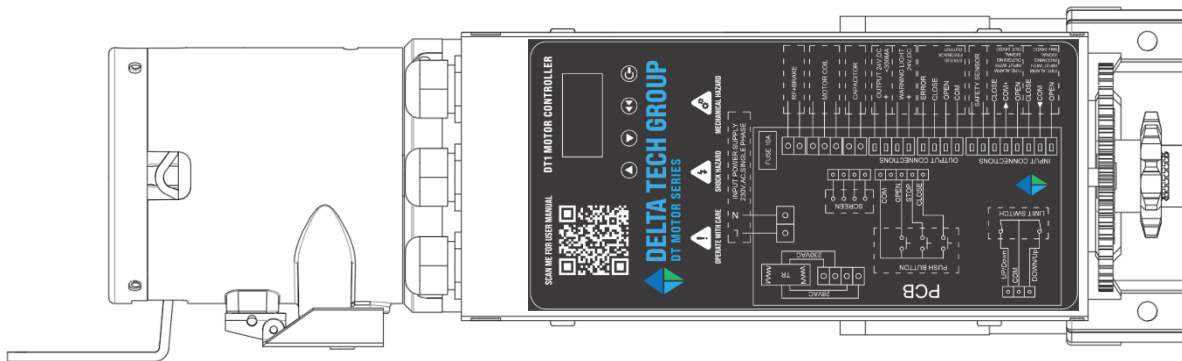




DELTA TECH GROUP

Operation Manual

DT 500 & DT 1000 Motor Series



DELTA TECHNOLOGY FIRE SHUTTER MOTORISED OPERATOR

Manufacturer

Delta Technology Pte Ltd
34 Loyang Crescent Singapore 508993, Singapore
Email: Enquiry@deltatech.com.sg
Website: deltatech.com.sg



! Before Handling the Product !

Observe all safety regulations at all times
Handled by competent and trained personnel only
Read and understand this manual before handling the product
This manual has to be kept over the complete life span of the product

