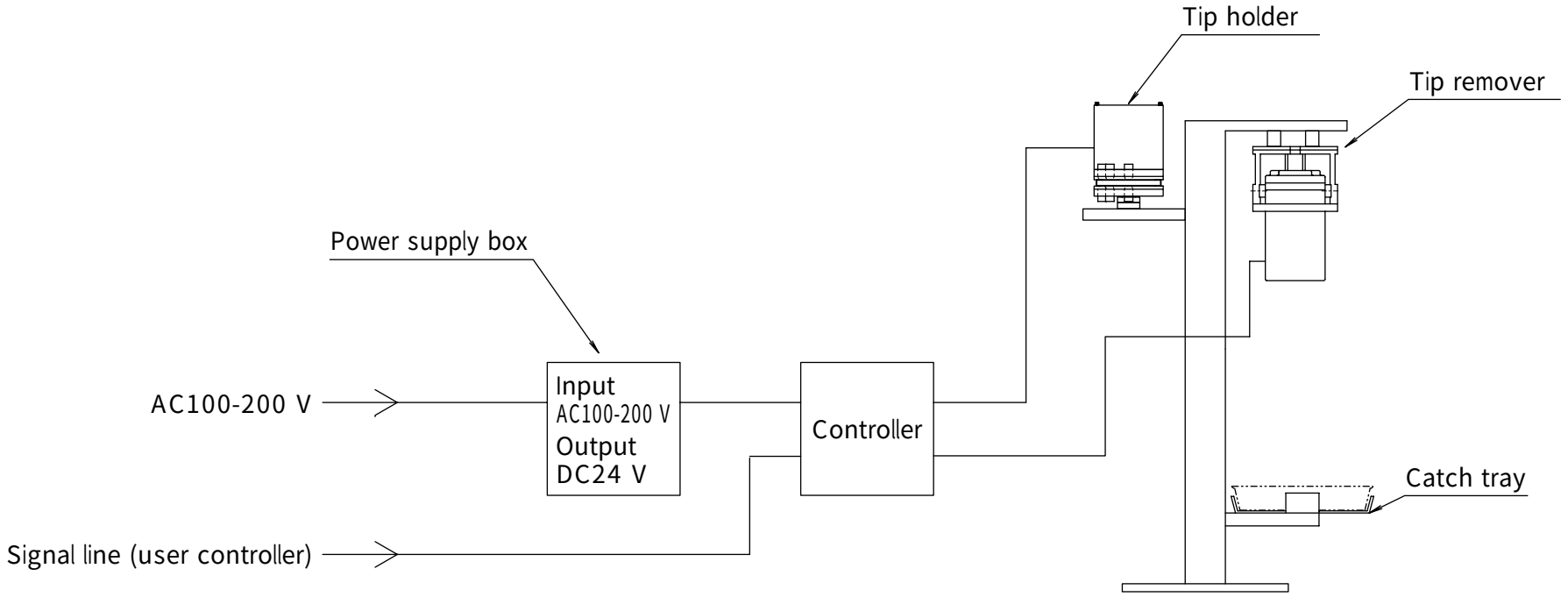
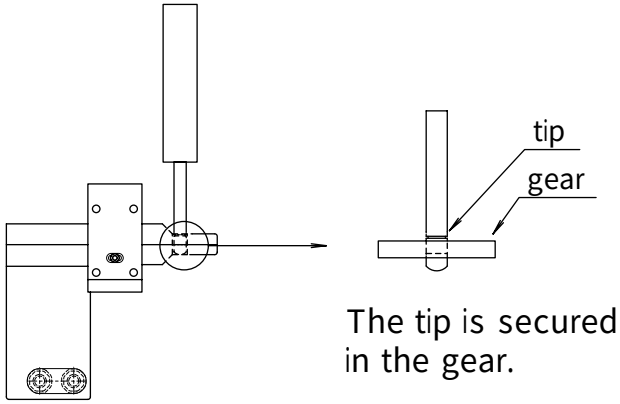


Stand, catch try and power supply box are options

Note 1: The remover power supply required DC24 V, 10 A or more.
Note 2: Specifications subject to change without notice.

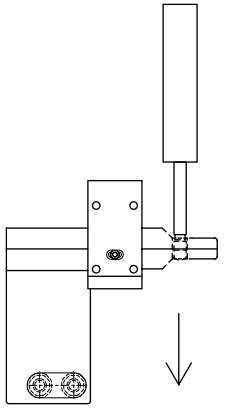
Tip remover concept diagram

1. Approach the robot to the remover and insert the welding tip inside the aperture.



The tip is secured in the gear.

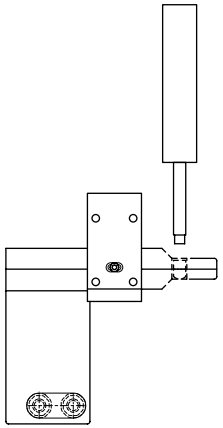
2. The system will operate when the controlled receives the start signal. The remover grasps the tip and moves in the removal direction.



Move in the tip removal direction.

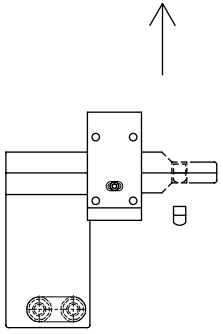
Note: When removing the bottom tip, the remover moves in the opposite direction.

3. The robot is removed when the complete signal is received.



Remove the tip.

