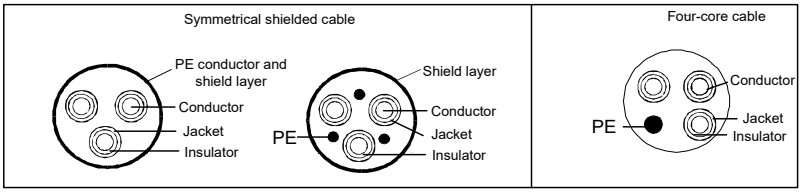


Figure 9-1 Symmetrical Shielded Cables and Four-Core Cables

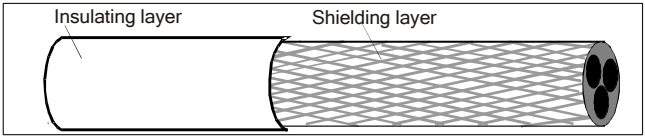


Figure 9-2 Cable Cross Section

Note:

- The input power cables and motor cables must be able to carry the corresponding load currents.
- The minimum requirements for motor cables are shown in Figure 8-3. The cable contains a layer of spiral-shaped copper strips. The denser the shield layer is, the more effectively the electromagnetic interference is restricted.
- The cable conductor temperature limit is 70°C. if you use a cable with the conductor temperature limit of 90°C, the cable must comply with relevant national standards and specifications.
- If the electrical conductivity of the motor cable shield layer does not meet the requirements, a separate PE conductor must be used.
- When the shielded cable and phase conductor are of the same material, the cross-sectional area of the shielded cable must be the same as that of the phase conductor.
- To effectively restrict the emission and conduction of radio frequency (RF) interference, the shielded cable must have a conductivity of at least one-tenth that of the phase conductor. This requirement can be well met by a copper or aluminum shield layer.

Table 9-1 Cable Selection

Model	(+), (-)		R, S, T,		PE	Fastening torque (Nm)
	Recommended Cable Size (mm^2)	Recommended Terminal Model	Recommended Cable Size (mm^2)	Recommended Terminal Model	Recommended Cable Size (mm^2)	
AC 380V						
SRBU100H-022-4	10	GTNR10-8	6	GTNR6-8	4	9-11
SRBU100H-030-4	16	GTNR16-8	10	GTNR10-8	6	9-11
SRBU100H-045-4	25	GTNR25-8	16	GTNR16-8	10	9-11

SRBU100H-055-4	35	GTNR35-8	25	GTNR25-8	16	9-11
SRBU100H-090-4	70	GTNR70-8	50	GTNR50-8	25	9-11
SRBU100H-110-4	95	GTNR95-8	70	GTNR70-8	35	9-11
SRBU100H-132-4	95	GTNR95-8	70	GTNR70-8	35	9-11
SRBU100H-160-4	150	GTNR150-10	95	GTNR95-10	50	31-40
SRBU100H-200-4	185	GTNR185-10	150	GTNR150-10	70	31-40
SRBU100H-250-4	2*120	GTNR120-10	185	GTNR185-10	95	31-40
AC 660V						
SRBU100H-055-6	16	GTNR16-8	10	GTNR10-8	6	9-11
SRBU100H-090-6	25	GTNR25-8	25	GTNR25-8	16	9-11
SRBU100H-160-6	70	GTNR70-8	50	GTNR50-8	25	9-11
SRBU100H-200-6	95	GTNR95-10	70	GTNR70-10	35	31-40
SRBU100H-315-6	150	GTNR150-10	120	GTNR120-10	70	31-40
SRBU100H-400-6	2*120	GTNR120-10	185	GTNR185-10	95	31-40

Note:

- The cables recommended for the main circuit can be used in scenarios where the ambient temperature is lower than 40°C, the wiring distance is shorter than 100m, and the current is the rated current.
- The r, s, and t are used for the control power supply circuit. 2.5 mm² cables are sufficient.

9.2.2 Crimp Terminal Selection

Due to factors such as long cable length or installation requirements, the cable cross-sectional area may need to be increased, and the corresponding wiring terminals (crimp terminals) must be replaced accordingly.