CAUTION – DO NOT USE OTHER THAN THE RATED VOLTAGE & FREQUENCY

CAUTION – DO NOT OVERLOAD THE MOTOR

CAUTION – SWITCH OFF THE POWER BEFORE DOING ANY CONNECTIONS

CAUTION – FIX THE MOTOR AND CONTROL BOX ONLY ON STATIONARY SURFACE OR STRUCTURE



1. Technical Parameters

1.1 Power Supply

Incoming power supply: 1 Phase 220V-240V AC, 50Hz

1.2 Max Motor Power: DT-500: 250W / DT-1000: 550W

1.3 Feedback (BMS) & Fire Alarm Signal Contact Capacity: 24V DC, 500mA

1.4 Working Environment:

Temperature : 0°C to 55°C

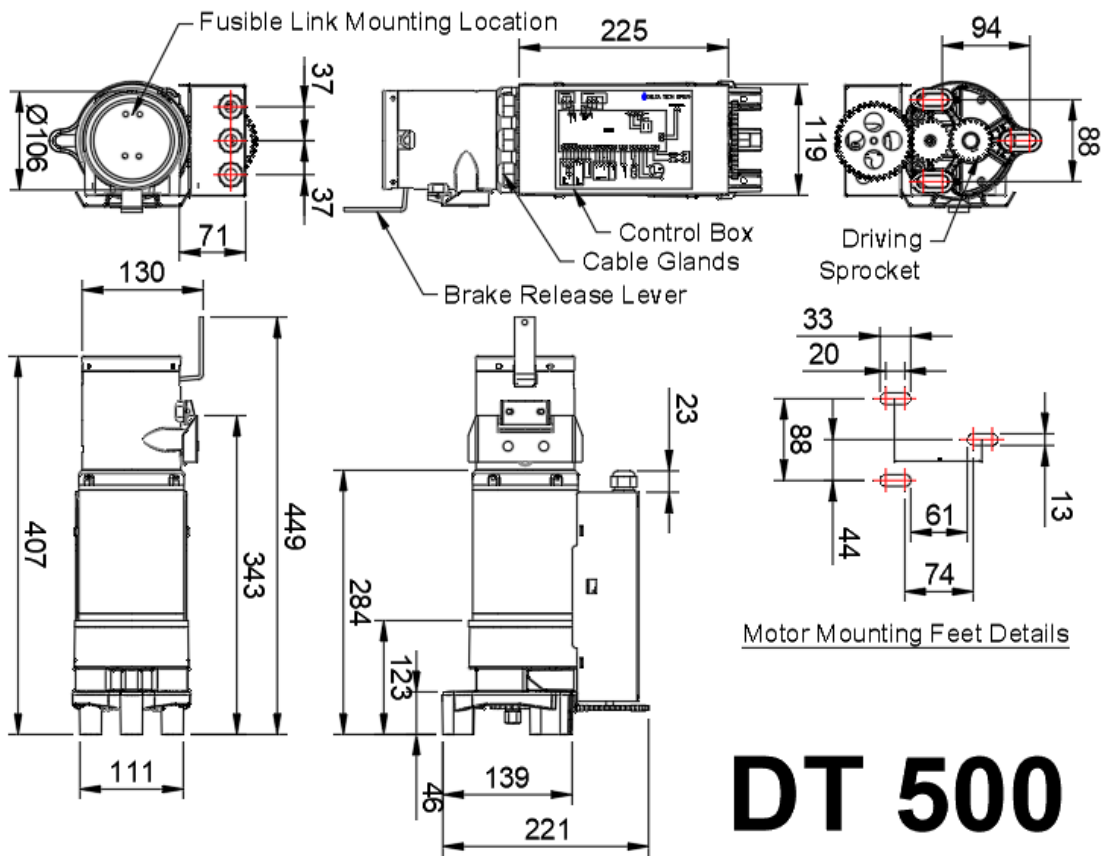
Relative humidity : ≤95%

Atmospheric pressure : 85kPa to 106kPa

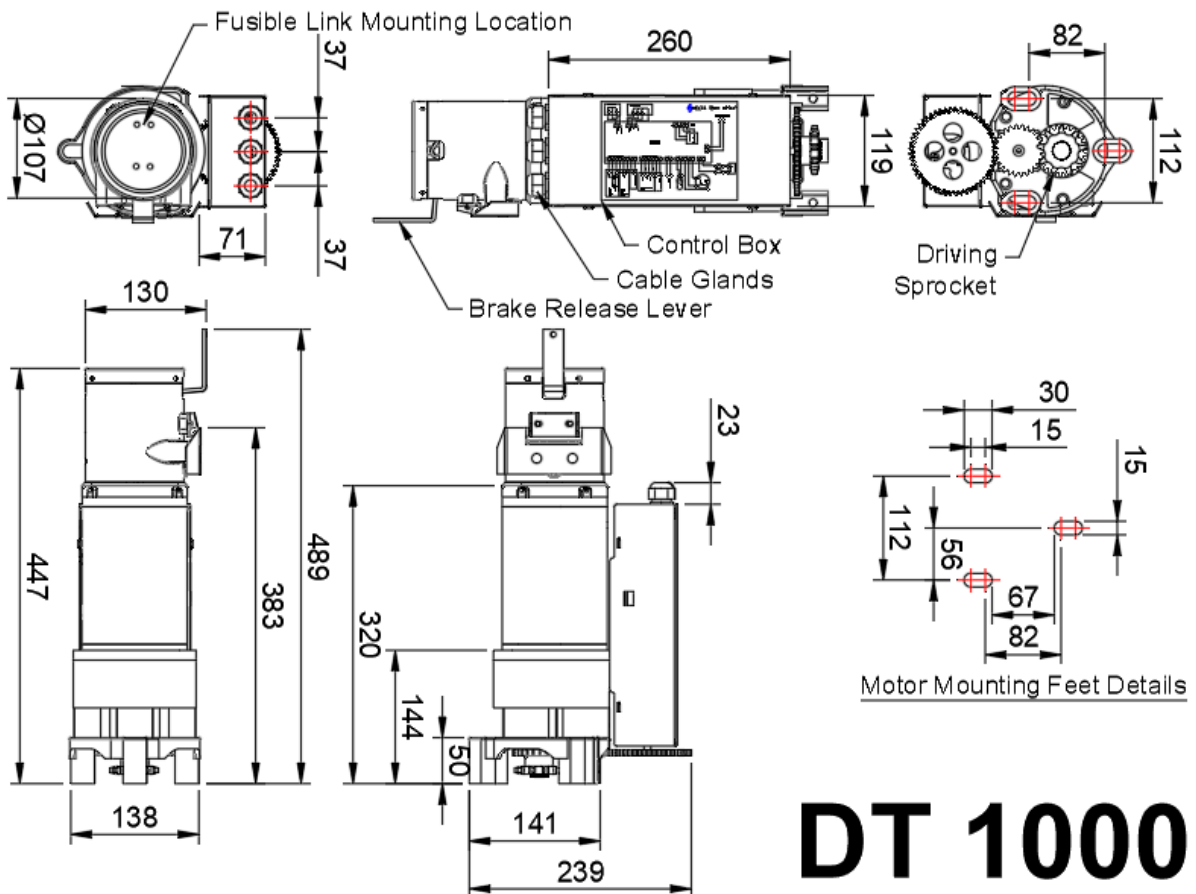
1.5 General Specification Table

Model	DT-500	DT-1000
Power	250W	550W
Torque	65Nm	140Nm
Rated Voltage	AC 230V	
Phase	1	
Frequency	50Hz	
Starting Current	10A	20A
Full Load Current	2.5A	5A
Starting Method	Capacitor Start	
Pole	4	
Rated Duration	5min	
Insulation Class	F	
Drive Chain Size*	#50	
Output Sprocket*	8T	9T
Output Speed	27rpm	29.5rpm
Mounting	Straight 3 holes flange	
Manual Override	Hand Chain	
Thermal Protection	120°C	
Controls	Built-in PCB IC control	
Controlled Descend	Brake release with spring clutch	
Thermal Release	Glass bulb/Fusible link	
Fire Alarm Input	24V DC/Dry contact	
BMS Feedback	Fully open, Fully close, Error	
Delay Descend	15sec	
Backup Battery	Nil	
Weight	11kg	12kg
Motor IP Rating	IP30	IP30
Motor Coating	HVLP Spray Coated	
Control Box IP Rating	Nil	
Control Box Coating	Powder Coated	

1.6 Overall Motor Dimension



DT 500



DT 1000

2. Main Functions

2.1 Operation

The main function of the motor is used to drive a fire shutter up and down with a brake release function to close the fire shutter during emergency.

2.2 Motor's Brake Release Function

When a fire alarm or a smoke detector signal is received, the motor will automatically release the brake to close via gravity. The brake can also be released by pulling down by hand or through a fusible link the brake release lever on the motor.

2.3 Fusible Link

A glass bulb or low temperature alloy fusible link can be installed onto to the motor for mechanical release during a fire.

