

**CONTROL
STATION
LTD**

ProMate



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General Information

The ProMate complies with the essential requirements and provisions of directives 2006/42/EC, 2006/95/EC. A declaration of incorporation is available from Control Station Ltd. When installed in accordance with this guide, ProMate complies with EN 13241-1 and EN 12453 Standards.

Safety

This unit is designed for use with single phase tubular motors used on rolling door and window shutter applications, for other applications please contact our technical department.

The ProMate must be installed and used in accordance with these instructions, installation and wiring must be in accordance with current building and electrical wiring regulations. Failure to follow these instructions could result in damage to the ProMate control unit and or non-compliance to the current standards. Do not wear jewellery or loose clothing while carrying out installation or service work.

This unit should not be installed externally or in a damp or wet area, connect the mains lead to an adjacent plug socket or fused spur unit fitted with a 10 Amp fuse. If in doubt consult a qualified Electrician.

Install the key switch in a position where the whole of the shutter area is visible and the operator is not at risk of entrapment or injury.

Operate the shutter only when it is in full view and free from obstruction, no one should enter the area around the shutter while it is in motion.

Product Overview

Pro-Mate is an essential solution for fitters installing single-phase rolling shutters controlled via a key switch. Ideal applications include door and window shutters for commercial shop fronts and public buildings where Dead-Man (also known as Hold to Run) is used for closing.

Dedicated features ensure safety is maintained during the life cycle of the shutter, installation, maintenance, normal running, service and repair. Every aspect of the product has been carefully considered, it has ample room for cables, quick fit push-in and screw clamp cable restraints and clearly marked colour coded terminals to reduce installation time. There is also a facility to allow the motor direction to be swapped without the need for reconnecting cables. The default setting for Pro-Mate is Dead-Man Open and Close but Push to Run Open can be selected via DIP switch if the shutter does not contravene the requirements in EN12453 for Push to Run Open. There is also the facility to disable the external switch inputs so that a fitter can carry out routine maintenance in safety without first having to collect all the keys in or disconnect any other devices from the control unit. There are lid mounted switches to help with commissioning and allow local control as well as designated LED's to give clear status information.

Points to Check Prior to Installation

Check that the ProMate is suitable for the application it is to be used on.

If the shutter is the only entry point into the premises then we recommend one of our Battery Backup Up units is fitted to allow safe convenient operation in the event of a power failure.

Unpack the control unit and other equipment, check that all parts are present.

Ensure that all necessary tools are at hand prior to starting the installation.

Installation

The upper half of the lid with the LED's and push buttons should never be removed.

Doing so will invalidate the warranty.

The unit is normally mounted on the same side of the shutter as the motor although this is not essential; the main priority is to mount it in a safe and accessible location for installation, operation and maintenance.

1. First remove the lower half of the lid to expose the two lower fixing points. The top central fixing is a keyhole type slot which the unit hangs on and is not accessible from inside the enclosure.
2. Hold the unit against the wall in the required location and mark the centre top position, there is a small indent in the top cover to help with this. The keyhole slot is 8mm below this point so if the height is critical allow for this when marking.
3. Hang the unit on the top fixing and then mark the location for the two lower holes, remove the unit from the wall prior to drilling these to avoid damage or dust ingress. Fix the unit firmly to the wall.

Wiring the Control Unit

Always disconnect the mains supply before making any connections.

If the motor limits are to be set using a test lead then this should be done prior to connecting the motor wires to the ProMate.

The ProMate can now be wired; details of the terminals are listed on the opposite page with a full wiring diagram on page 14. We recommend the connections are made in the following order:

1. Connect the key switch wires to terminals T10, 11 & 12
2. Apply power to the ProMate and check that the switch is wired correctly, when the Open command is given the Open command LED on the lid should illuminate,

likewise for the Close command. If this is not the case swap the wires in T11 & T12 then re-check, once this is correct switch OFF the power.