For GTNR cables, copper tube terminals are recommended as a reference.

The terminal models vary by brand, and the manufacturer's model specifications shall prevail.

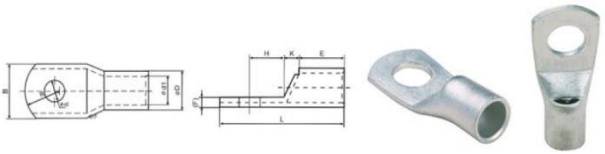


Figure 9-3 Copper Tube Terminal for GTNR Cable

9.2.3 Control Cable

Control cables mainly include analog signal control cables and digital signal control cables. Analog signal control cables use twisted-pair double-shielded cables (see Figure A), with a separate pair of twisted-pair shielded cables for each signal and different ground wires for different analog signals.

For digital signals, a double-shielded cable is preferred, but single-shielded or unshielded twisted pairs can also be used (see Figure B).

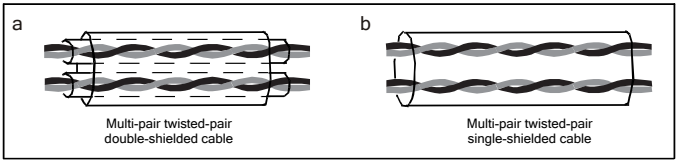


Figure 9-4 Control Cable Routing

Note:

- Analog signal cables and digital signal cables must be transmitted with separate shielded cables.
- Do not mix 24V DC and 115/230V AC signals within the same cable.
- For frequency signals, only shielded cables can be used.
- A relay cable needs to carry the metal braided shield layer.
- For control cable terminals, refer to the selection guide for crimp terminals, specifically the GTVE series terminals.

9.3 DC Fuse Model Selection

Model	Fuse Current (A)	Reference Model	Reference Brand
AC 3PH 380V Models			
SRBU100H-022-4	63	170M1565 gR 690V 63A	BUSSMANN
SRBU100H-030-4	80	170M1566 aR 690V 80A	BUSSMANN
SRBU100H-045-4	125	170M1568 aR 690V 125A	BUSSMANN
SRBU100H-055-4	160	170M1569 aR 690V 160A	BUSSMANN
SRBU100H-090-4	250	170M3816 aR 690V 250A	BUSSMANN
SRBU100H-110-4	315	170M3817 aR 690V 315A	BUSSMANN
SRBU100H-132-4	350	170M4461 690V aR 350A	BUSSMANN
SRBU100H-160-4	450	170M4463 690V aR 450A	BUSSMANN
SRBU100H-200-4	500	170M4464 690V aR 500A	BUSSMANN
SRBU100H-250-4	700	170M4467 690V aR 700A	BUSSMANN
AC 3PH 660V Models			
SRBU100H-055-6	80	170M3440 1250V aR 80A	BUSSMANN
SRBU100H-090-6	125	170M3442 1250V aR 125A	BUSSMANN
SRBU100H-160-6	250	170M4440 1250V aR 250A	BUSSMANN
SRBU100H-200-6	315	170M4441 1250V aR 315A	BUSSMANN

SRBU100H-315-6	500	170M5444 1250V aR 500A	BUSSMANN
SRBU100H-400-6	700	170M6545 1250V aR 700A	BUSSMANN

Note:

- The accessory specifications described in the preceding table are ideal values. You can select accessories based on the actual market conditions, but try not to use those with lower values.
- When wiring drives in parallel according to Figure 4-13 Drive Parallel Wiring, do not select the DC fuse based on the above table. The fuse must be rated at 1.5 to 2 times the DC bus current of the drive.

