

QUICK FLOAT LEVEL SWITCH

MANUAL

Revision No. 001 (2022)

DQ SERIES



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※ Please **READ** carefully
and
make sure you **UNDERSTAND** this manual
for safely usage.

- This manual describes how to install, adjust and inspect DQ series product.
- Keep this manual in place being available to refer immediately.
- The specification of product mentioned in this manual may not be satisfied by the condition of your environment. Please check and consider carefully before using.
- The contents of this manual could be changed any time due to improvement of product. It will be updated quarterly.
- Please contact Dong Sung Sensors sales office department via email or phone for further questions.

WARRANTY & DISCLAIMER

1. Dong Sung Sensors warrants the product against defects in materials and workmanship under normal use for a period of ONE(1) YEAR form the date of purchase.
2. Dong Sung shall not be responsible for the following.
 - 1) Damage arising from improper use or inspection and failure to follow manual instructions.
 - 2) Repair is done by the person who is not from Dong Sung.
 - 3) Improper parts are used and replaced.
 - 4) Damage is occurred by device or machine not from Dong Sung.
 - 5) Do not include fire, earthquake, tsunami, lightning, war, radioactive pollution, acts of Government, compliance with law, regulation and order.
3. The warranty only covers the damage of products. The secondary and third kind disasters are not covered by Dong Sung Sensors.
4. This Limited Warranty applies only to Dong Sung products, that must be identified by "DSS" mark on to them.

Unpacking

- Our unit has been thoroughly inspected and packed at the factory to prevent damage during shipment.
- Thus, please unpack carefully and visually check the product's exterior for damage.
- Do not place in piles.

FRAGILE

- Please carry the sensor very carefully.
Sensor may not work properly if you drop or damage on it.
- Do not remove the Sensor discretion.
This may cause damage and malfunction.

1. Introduction

DQ series are designed to measure liquid level by using buoyancy and magnetic force as multi-wire signal transmission.

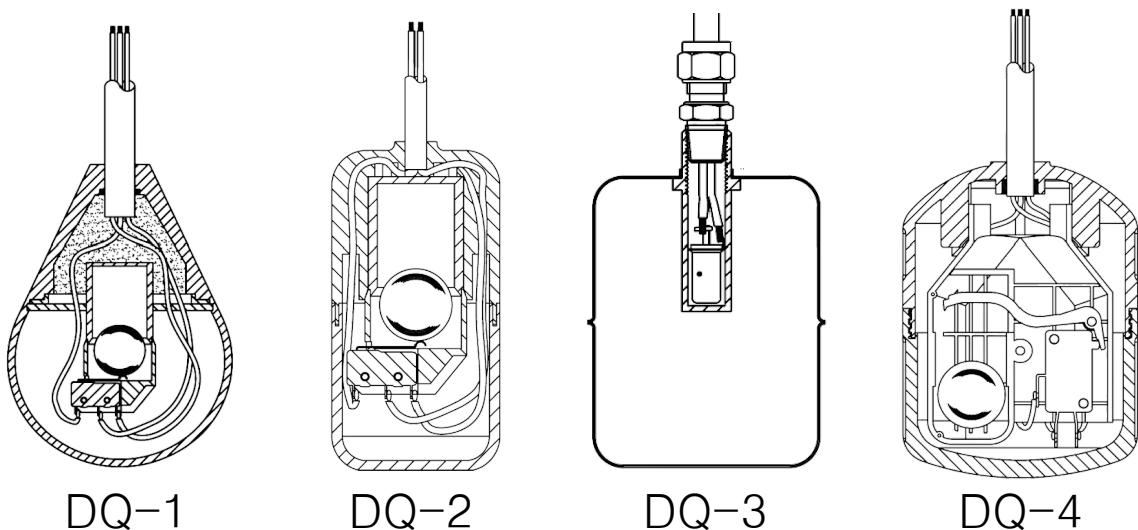
2. Features

- Widely available with various liquid, especially municipal water, wastewater treatment plant and septic tank.
- Simple installation
- Able to adjust on/off position anytime.
- Affordable price with accurate measurement

3. Operation Principle

While float moves up / down as liquid level changes, the micro/mercury/reed switch within the float will operate to output the contact.

- ▶ DQ-1, DQ-2, DQ-4
Output the contact using micro switch and steel ball.
- ▶ DQ-3
Output the contact using mercury switch.