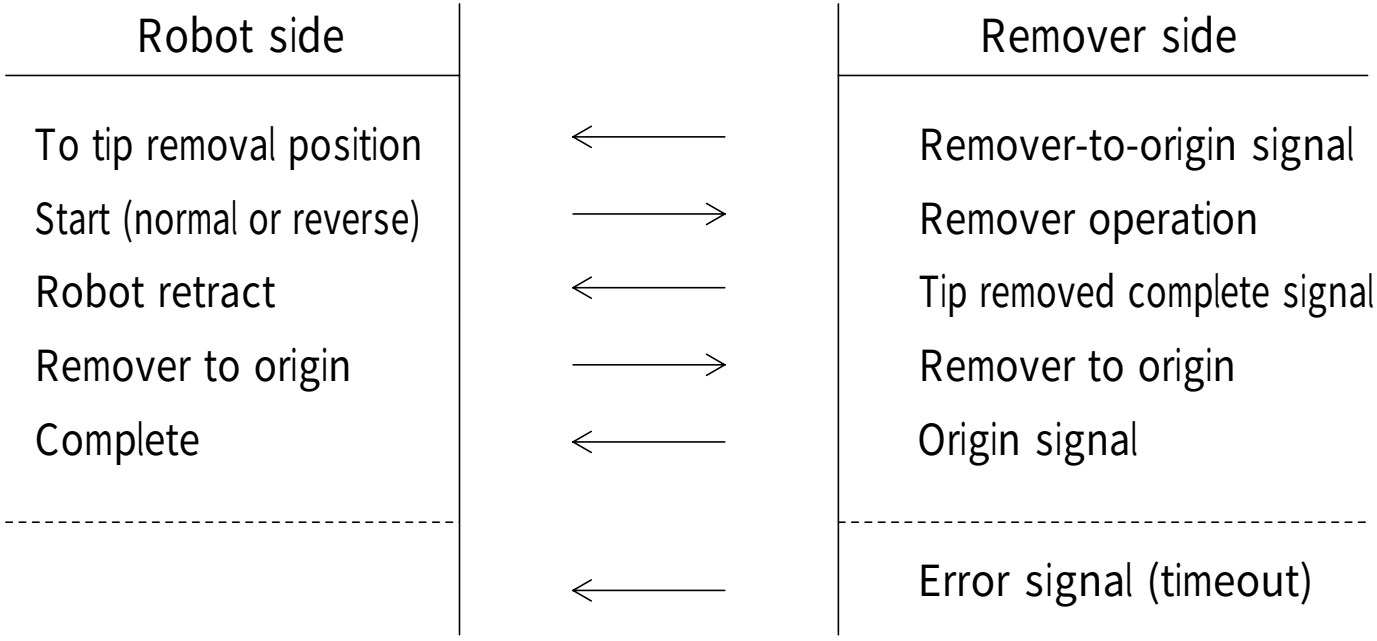
4. The system returns to the origin when the return-to-origin signal is received.



Return to origin.

Tip remover operation concept diagram

Signal chart Auto mode (reference)



The signal sent to the remover should be a level signal.

Error signals

Errors : Error signals are output when the operation does not complete within the specified time. Determine and rectify the error, then input an error reset to cancel the error.

Caution

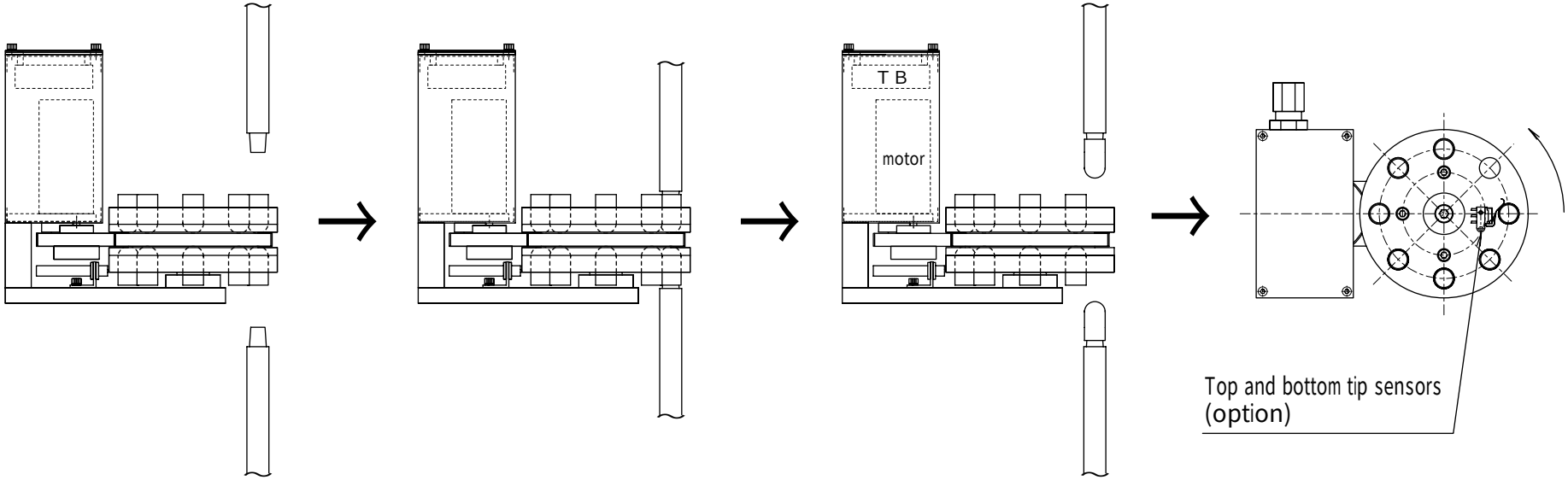
Mode select : Take care in switching between Auto, Manual and External. If the panel switch is operated while the start signal is being supplied, misoperation may result.

To switch between Auto and Manual externally, set the select switch on the controller operation panel to External.

If the system has been set to Auto externally, it will remain in auto even if Manual is selected on the operation panel.

At power on : Always turn the power on in manual mode, and execute a return-to-origin command.

At start : If the start signal is interrupted during normal/reverse operation or return-to-origin, the system will stop at that location. If the signal is restored, it will begin to move again from that location.
Always return to origin after an interruption before performing any other operation.



After removing the tip, move the shank to the tip supply position in the tip holder.