10 Dimensions

10.1 Dimensions of the Keypad

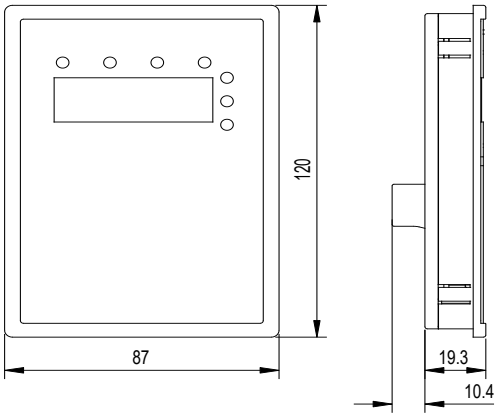


Figure 10-1 Dimension of the External Keypad (Big)

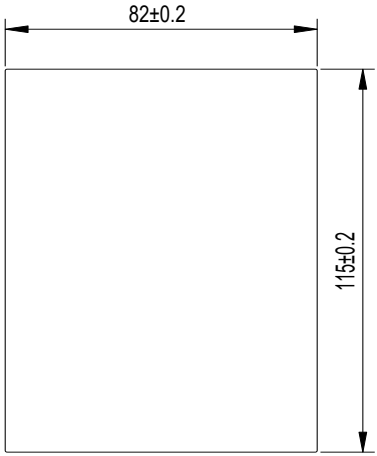


Figure 10-2 Hole Dimension of the External Keypad (Big)

10.2 External Dimension and Weight of SRBU

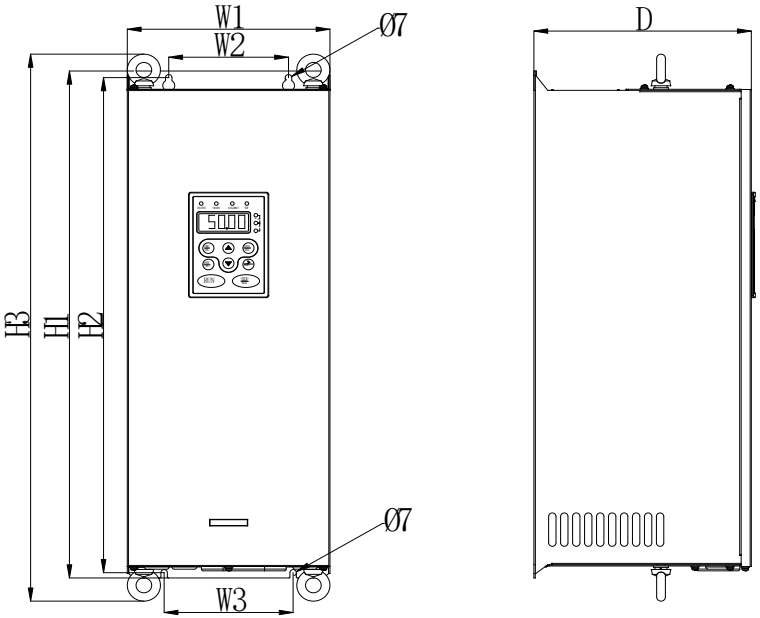


Table 10-1 Outline and Installation Dimensions of Wall-Mounted SRBU (Unit: mm)

Model	W2	W3	H2	W1	H1	H3	D	Hole Diameter	Recommended Mounting Bolt	Net Weight (kg)
	Installation Dimensions			Outline Dimensions						
Voltage Class: 380V										
22–45kW	130	140	563.5	220	577	622.6	236	Ø7	M6*16	26
55–132kW	130	140	563.5	320	577	622.6	261	Ø7	M6*16	27
160–250kW	250	250	732	440	750	782.9	326.2	Ø9	M8*16	54
Voltage Class: 660V										
55–160kW	130	140	563.5	320	577	622.6	261	Ø7	M6*16	31
200–400kW	250	250	732	440	750	782.9	326.2	Ø9	M8*16	54

Note:

- The gross weight of SRBU 22–45kW contains the regenerative reactor weight.
- The variation range of product net weight data is within ±3%.

SOURCETRONIC GMBH
Fahrenheitstrasse 1
28359 Bremen
Germany

T +49 421 2 77 99 99
F +49 421 2 77 99 98
info@sourcetronic.com
www.sourcetronic.com
skype: sourcetronic

CE