4. Specification

► Sensor

type category	DQ-1			DQ-2			DQ-3	DQ-4		
Switch Type	S/W			S/W			S/W	S/W		
	Reed	Mercury	Micro	Reed	Mercury	Micro	Mercury	Reed	Mercury	Micro
Contact Rating	220V,1A	110V,1A	220V,3A	220V,1A	110V,1A	220V,3A	110V,1A	220V,1A	110V,1A	250V,15A
Temperature	Max 50°C			Max 50°C			-10~150°C	Max 50°C		
Operating Pressure	Max 2kgf/Cm ²			Max 2kgf/Cm ²			Max 2kgf/Cm ²	Max 2kgf/Cm ²		
Specific Gravity	0.7			0.9			0.7	0.7		
Float Size	φ80 x 113			φ48 x 94			φ78 x 98	φ80 x 107		
specific gravity	±30	±5	±15	±30	±15	±15	±15	±30	±5	±15
Cable Material	VCT(PVC)						SILICONE	VCT(PVC)		
Measuring Range	Max 20m									
Float Material	ABS						SUS	ABS		

► Controller

type category	DQ-2U	DQ-3U	DQ-4U
Sensor Voltage	DC 12V	DC12 V	DC 12V
Contact Rating	AC 250V, 5A		
Power Supply	AC 110/220V ±10%,		50/60Hz
Ambient Temp	0 ~ 60°C		
control output	DQ-2U (supply) DQ-2U (drain)	DQ-3U-4W (H/AL) DQ-3U-4W (L/AL)	DQ-4U-5W (L/AL, H/AL)
Fuse Rating	AC 250V, 100mA		
Material	Base Plate: ABS, Cover: ABS		
Mounting	Wall Mount		
Dimensions	49(w) x 69(d) x 61(h)	88.5(w) x 128.5(d) x 66(h)	

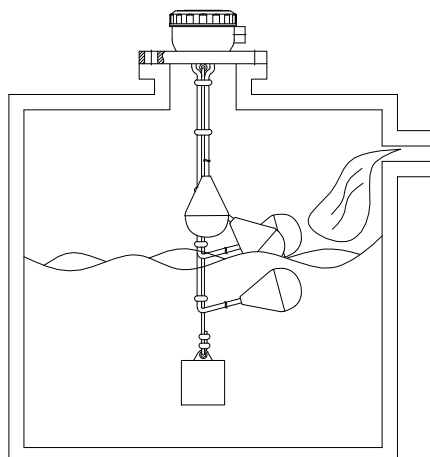
5. Installation

Before installation,

1. Please do not use DQ with the liquid that including Esters, Kenton, Aromatic, Benzene, Toluene or Xylene. (Float will be spoiled with them.)
2. For oil, use Silicone or PTFE cable. Oil embrittle the PVC cable.
3. Default setting of DQ-2U, 3U, 4U controller is in drain mode.
4. Treat carefully. Reed Switch is easily damaged with shock.
5. Sensor may not works with sticky liquid or liquid includes floating matters.
6. Do not use DQ with high temp / high pressure tank.

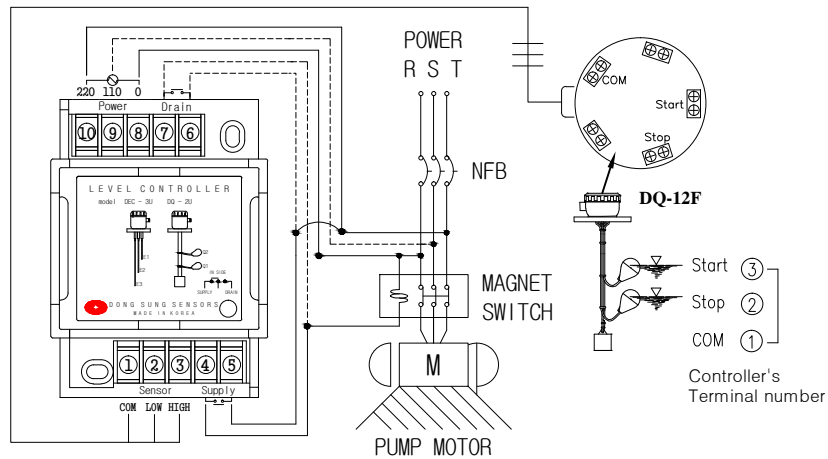
During installation,

1. Do not install the sensor near flow inlet.
2. Make sure H/AL spot do not go over overflow point.
3. There must be enough room for movement of floats.
4. It is recommended to connect to a single pipe to avoid malfunction caused by noise.
5. Secure the switch to the wire at 150 mm from the top of the float
6. When assembling the Multi Wire Type, assemble it in the order of L/AL, stop, start, and H/AL from the bottom.
7. Please be aware that separate terminals are provided AC110V / 220V.
8. Do not touch the span controller knob. Please contact us if you need.
9. Multi-wire type should be connected to the control terminal when using the controller with drain contact.