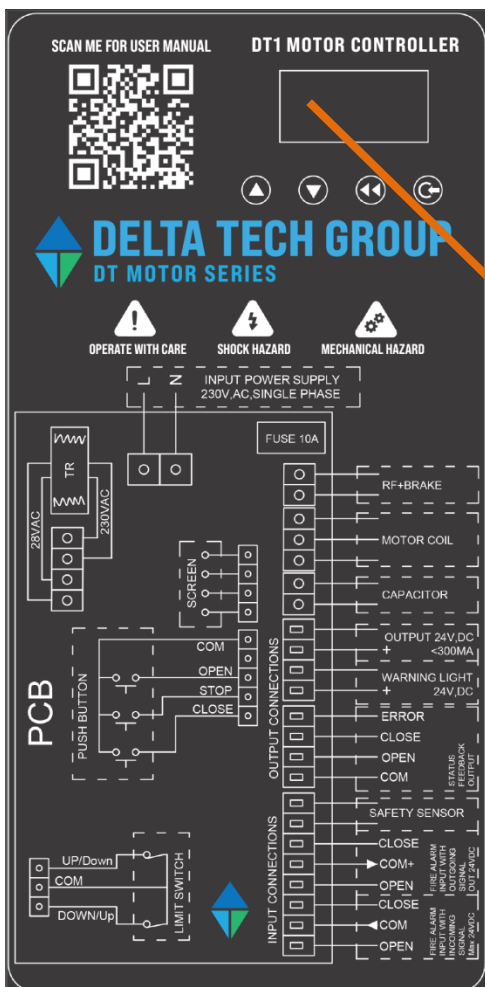
2.4 Manual Override

In case of a power failure, the motor can be operated manually using the manual override chain provide. The chain is permanently fitted onto the motor. Pull the chain continuously in one direction to open the shutter or the other direction to close the shutter.

2.5 Limit Switch

The motor is equipped with a built in limit switch. It is located within the control box.

3. Programmable Functions



There are 25 main programmable functions available in this motor operator. The programmable functions screen and buttons can be found on the control box outer cover. The main function is Menu 1, shown as { L- } on the cover screen. The secondary function after the main function is Menu 2. Menu 2 can be selected after entering from Menu 1.