Pressurize the welding gun to insert the tip.

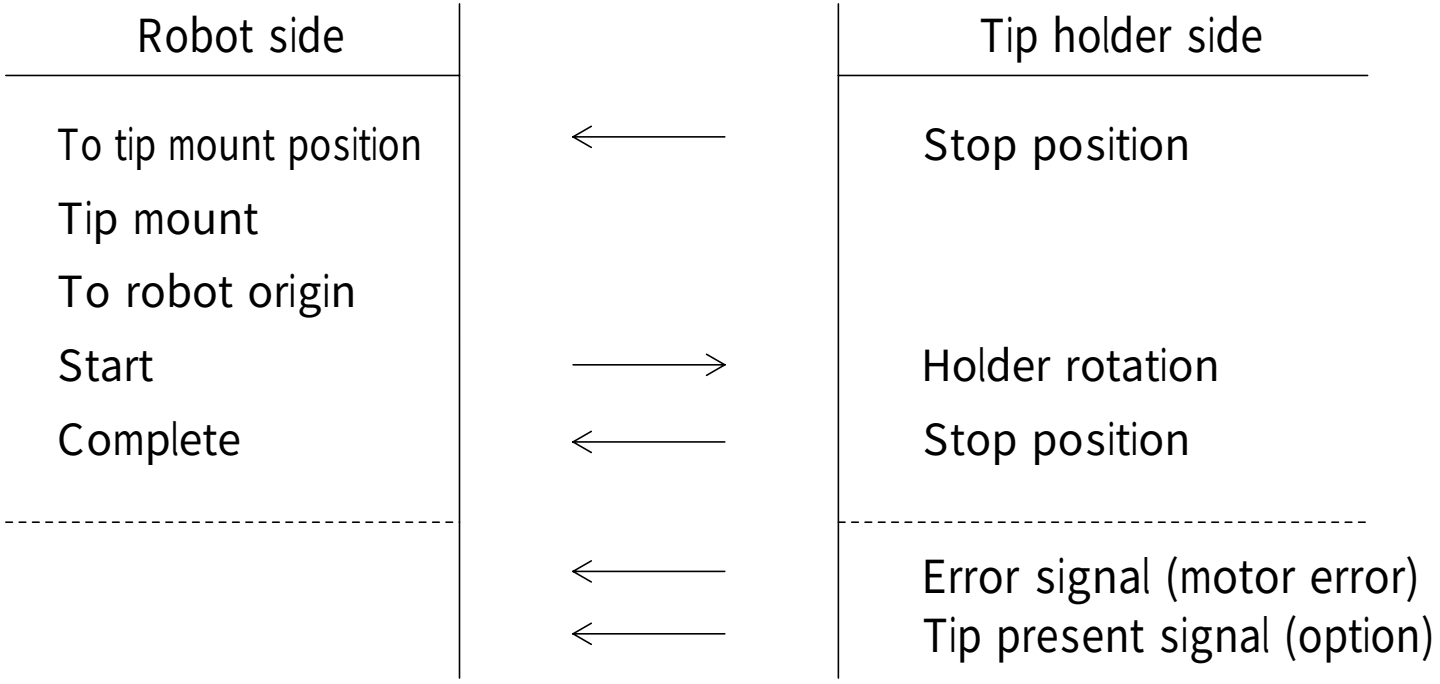
Release pressure from the welding gun.

Rotate the tip holder to move the next tip to the supply position.

Note: The diagrams show simultaneous top and bottom operation, but either may be operated independently as well.

Tip holder concept diagram

Signal chart Auto mode (reference)



The signal sent to the tip holder should be a level signal.
The chip present signal is an AND signal for top and bottom tips.
During rotation the prior signal is stored to memory, so check the signal after stop.

1. The tip holder will rotate when the start signal is received, and stop at the next designated stop position.

2. If it is stopped at any position other than a designated stop position, it will automatically move to a designated stop position when the start signal is input. If signal is lost during start and the holder stops, it will begin to move from that position again when the start signal is restored.

3. An alarm signal is output when drive motor overload or other problems are detected. In this event, turn off the power, wait for a bit, and then turn the power back on. If the alarm state persists a fatal error may be present, requiring inspection by the manufacturer.

4. The tip holder will output an alarm signal unless wired. If the tip holder is not to be wired, use the jumper to short terminals I17 and N, then press the reset pushbutton to cancel the alarm setting.

Tip present (option)

After the tip is removed, the shank is brought close to a proximity switch to check for tip presence.