6. Wire Connection

1. DQ-2U

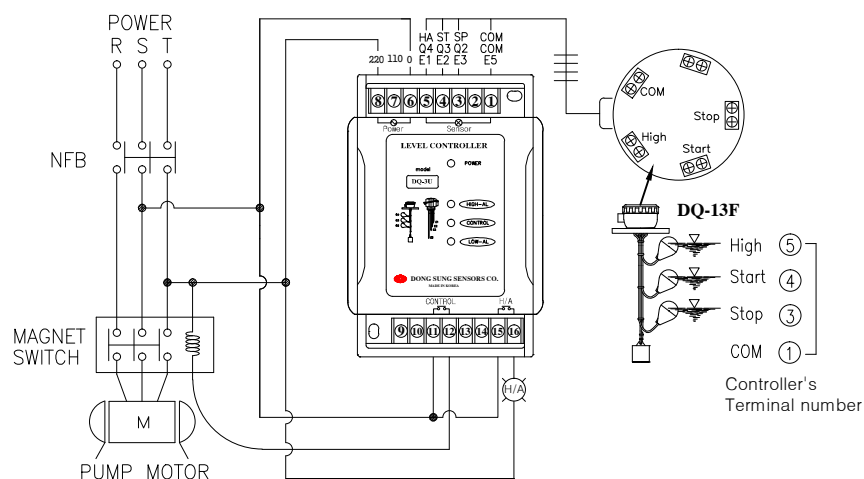


- Check supply/drain terminal.
- Match the terminal number to sensor correctly.

– Caution

- Make sure the connection between Level Controller and Sensor, for proper use.
- Sensor and Level Controller MUST be treated very carefully.

2. DQ-3U-4W

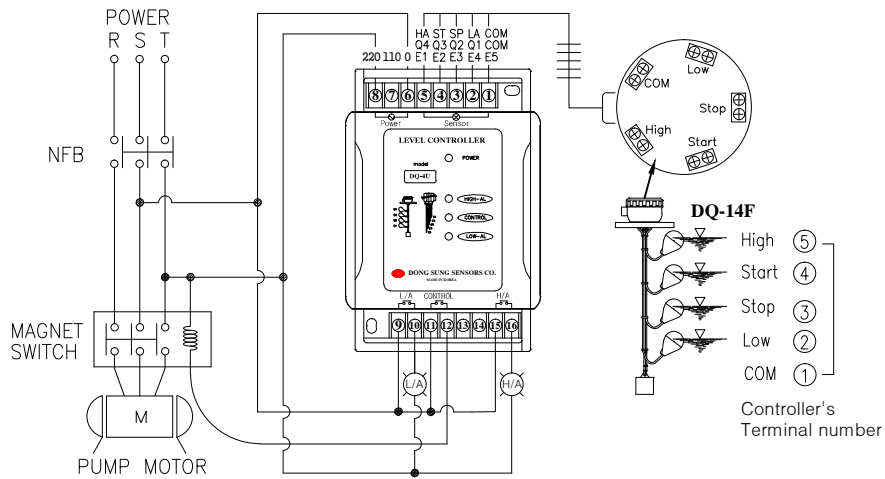


- Match the number of Controller and sensor.
- To change DQ-3U's supply/drain option, use switching switch inside of Controller(remove upper cover).
- Check the connection state when you open/close the Controller's cover.

– Caution

- Make sure the connection between Level Controller and Sensor, for proper use.
- Sensor and Level Controller MUST be treated very carefully.