Screen

Selection

Enter

Back/Up

Next/Down

Cancel/Stop

To enter into programming mode, press and hold the 'Enter' button for 3 seconds until the screen show L-01. Press 'Back' or 'Next' to cycle through the menu or increase or decrease the values. Press 'Enter' to go into the next menu or to confirm the setting. Press the 'Cancel' button to go back to the previous menu or cancel any setting.

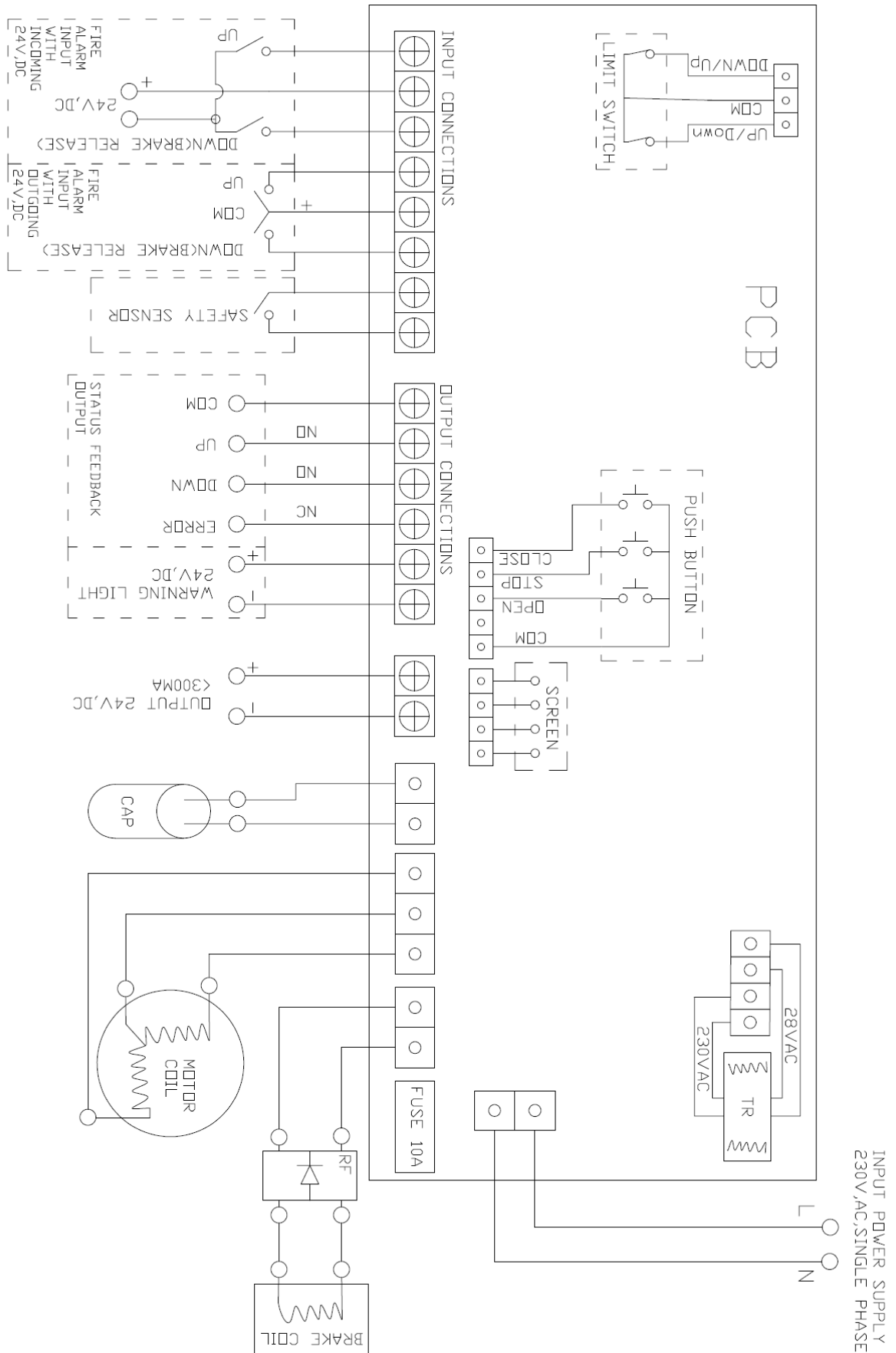
The 'Up' & 'Down' button can be used to operate the motor forward (upwards) or backward (downwards), pressing the 'Stop' button will stop the motor during operation immediately.