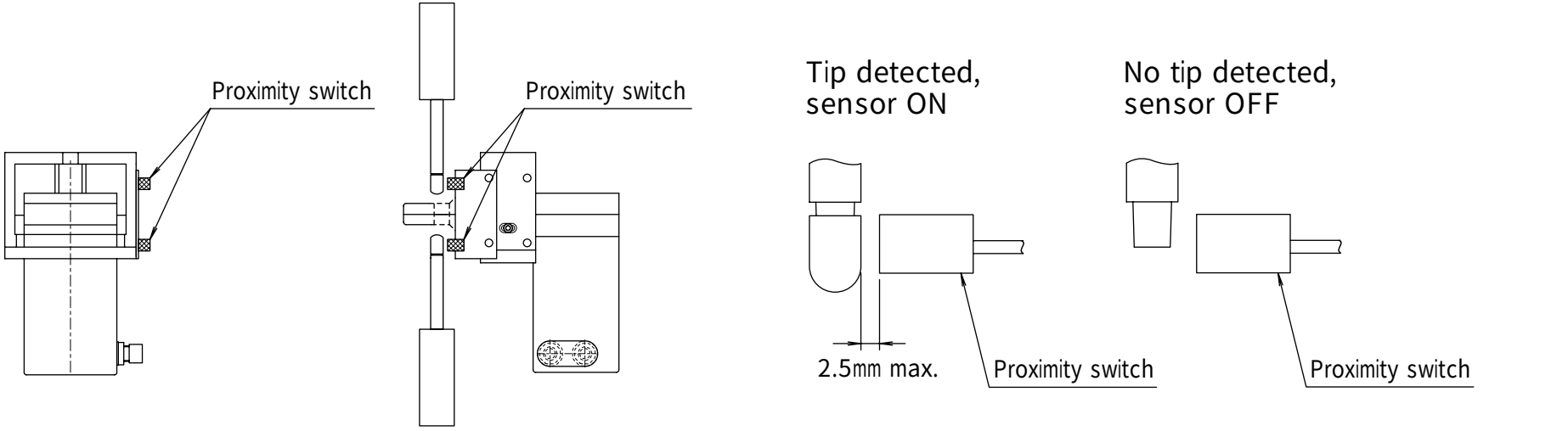
Tip remover

1. Remove top and bottom tips with the tip remover.
2. Move the shank to in front of the sensor and check if there is a tip in the shank.
3. If the sensor goes ON it means a tip was detected, and if OFF that there was no tip.

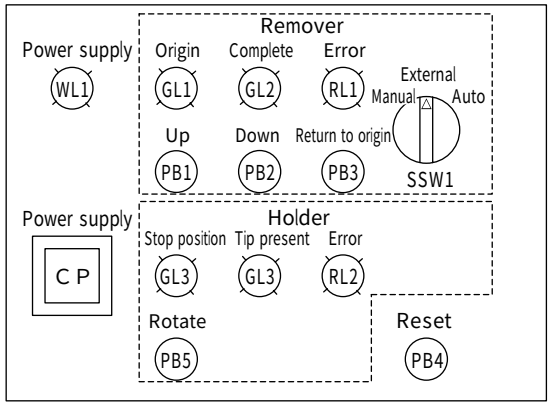
Tip holder

1. Mount top and bottom tips with the tip holder.
2. Move the shank to in front of the sensor and check if there is a tip in the shank.
3. If the sensor goes ON it means a tip was detected, and if OFF that there was no tip.

Note: The distance between the tip and the proximity switch should be no more than 2.5 mm. (Detection distance may vary depending on tip shape and material.)
Note: This sensor should be connected directly to the user-side controller, not the remover controller, to check operation. (There is no available I/O in the remover controller.)



Tip remover tip presence sensor



Controller operation panel

CP	:	Circuit protector
Power supply PL	:	lights when power is on
Reset pushbutton	:	Resets error states

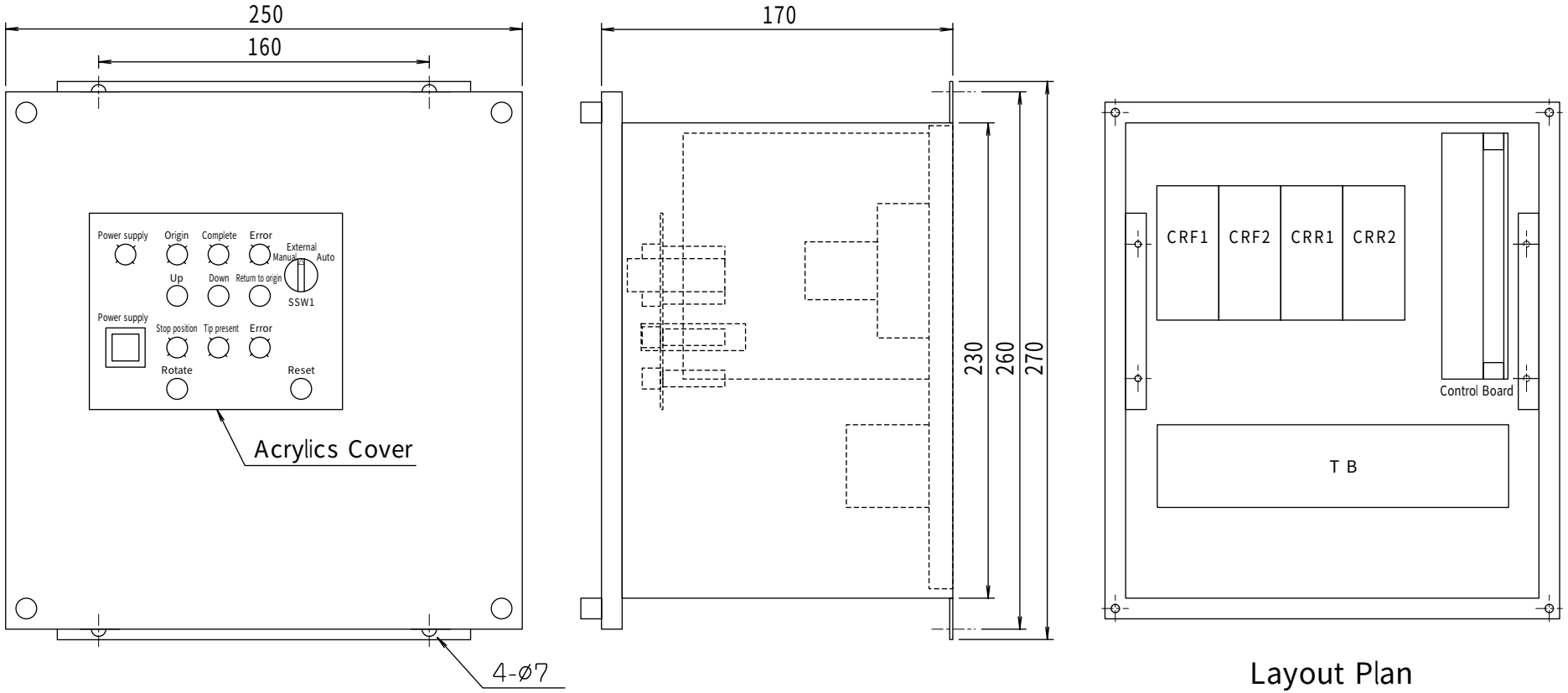
Remover

Origin PL	:	Lights when remover is at origin
Complete PL	:	Lights when welding gun is at removal position
Error PL	:	Lights when a remover error is detected
Auto/External/Manual	:	Selects between auto, external and manual operation
Up pushbutton	:	Raise remover (used in manual mode)
Down pushbutton	:	Lower remover (used in manual mode)
External	:	Auto/Manual select handled externally