3. Connect the motor to T1, 2, 3 & 4. (For 5 wire motors T5 is a permanent live.)

4. Connect the safety brake to T15 & T16

Then proceed to page 6 to commission the system

   	T1	Motor Open (Factory Set see note 3)	Black (LH Motor)	
	T2	Motor Close (Factory Set see note 3)	Brown (LH Motor)	
	T3	Motor Earth	Green/Yellow	
	T4	Motor Neutral	Blue	
 	T5	Motor Permanent Live (see note 2)	For 5 wire motors only	
	T6	Not Used		
  	T7	Mains Neutral	An IEC plug may be fitted in place of these terminals (see note 1)	Blue
	T8	Mains Earth		Green/Yellow
	T9	Mains Live		Brown
Mains Voltage ----- Separated Extra Low Voltage	  	T10	Key Switch Common	Low voltage alarm type cable can be used for switch wiring
		T11	Key Switch Close	
		T12	Key Switch Open	
	   	T13	Stop Switch Common	Link if not used
		T14	Stop Switch Input (N/C contacts)	
		T15	Safety Brake Common	Link if not used
		T16	Safety Brake Input	

Note 1: Depending on the model, mains connection may be through an IEC lead, the unit should be connected to an adjacent plug socket or fused spur unit fitted with a 10Amp fuse.

Note 2: This output is fed directly from T9 or the IEC plug live pin and is not protected by the fuse on the circuit board, it should only be used for motors that require a permanent live supply. See page 8 Motor Type for further information.

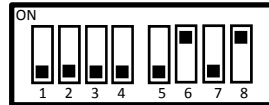
Note 3: Motor direction outputs can be reversed to allow for motor wiring, the direction shown is with DIP 7 OFF and 8 ON (Factory set mode). See page 6 Motor Direction Reversal for further information.

Commissioning

Once all the wires have been connected the system can be tested, the DIP switches should be in the factory set position as shown below unless you need Motor Monitoring to be activated in which case DIP 4 needs setting to ON (see page 8 Motor Type for further information).

Factory Settings: DIP 6 and 8 ON

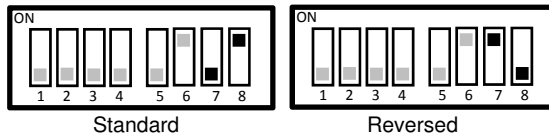
DIP 1,2,3,4,5 and 7 OFF



Apply power to the unit, the lid mounted LED's will show the status of the control system, details on page 12.

If it is safe to move the shutter press and hold one of the direction buttons on the lid and check that the motor direction is correct, if the shutter cannot be seen from the control unit then carryout this test from the key switch. If the direction is incorrect then see below for reversing the direction via DIP switch. The buttons on the lid always function in 'Dead-Man' mode.

Motor Direction Reversal

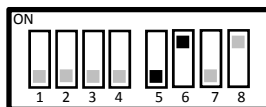


Standard

Reversed

The Direction of the motor is set by DIP 7 and 8 (factory set to DIP 7 OFF, DIP 8 ON). This makes terminal T1 the OPEN output and T2 the CLOSE. If the motor runs in the opposite direction to that required then DIP 7 should be turned ON and DIP 8 OFF, this will swap the two outputs over, removing the need to swap the wires at the terminals. The motor direction can then be retested. If both of these switches are set to ON or both set to OFF, then the motor will not operate.

Set the Motor Limits



Dead-Man

These can be set either from a test lead prior to connection or through the ProMate, if the ProMate is used then it must be in 'Dead-Man' OPEN mode (as factory set, DIP 5 OFF

DIP 6 ON). If both of these switches are set to ON or both set to OFF, then the motor will not operate.

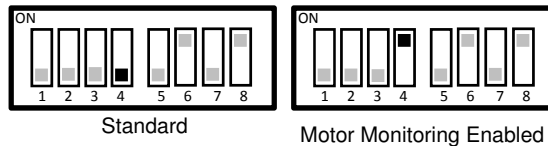
Use either the lid mounted buttons or the key switch to move the shutter to its end of travel position and set the respective limit as per the motor manufacturer's handbook.

Configure the System

A full list of DIP switch functions can be found on page 12

Motor Monitoring

Factory set to OFF, this function is not available with all motors see 'Motor Type' section page 8 for further information



When a conventional 4 wire tube motor is used with DIP 4 set to ON the ProMate monitors end limits and also monitors that the motor is rotating when the shutter is between end limits with the motor output on. If it stops due to pin or ground locks, mechanical jamming or the safety brake engaging it will remove the power to prevent overheating and 'burning out'. This relies on the mechanical construction of the shutter and associated parts being capable of withstanding the forces exerted on them by the motor as it comes to a stop. (See EN12604 Design and Construction 4.2.2 Strength)

The Motor Output LED:

Comes ON solid when power is applied to the motor and it is moving unobstructed between limits.