3. DQ-4U-5W

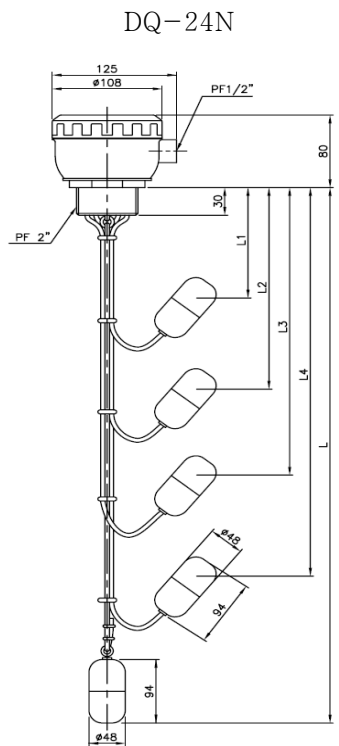
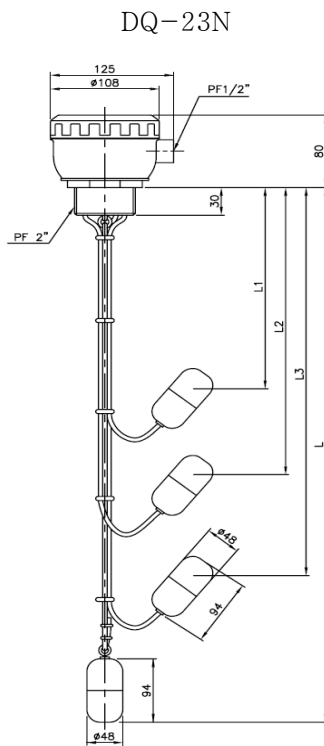
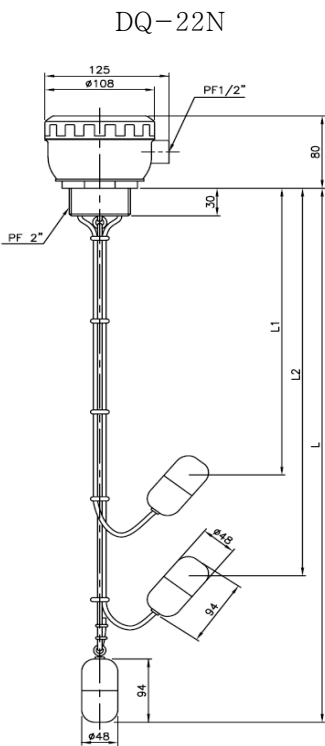
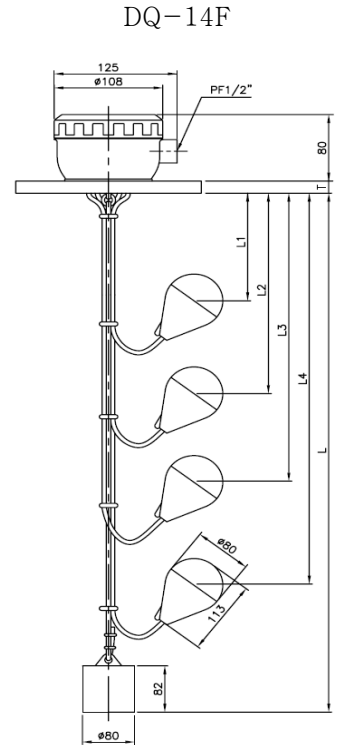
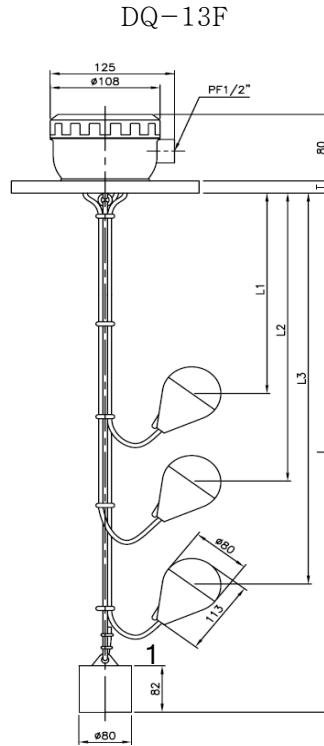
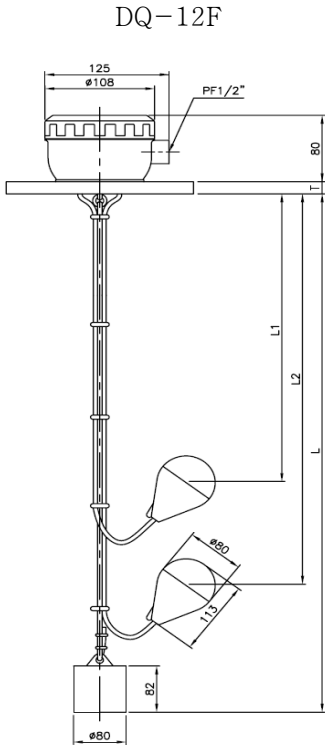


- Match the number of Controller and sensor.
- To change DQ-4U's supply/drain option, use switching switch inside of Controller(remove upper cover).
- Check the connection state when you open/close the Controller's cover.