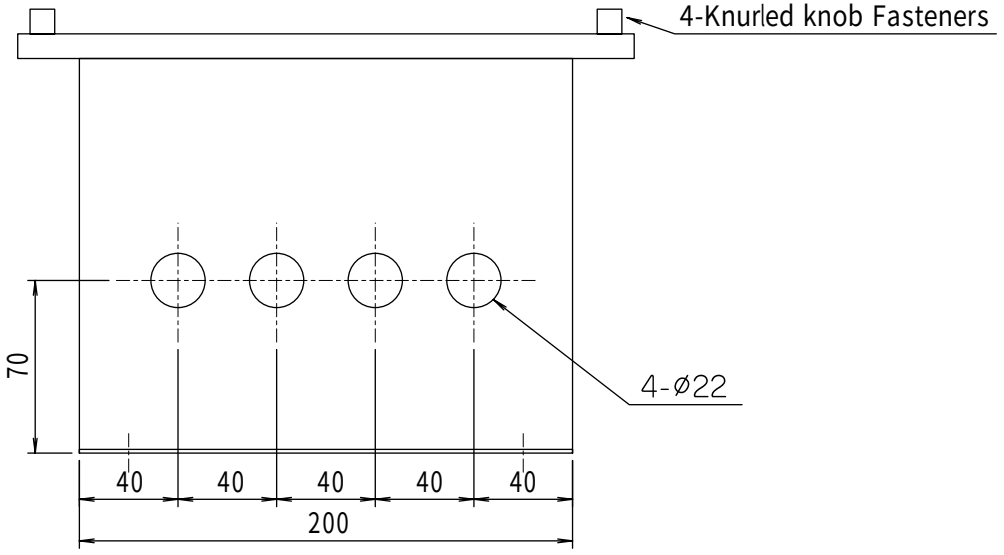
Holder

Stop position PL	:	Lights when holder is at designated stop position
Tip present PL	:	Lights when both top and bottom tips are present in tip holder
Error PL	:	Lights when a holder motor error is detected