Flashes rapidly on leaving or arriving at an end limit or when rotation is not detected.

The Motor Output will be turned Off:

After 1 second when the shutter is opening or closing if the motor is stopped by pin locks, safety brake activation or mechanical jamming of the shutter.

After 2 seconds when arriving at the end limit position.

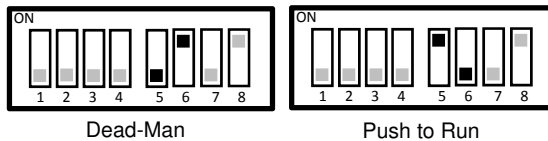
After 5 seconds if motor rotation has not been detected.

Motor Type

Motor monitoring can only be used with standard 4 wire tube motors, it will not work with 5 wire tube motor or relay interfaces, for further details please contact CSL.

If a constant live supply is required for a 5 wire motor then this is available on terminal T5. This output is fed directly from the Power-In terminal T9 and is not protected by the on-board fuse F1, it is only protected by the mains supply fuse feeding the ProMate so the cable must be sized accordingly. The maximum load connected must not be greater than 6 Amps.

Key Switch Operation



The ProMate comes set to operate in 'Dead-Man' mode (also known as 'Hold to Run') for both directions. If the shutter does not contravene the requirements in EN12453 for Push to Run Open, the OPEN direction can be set to 'Push to Run' mode by turning DIP 5 ON and DIP 6 OFF.

When Push to Run Open is selected there are 2 modes of operation:

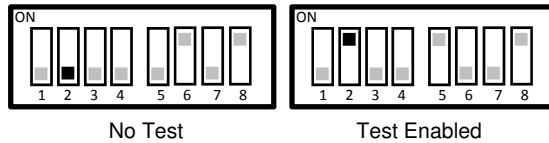
Push to Run Open without Motor Monitoring

The Push to Run Open Selected LED will be ON with an OFF blink every 6 seconds to show that on receipt of an open command the motor output will be on for a fixed time of 90 seconds.

Push to Run Open with Motor Monitoring

The Push to Run Open Selected LED will be ON to show that on receipt of an open command the motor output will be on until 2 seconds after the top limit is reached it will then go OFF as power is removed from the motor. The max run time is 90 seconds for Push to Run

Stop Switch Testing

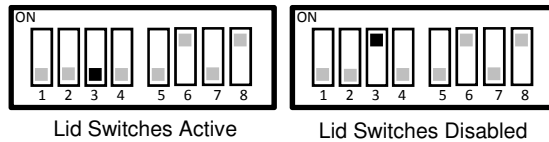


To protect against short circuit faults on normally closed (N/C) Stop Switch circuits you can select Stop Switch Test before opening. This is only applicable if Push to Run open has been selected and a switch that incorporates a stop button has been used.

In this mode it requires the STOP SWITCH to be pressed and released prior to the OPEN command being given when in Push To Run mode, otherwise the shutter will only open in Dead-Man. DIP 2 (factory set to OFF) should be set to ON to enter this mode.

*When set to this mode, if the External OPEN command is received without the STOP being pressed first then the OPEN LED will flash and the STOP / SAFETY LED will illuminate for three seconds. **Only use when Push to Run Open is selected***

Lid Button Disable

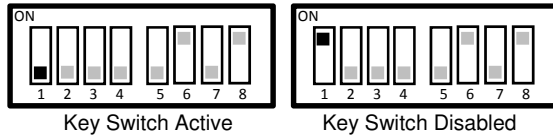


The ProMate has OPEN and CLOSE switches mounted on the upper fixed lid to allow local control and assist with the initial installation and routine maintenance of the shutter. These always operate in 'Dead-Man' mode, even when the external switch is set to Push to Run.

In situations where the control unit is mounted within reach of people who should not be able to operate the shutter these buttons can be disabled. DIP 3 (factory set to OFF) should be set to ON to disable the lid buttons.