Press and hold the 'Up' button for 3 seconds when the shutter is in the fully OPEN position for trigger the motor to go into EMERGENCY mode (fire alarm mode), the motor brake will disengage and begin executing the setting of the emergency mode programmable function.

See the table below for the list of programmable function and the setting.

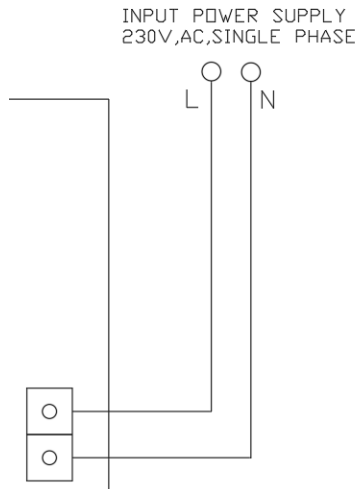
Menu 1 (L-)		Menu 2					
Selection		Selection					
01	PCB Version	0000-9999	Shows the current PCB Programme Version				
			First 2 digits is Year and last 2 digits is PCB Version				
			<i>Eg. 2201 - Year: 2022 PCB Version: 01</i>				
02	Operation Cycle Record	0000-9999	Shows the number of cycles this motor has operated in its lifetime				
			Each increment is 1 cycle - 1 fully open and fully close is 1 cycle				
			<i>This value cannot be changed, edited, erased or reset</i>				
03	Operation Cycle Record Reminder	0000-9999	Enter the number of cycles from 0000-9999				
	Default at 500		<i>When the Operation Cycle Record reaches or overshoots the number, the indicating LED will flash</i>				
04	Motor mounting direction	0000	Left				
	Default at 0001	0001	Right				
05	Push Button Type (Stop Button)	0000	NO				
	Default at 0000	0001	NC				
06	Emergency Push Button Operation Mode	0000	Push Button is not be operable during incoming emergency signal				
	Default at 0000	0001	Push Button is operable during incoming emergency signal				
07	Push Button Mode	0000	Up	Press & Release	Down	Press & Release	
	Default at 0000	0001	Up	Press & Release	Down	Press & Release to close for Xs	Press & Hold to close fully
		0002	Up	Press & Hold	Down	Press & Hold	
		0003	Up	Press & Hold	Down	Press & Release	
		0004	Up	Press & Release	Down	Press & Hold	
08	Push Button Mode - Setting Down X sec	0000	0s				
	Default at 5	0001 - 9999	Enter the number of seconds required from 0001-9999				
			<i>Each increment is 0.5 second</i>				
09	Incoming Emergency Signal Connection Type	0000	NO				
	Default at 0000	0001	NC				
10	Feedback/BMS Open & Close Signal Connection Type	0000	NO				
	Default at 0000	0001	NC				
11	Feedback/BMS Fault Signal Connection Type	0000	NC				
	Default at 0000	0001	NO				
12	Emergency Descend Power Start/Drive	0000	0s (no power start/Drive)				
	Default at 0000	0001 - 9999	Enter the number of seconds required from 0001-9999				
			<i>Each increment is 0.5 second</i>				
13	Emergency Descend Brake Interval Timing	0	0s (no interval braking)				
	Default at 00010	0001 - 9999	Enter the number of seconds required from 0001-9999				
			<i>Each increment is 0.5 second</i>				
14	Emergency Descend Interval Brake Duration	0	0s (no interval braking)				
	Default at 0004	0001 - 9999	Enter the number of seconds required from 0001-9999				
			<i>Each increment is 0.5 second</i>				
15	Total Emergency Descend Duration L12+L13+L14	0	0s (0 duration)				
	Default at 0060	0001 - 9999	Enter the number of seconds required from 0001-9999				
			<i>Each increment is 0.5 second</i>				
			<i>Exceeding this duration will resume to powered descend</i>				