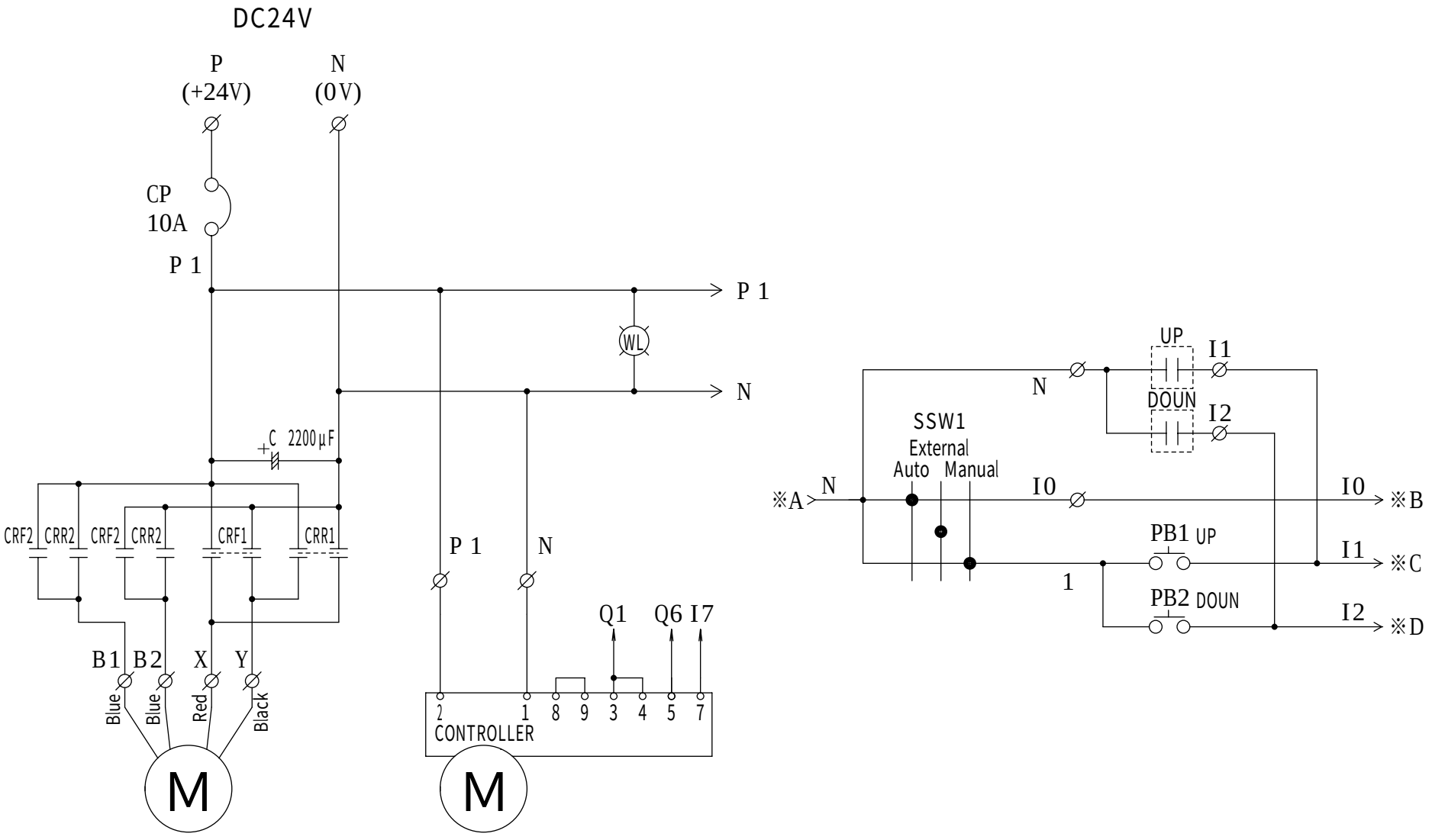
Control box operation panel



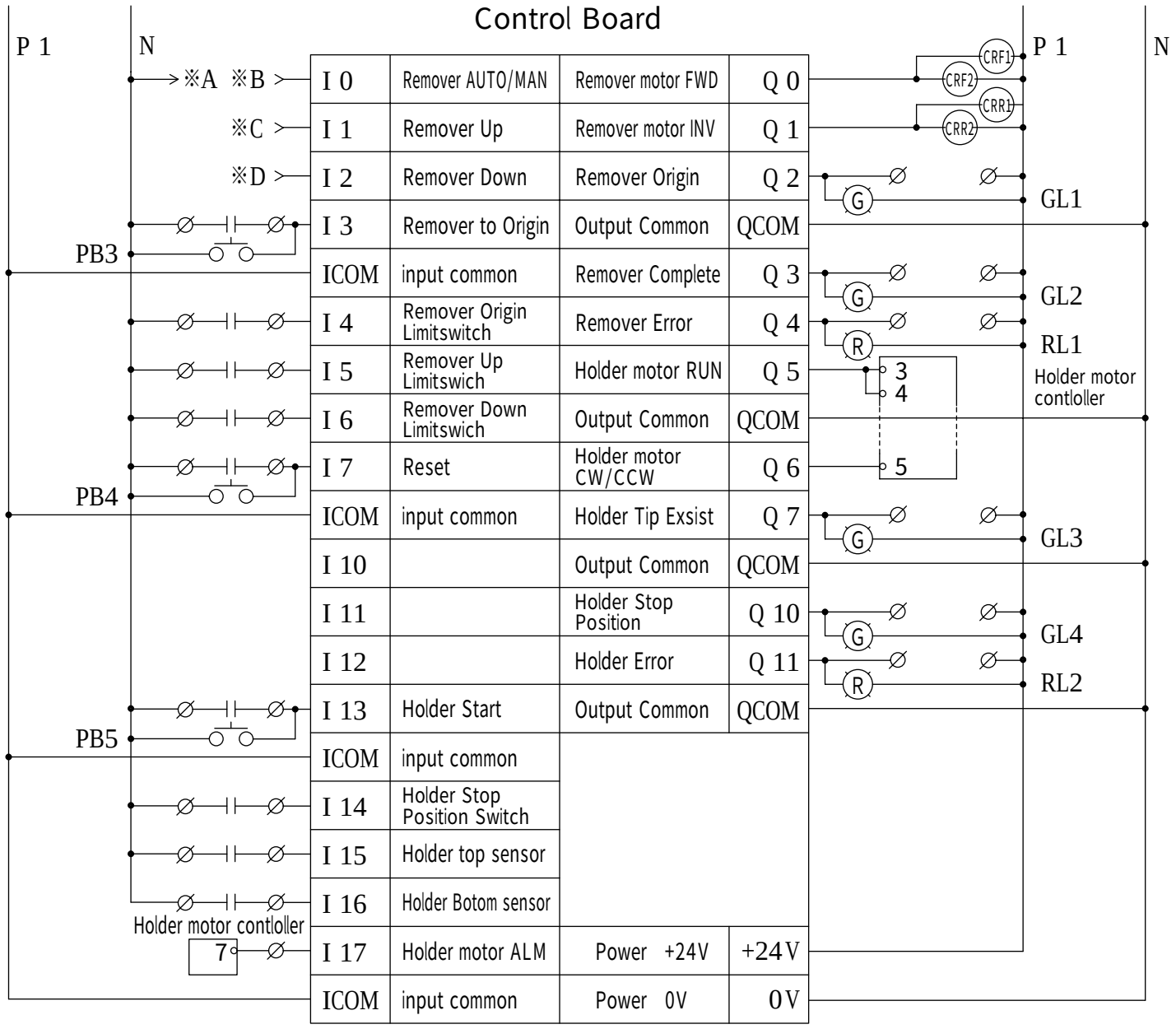
Layout Plan



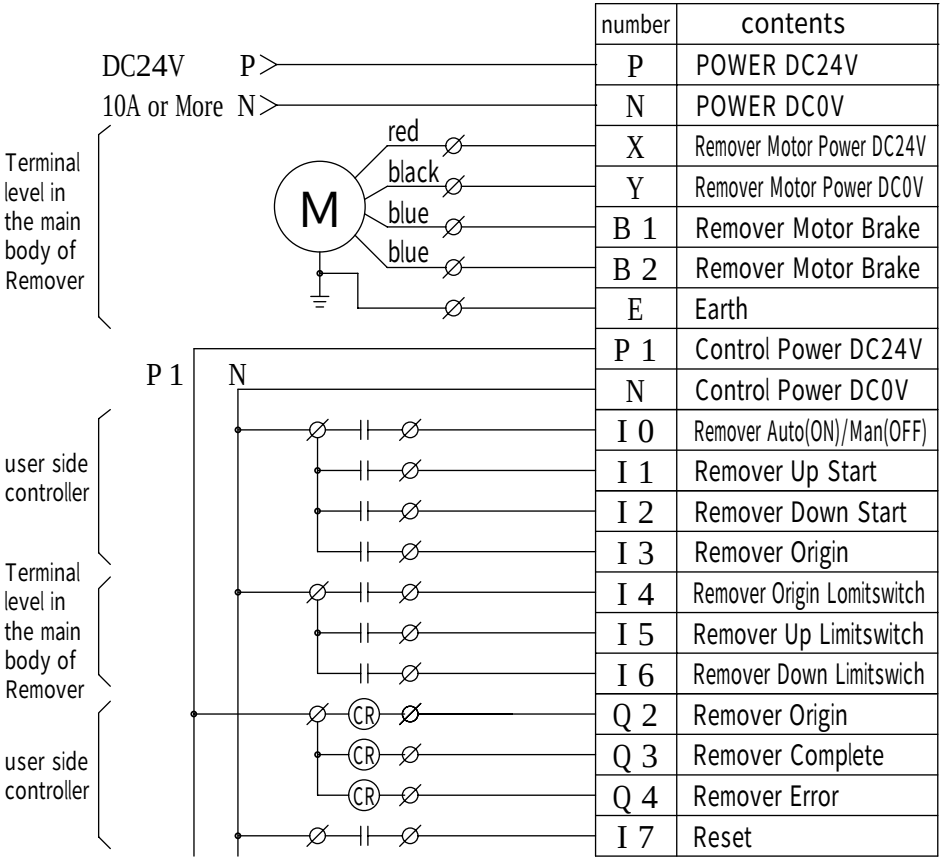
Box Layout



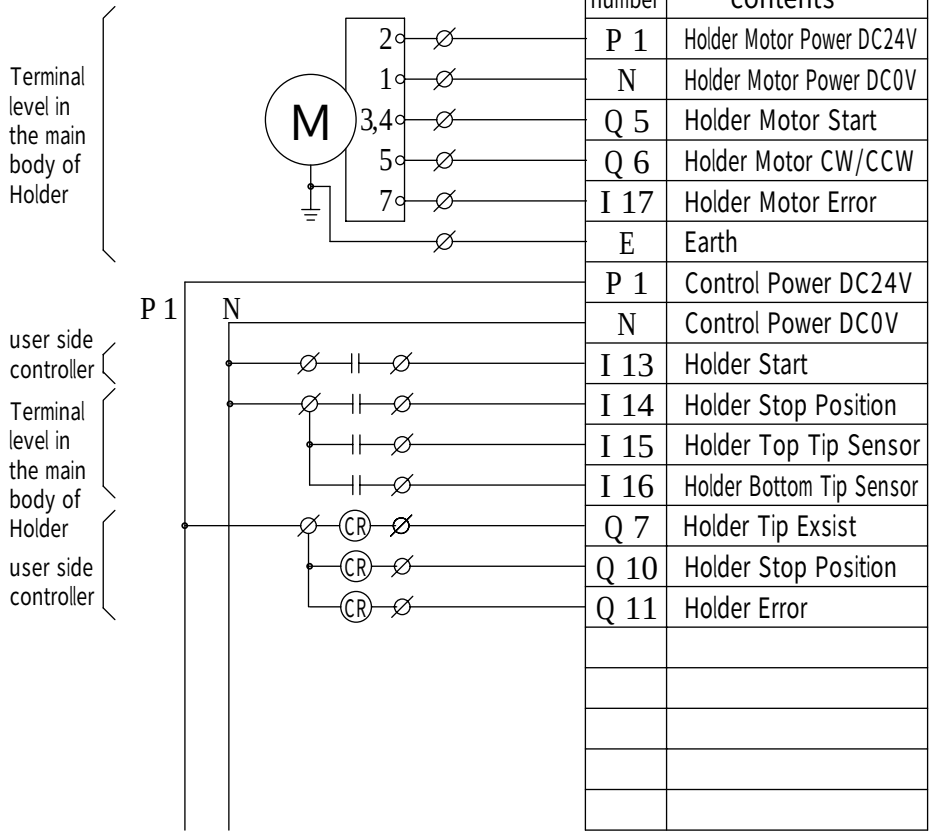
Control Circuit 1



Control Circuit 2



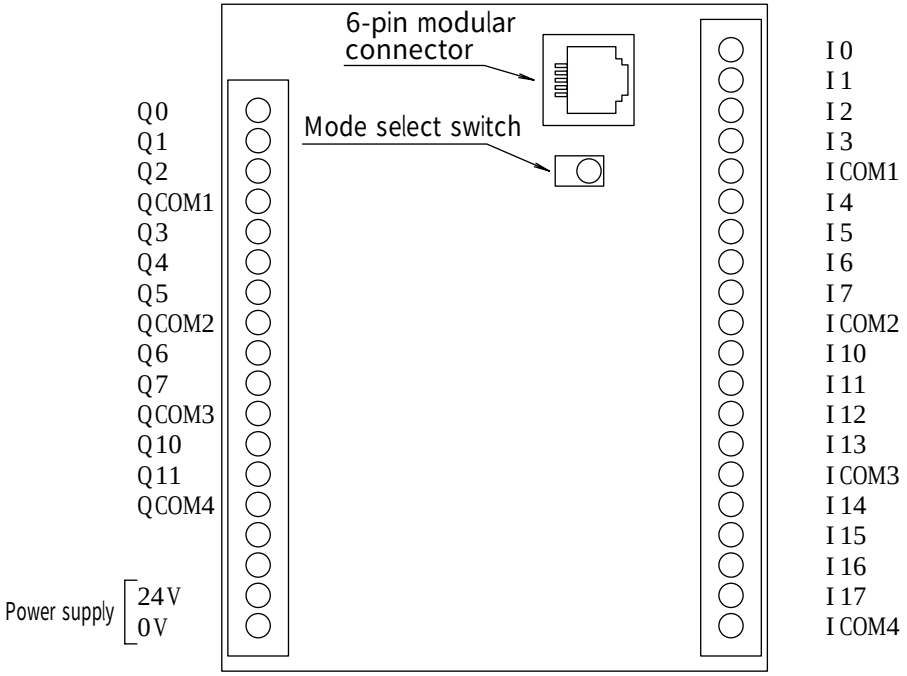
number	contents
P	POWER DC24V
N	POWER DC0V
X	Remover Motor Power DC24V
Y	Remover Motor Power DC0V
B 1	Remover Motor Brake
B 2	Remover Motor Brake
E	Earth
P 1	Control Power DC24V
N	Control Power DC0V
I 0	Remover Auto(ON)/Man(OFF)
I 1	Remover Up Start
I 2	Remover Down Start
I 3	Remover Origin
I 4	Remover Origin Lomitswitch
I 5	Remover Up Limitswitch
I 6	Remover Down Limitswich
Q 2	Remover Origin
Q 3	Remover Complete
Q 4	Remover Error
I 7	Reset