When set to this mode the Lid Buttons Disabled LED illuminates. If the switches are pressed while disabled the corresponding OPEN or CLOSE LED will flash rapidly

External Key Switch Disable



The ProMate is generally controlled from a key switch, or in some cases it may be connected to other equipment such as a security alarm or remote receiver. To allow engineers to work safely on the shutter during installation or while carrying out routine maintenance or repairs, the OPEN and CLOSE inputs can be disabled. This removes the need to collect in keys or disconnect devices. DIP 1 (factory set to OFF) should be set to ON to Disable the OPEN and CLOSE inputs, the lid mounted LED's remain functional to provide feedback.

When set to this mode the External Switch Disabled LED flashes. If the key switch is activated while disabled the corresponding OPEN or CLOSE LED will flash rapidly

Battery Backup

When used in conjunction with a CSL battery backup unit (BBU), the ProMate will provide normal operation of the shutter during a power failure. The only noticeable difference will be a short time delay between pressing the switch or turning the key and the shutter starting to move. If Push to Run open is selected it will only operate in Dead-Man until mains power is restored.

Installation and Connections

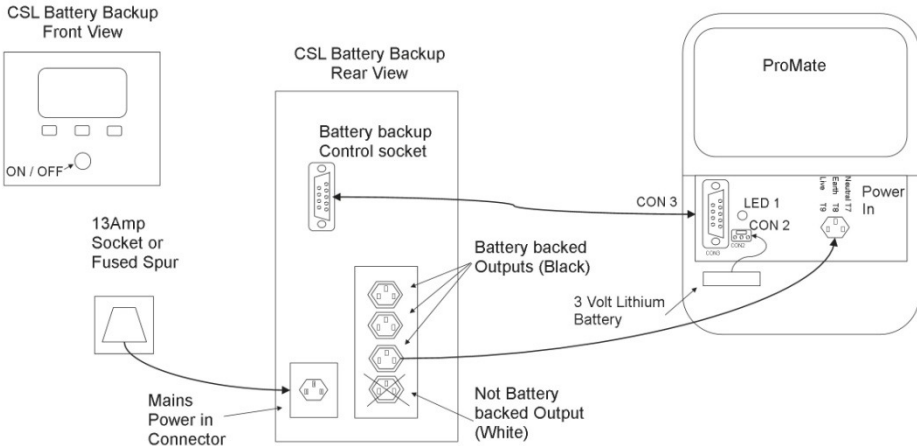
The BBU should be mounted in a ventilated accessible location. There is a small 3.6 volt battery supplied with the BBU, this should be plugged into the white 3 pin connector on the left hand side of the ProMate PCB labelled CON 2. It provides the wake up signal to the BBU in the event of a power failure. It should be secured using the adhesive pad supplied with it.

The cables required are supplied with the BBU, these are:

A standard mains lead to connect the BBU to the mains supply (plug socket or fused spur fitted with a 10 Amp fuse)

An IEC power cable which goes from the BBU output socket to the mains input point on the ProMate. If a mains cable was supplied with the ProMate it should be discarded.

A control cable which goes from the BBU multi-pin socket labelled RS232 to the ProMate multi-pin socket labelled CON3.



Operation and Maintenance

Once the ProMate battery has been connected and all the cables plugged in, apply power to the BBU. Next press and release the POWER on/off button on the front of the BBU, the display illuminates on the BBU and LED 1 on the ProMate comes on solid.

After a few seconds the BBU output will come on, the ProMate will show Mains power on and can be used as normal. In the event of a power failure the BBU will go into a sleep mode to save battery power; to operate the shutter either turn the key switch or press one of the lid mounted buttons, the BBU will then wake up and after about 10 seconds start to supply power to the ProMate. The shutter can then be operated as normal.

The BBU carries out a periodic self-test on its internal batteries, their condition is indicated on the BBU LCD display and an alarm will indicate if they need changing. The 3.6 volt Lithium battery in the ProMate has been designed to last 5 years.

Important

The battery mounted in the ProMate for use in conjunction with the BBU is a 3.6 volt Lithium Thionyl Chloride (LTC) and should not be confused with a standard AA battery which is 1.5 volts.