– Caution

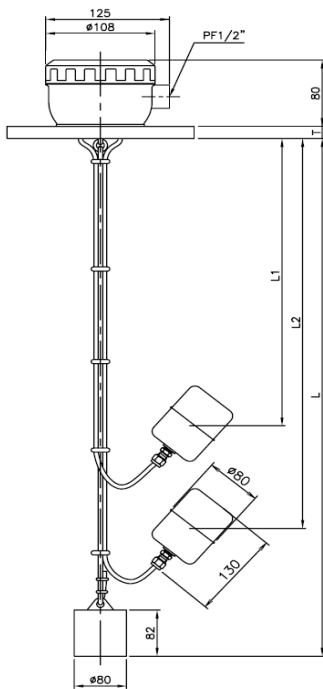
- Make sure the connection between Level Controller and Sensor, for proper use.
- Sensor and Level Controller MUST be treated very carefully.

7. Dimensions

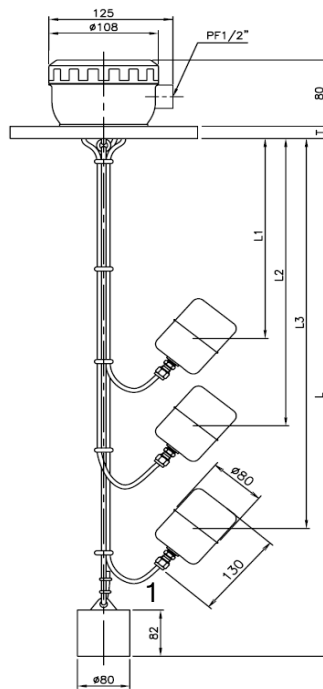


7. Dimensions

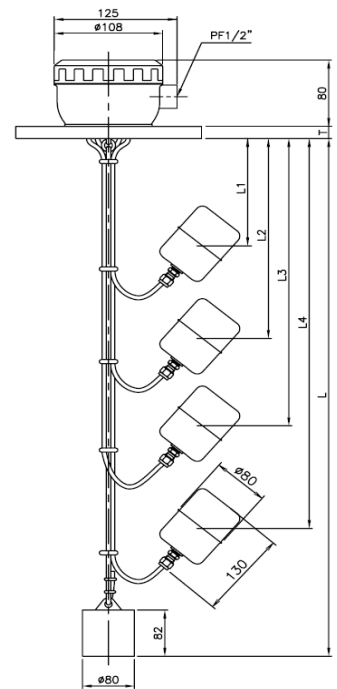
DQ-32F



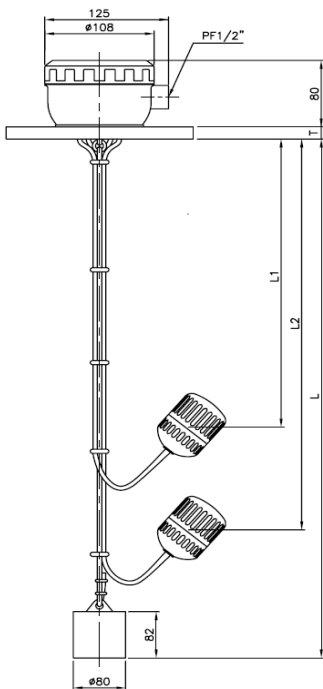
DQ-33F



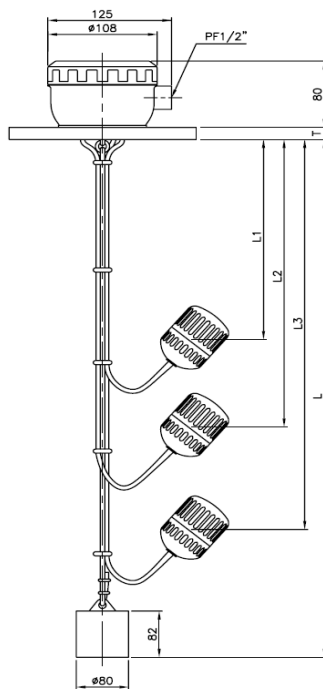
DQ-34F



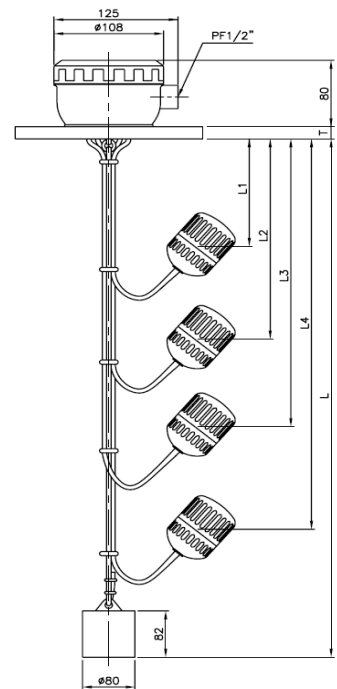
DQ-42F



DQ-43F

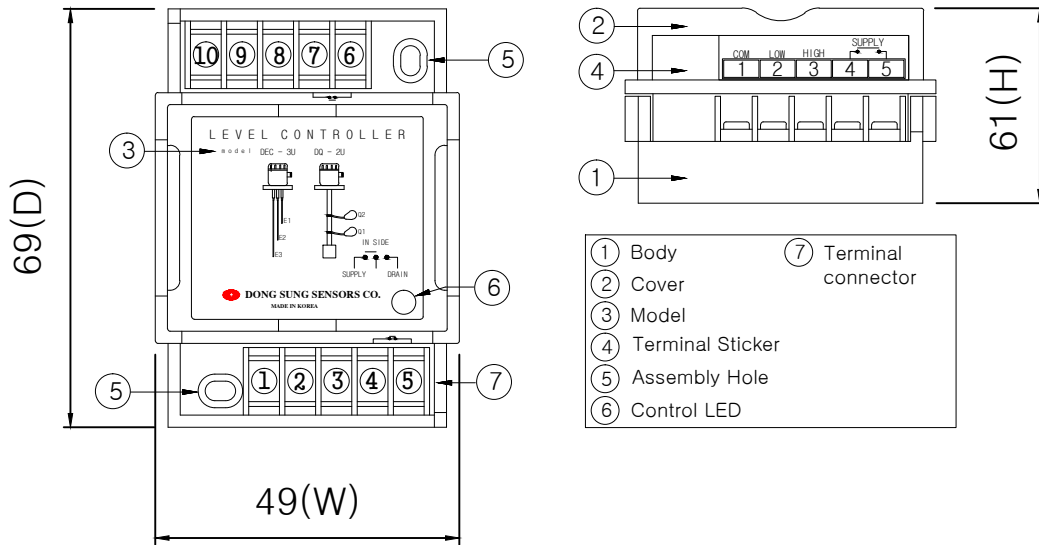


DQ-44F

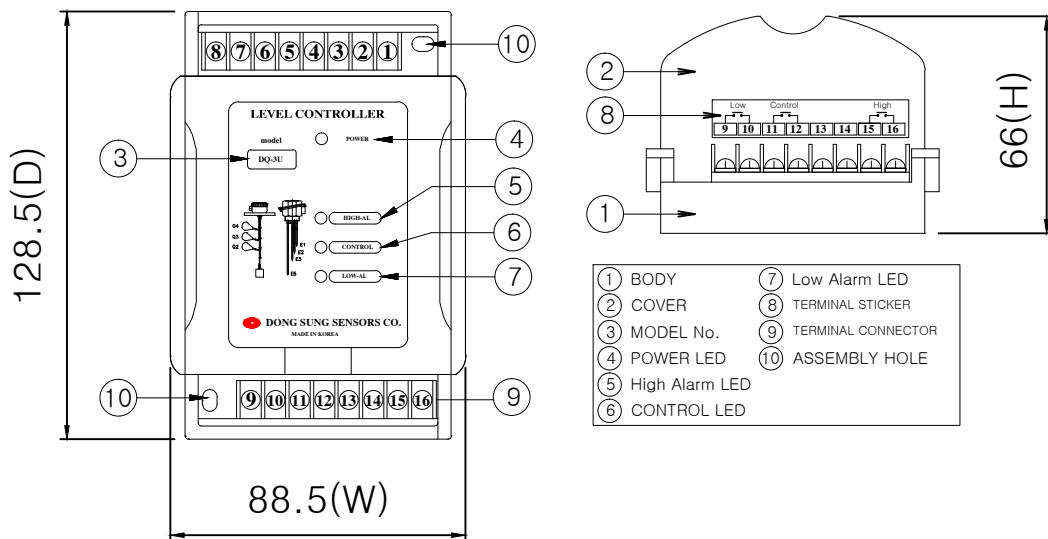


► Controller

1) DQ-2U