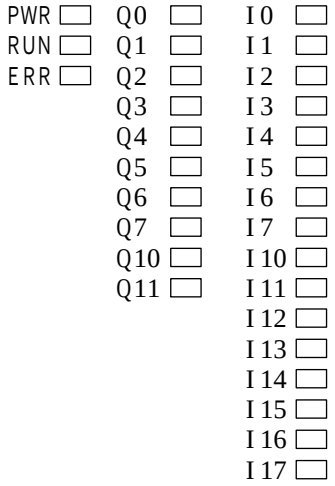
number	contents
P 1	Holder Motor Power DC24V
N	Holder Motor Power DC0V
Q 5	Holder Motor Start
Q 6	Holder Motor CW/CCW
I 17	Holder Motor Error
E	Earth
P 1	Control Power DC24V
N	Control Power DC0V
I 13	Holder Start
I 14	Holder Stop Position
I 15	Holder Top Tip Sensor
I 16	Holder Bottom Tip Sensor
Q 7	Holder Tip Exsist
Q 10	Holder Stop Position
Q 11	Holder Error

Figure of Outside Wiring Reterence

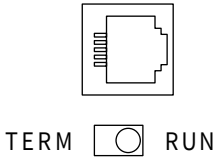
Control board terminal layout



LED layout

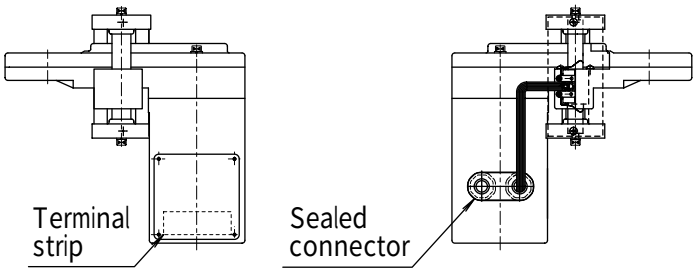


Mode select switch

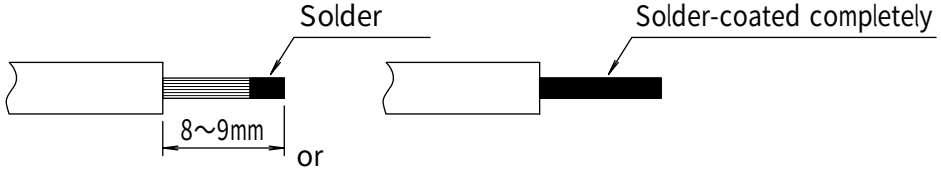


The mode select switch should always be set to RUN.
If it is set to TERM and the power supply is shut off for a long period of time, the start signal may not function normally. In this case, select the RUN position and it will function normally.

Remover terminal strip



1 Remove the plastic cover and the internal fitting to expose the terminal strip.
2 Power supply cables from the outside should be run through the sealed connector.
3 The terminal strip uses a lever lock design. Power cables should be solder dipped.



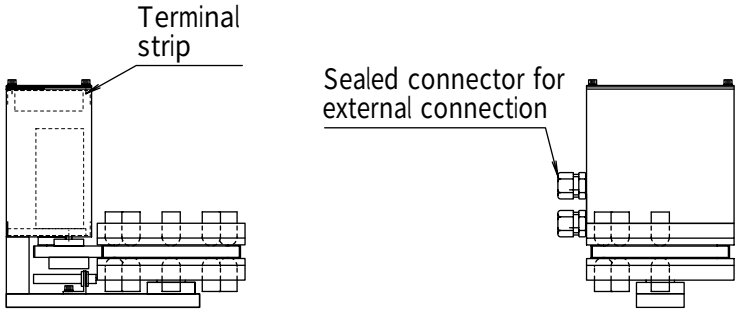
Terminal strip layout

Name	Description
X	Remover motor supply DC24 V
Y	Remover motor supply DC0 V
B 1	Remover motor brake
B 2	Remover motor brake
I 4	Remover origin limit switch
I 5	Remover top limit switch
I 6	Remover bottom limit switch
N	Common DC0 V
N	Common DC0 V

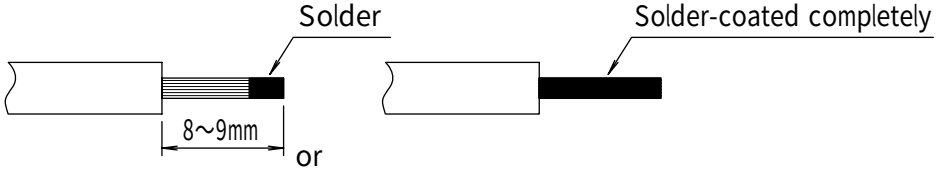
10P

Remover terminal strip diagram

Holder terminal strip



1 Remove the top cover. The terminal strip is on the back of the cover.
2 Power supply cables from the outside should be run through the sealed connector.
3 The terminal strip uses a lever lock design. Power cables should be solder dipped.



Terminal strip layout

Name	Description
P 1	Holder motor supply DC24 V
N	Remover motor supply DC0 V
Q 5	Holder motor run
Q 6	Holder motor CW/CCW
N	Common DC0 V
N	Common DC0 V
I 14	Holder stop position
I 15	Tip presence top (option)
I 16	Tip presence bottom (option)
I 17	Holder error

10P

Holder terminal strip diagram