System Information

Lid Mounted LEDs

LED	Indication	Description	Details
Mains / Fault	OFF	No Power to unit	
	ON	Mains Power On	
	FLASHING	Powered from Battery Back Up	Page 10
Open/Close Command	OFF	Waiting for Open / Close Input	
	ON	Input received, Motor Output On	
	FLASHING	Input received but Ignored	Page 9,10
Stop Circuit / Safety Brake	OFF	Stop & Safety Brake Circuit Healthy	
	ON	Stop Circuit Activated	Page5,9,13
	FLASHING	Safety Brake Circuit Activated	Page 5,13
Push To Run Open (Close is always Dead Man)	OFF	Dead Man Open & Close	
	ON with off blink	Push to Run Open, Motor Monitoring Off	Page 8
	ON	Push to Run Open With Motor Monitoring On	Page 8
Motor Output On	OFF	Motor Power Output OFF	
	ON	Motor Power Output ON	Page 7
	FLASHING	Motor Status Fault for further details see Troubleshooting	Page 13
Lid Buttons Disabled	OFF	Lid Mounted Buttons Operable	
	ON	Lid Mounted Buttons Disabled	Page 9
	FLASHING	Disabled Lid Button Pressed	Page 9
External Switch Disabled	OFF	External Switch Inputs Operable	
	FLASHING	External Switch Inputs Disabled	Page 10

DIP switch Information

DIP Switch	Factory Setting	Function	Details
1	OFF	ON External Switch Disabled	Page 10
2	OFF	ON Stop Switch Test Active (DIP 5 must be ON as well)	Page 9
3	OFF	ON Lid Buttons Disabled	Page 9
4	OFF	ON Motor Monitoring Active	Page 7
5	OFF	Dead Man Open	ON Push to Run Open
6	ON		
7	OFF	Motor Direction Standard	ON Motor Direction Reversed
8	ON		

Note: Movement in the CLOSE direction is always 'Dead Man'

Troubleshooting

A full list of LED indications is shown opposite with details of where further information can be found, the following points should be read in conjunction with that.

Description	Possible Causes	Action
Mains / Fault LED OFF	No Power to unit	Check power supply at source, fuse in plug and on PCB and check wiring
	ProMate in 'sleep mode' if Battery Back-Up (BBU) fitted	Wake BBU by pressing lid buttons or key switch, check BBU & connections
Motor Output Rapid Flashing	Motor not connected	Check motor wiring T1 – T4
	Motor at end limit position	Move shutter in opposite direction
	Motor Thermal Trip	Allow motor to cool then retry
	Both limit switches open	Check, reset limits if required
	5 wire motor connected	Set DIP 4 to OFF
	Auxiliary relays connected	Set DIP 4 to OFF
1 Flash	Pin lock/Safety brake/ Shutter jammed	Check for locks, safety devices and obstructions or damage. Changes to 1 flash when Motor Output turns OFF
2 Flashes	Relay Weld	Electrical fault, Consult engineer
3 Flashes	DIP switch set incorrectly	Check DIP switch settings Page 12
4 Flashes	No Internal 3.6 volt battery	Check connection to CON 2, page 10
Battery Back-Up not working	The BBU may be turned OFF or not connected correctly	Check connections and status of equipment
	3.6 volt battery not fitted to ProMate(Only required if CSL BBU used)	See '4 Flashes' above and page 10 for further information
Shutter will not OPEN / CLOSE LED Flashing	Lid buttons disabled	Turn DIP 3 OFF
	External buttons disabled	Turn DIP 1 OFF
	Safety / Stop activated	Check switches, wiring, links T13-T16
	Motor at end limit position	Check limits, try opposite direction
	Motor Thermal Trip	Allow motor to cool then retry
	Motor not connected	Check motor wiring T1 – T4
LED Off	Pin lock/Safety brake/ Shutter jammed	Check for locks, safety devices and obstructions or damage.
	Faulty key switch or wiring	Check switch & wiring Try Lid switches