4. Electrical Line Drawing



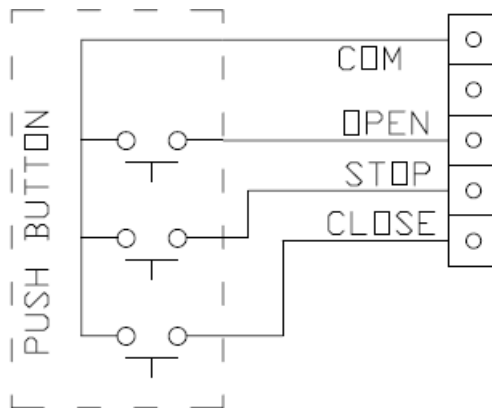
5. Connections

5.1. Connection of Power Supply



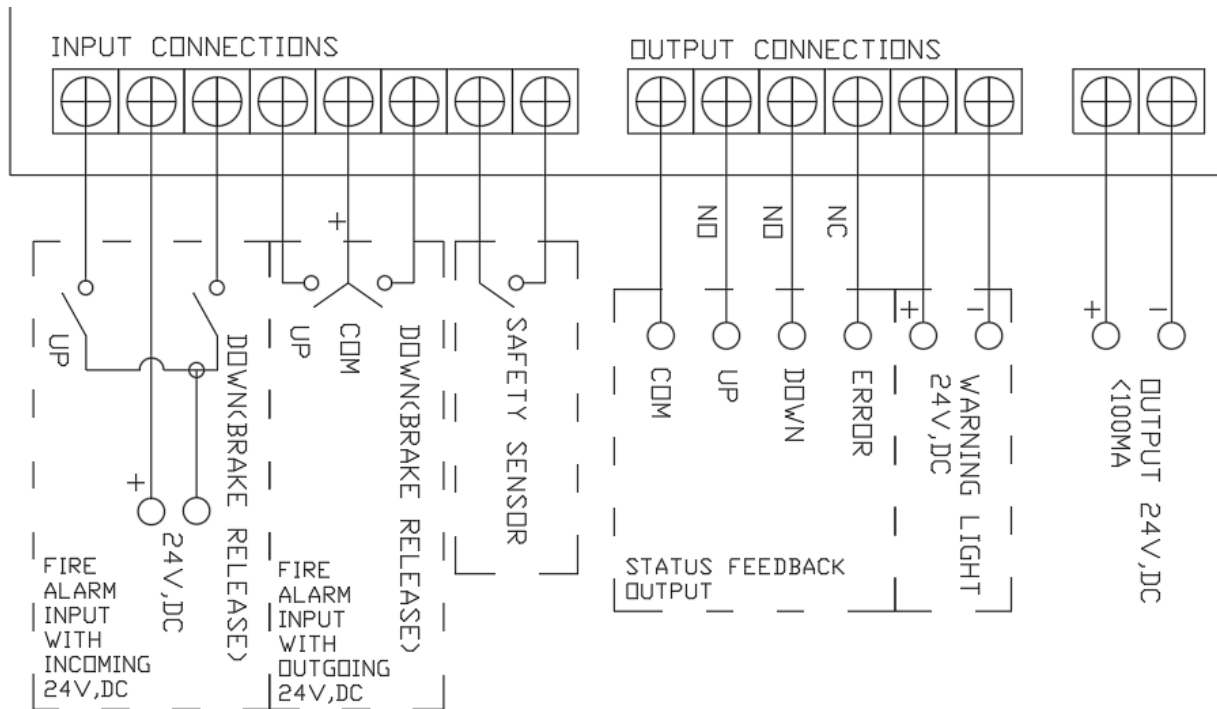
Connect the pair of 1.5m long, blue & red, cable encased in a galvanized steel flexible conduit provided directly to a single phase AC power source. Extend the cable if required.

5.2. Connection of Push Button



Connect the push button cable connection jack to the control box PCB Push Button pin (5pin). All push button contacts are normally open (NO) by default. Stop button can be changed to normally close (NC) from the programmable functions. The push button signal utilizes 24VDC.

5.3. Input & Output Terminal Connections



Note:

- Identify the type of incoming fire alarm signal before connection to the Fire Alarm Input. The control box is designed to receive 2 types of fire alarm input as labeled in the above diagram. NO by default
- Safety sensor device can be connected to the Safety Sensor terminal. NO by default.
- Status Feedback Output is used to provide feedback signal of the fire shutter to the BMS or other building services. NO by default.
- A spare 24VDC up to 300mA is provided for other usage if required.
- All signals utilize 24VDC.

6. Commissioning

Please check before commissioning:

- Operating equipment is in a clean & undamaged condition
- Installations have to be checked before first use by competent & trained personnel
- Motor and Control Box are properly & firmly installed
- Motor driving chain is properly & firmly installed
- Correct electrical power supply is given
- Connection made properly
- Cable installed and wired correctly
- All screws tightened

7. Maintenance & Service

- Maintenance & Service work must be made by trained staff only
- Visual inspection of the parts for damage
- Operation and function check of the motor
- Regular greasing or oiling of the driving chain and motor reducer box
- Check if terminals, cables and screws are fastened
- Damaged parts must be replaced immediately
- Use only original spare parts

8. Troubleshooting

8.1. Motor is turning the wrong direction

Check the programmable function, L-4. Default setting is right side installation.

8.2. Fire alarm is connected by brake did not release during activation

Check the type of incoming fire alarm signal before connection to the Fire Alarm Input. The control box is designed to receive 2 types of fire alarm input, with incoming voltage and without incoming voltage (dry contact).

Check motor installation direction and check the programmable function, L-4. Default setting is right side installation. Make they are in the same direction.

8.3. Fuse replacement

There is only 1 fuse location on the PCBA rated at 10A.

8.4. Reset to factory setting

If the issue or problem cannot be resolved as some settings are mixed up, go to L-25 of the programmable function to reset all settings back to default.