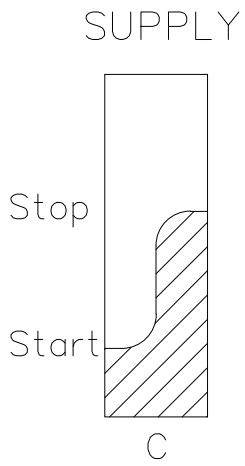
2) DQ-3U/4U



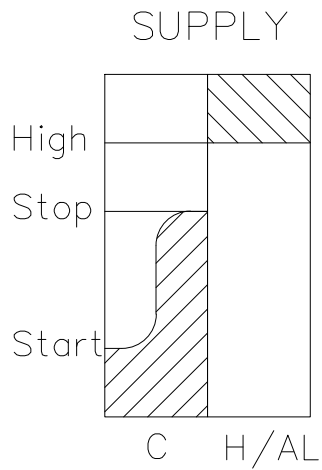
8. Contact Output

H / AL : High Alarm
 C : Control
 L / AL : Low Alarm

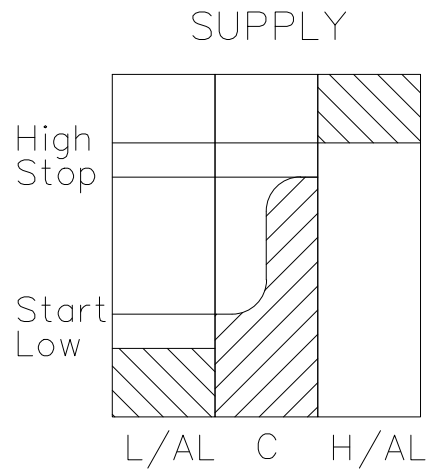
DQ-2U



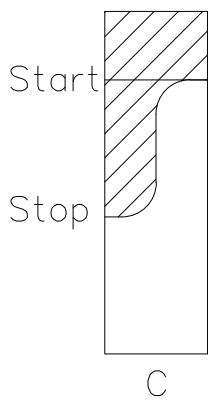
DQ-3U



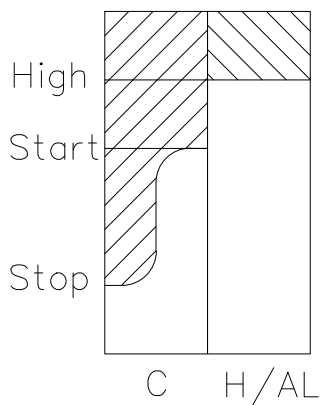
DQ-4U



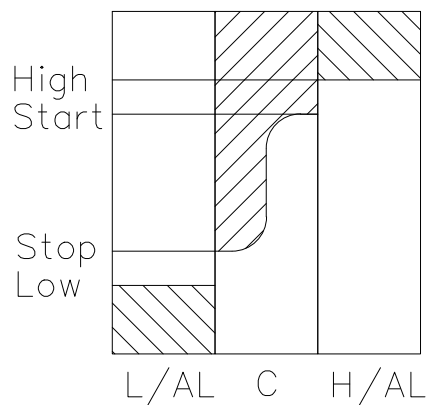
DRAIN



DRAIN



DRAIN



9. Maintenance

- 1) Check the sensor output voltages.
- 2) Make sure that the cables are flexible.
If not, please return to our factory.
- 3) If motor or valve does not operate while Control LED is on,
short the control terminals with a piece of wire.
If it runs, it is controller problem.
If not, wire is disconnected somewhere.
- 4) If motor or valve does not stop when Control LED is off,
check if wires are disconnected from control terminals.
If motor stops, it is controller problem.
- 5) If the power indicating LED lamp is off, see if the fuse is OK
(100mA, 250V AC)
- 6) For multi-wire controllers, disconnect the jumper from COM.
Then, check controller output by shorting terminals one by one
such as low alarm, stop, start and high alarm.

For any inquiries, please contact us via email.