Maintenance

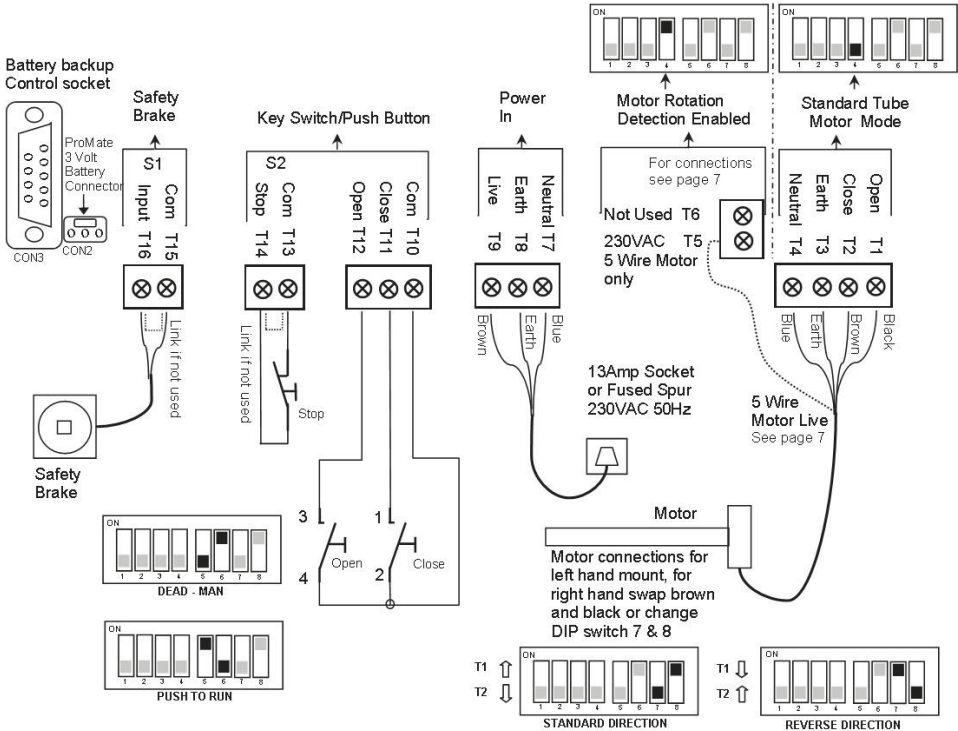
Roller shutters need a suitable system of maintenance at intervals recommended by the manufacturer, this needs to be able to be carried out safely by the engineer. The ProMate itself does not require any maintenance.

Wiring diagram

Always disconnect the mains supply before making any connections.

Refer to Safety Information on page 3, full terminal details are shown on page 5.

If the motor limits are to be set using a test lead then this should be done prior to connecting the wires to the ProMate.



Specification

Supply	230VAC 50Hz	Enclosure Dims (WxHxD)	180 x 220 x 55mm
Motor	230VAC 5A Max	Enclosure Rating	IP20
Fuse	T6.3A 250V	Operating Temperature	-20 to +60c
Safety Input	1 x Safety Brake N/C	Standby Power	< 0.5 Watt
Stop Input	1 x N/C	Operating Class	1

Part Numbers

ProMate with IEC cable	PR-S-000-01
ProMate with IEC No cable	PR-S-000-00
ProMate with standard cable	PR-S-000-11
ProMate with terminals No cable	PR-S-000-10

Operation

Only trained persons may operate the shutter.

Operate the shutter from a position where you are not at risk of injury or entrapment, the whole of the shutter must be in full view and free from obstruction, no one should enter the area around the shutter while it is in motion.

The shutter can be controlled from either a key switch or buttons mounted on the lid of the control unit.

To close the shutter: Check that it is safe to operate it, then press and hold the close button or turn and hold the key switch in the close direction. The shutter will start to close and continue until it reaches the fully closed position where it will automatically stop at a pre-set end of travel limit position. If you release the button or key before it reaches that position it will stop, actuate it again to continue closing.

To open the shutter, there are two standard methods depending on the type of shutter fitted and the location it is in:

Dead-Man Open: This is the same as the method for closing, you must keep the key turned or the button pressed to keep the shutter moving. Check that it is safe to operate it, then press and hold the open button or turn and hold the key switch in the open direction. The shutter will start to open and continue until it reaches the fully open position where it will automatically stop at a pre-set end of travel limit position, release the button or key. If you release the button or key before it reaches that position it will stop, turn the key again to continue opening.

Push to Run Open: Check that it is safe, then press and release the open button or turn and release the key switch in the open direction. The shutter will start to open and continue until it reaches the fully open position where it will automatically stop at a pre-set end of travel limit position. During the open cycle, activating any switch will stop the shutter.

Stop Switch, some installations are setup so that the stop button must be pressed first, followed by the open command for the shutter to operate in push to run mode, in this case press the stop first and then the open within five seconds to operate the shutter.

Please consult this manual or contact your supplier for further information, all service work must be carried out by suitably trained personnel.

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