PRODUCT INSTRUCTIONS

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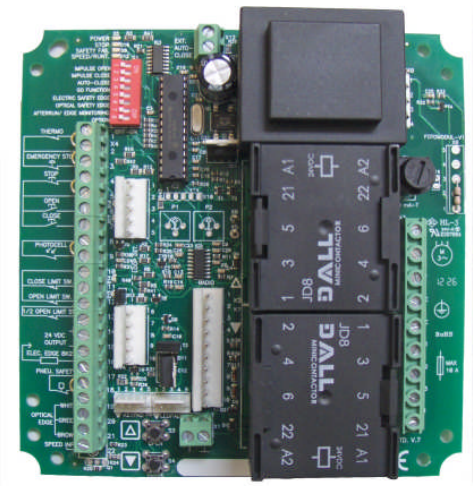
Mini Standard V7 3phase Controller

Dallimore Rd, Wythenshawe,
Manchester. M23 9NX
T: +44 (0)161 945 4561
F: +44 (0)161 945 4566

Stock Code	Description	Doc No:	PI-110
01003	Dalmatic Mini Standard V7 Controller	Iss:	1

Controller



Specification

Supply voltage:	3ph - 400VAC ± 10% L1,L2,L3,PE ('N' not required) 50/60Hz, Mains supply protection should be provided by either 10A/phase MCB Type 'C' or fuse equivalent
Maximum Load	Max motor load by 3 x 400VAC: 4 kW
Temperature range	-10…+50°C (operating)
Humidity:	Up to 93% RH non-condensing.
Auxiliary Supply	24VDC ± 20% (non-regulated) Max load: 250mA (without additional plug-in options)
Safety edge input:	Pneumatic air switch (N/C Contact) Electric type - 8k2 termination ± 10% Optical type (Fraba OSE or Dalmatic TSS/RSS)
Photo sensor input	Photo-sensor, 24 VDC, Relay O/P N/C

Description

The Mini-Std controller has been designed as a controller which provides the capabilities to operate an industrial door safely under electrical control by means of a pushbutton station or key switch

Its intended use is to be connected to a suitable motor not exceeding the load for the controller

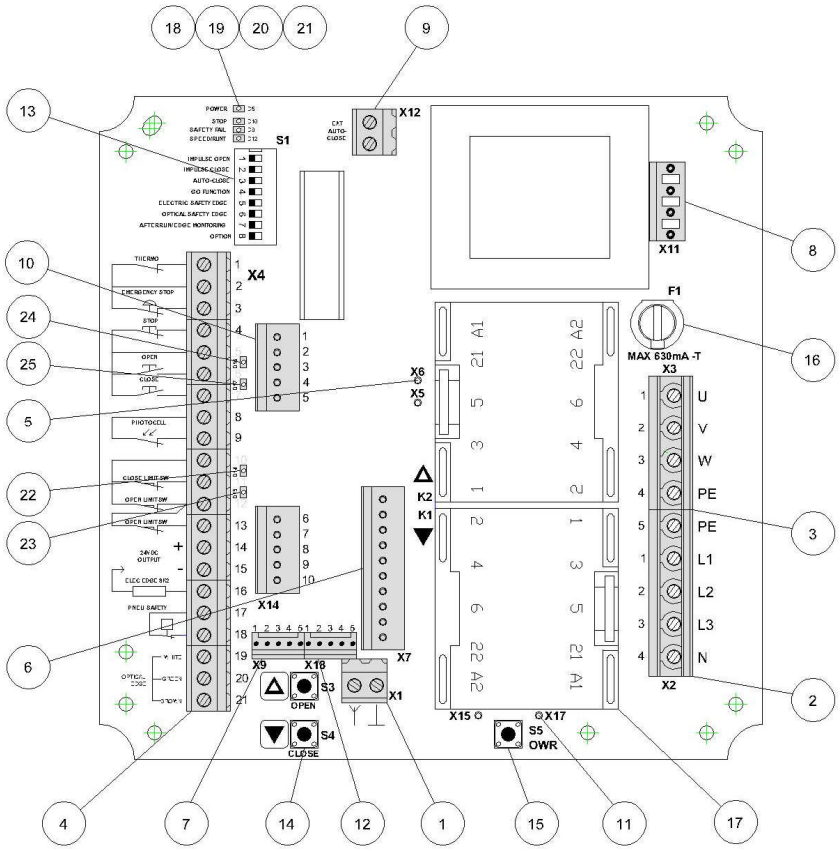
The unit incorporates safety features to protect people or property from damage by automatically reversing a closing door should they be activated

This together with the auto closing function and additional facilities for plug in Loop Detectors and radio control make this unit very versatile

Connections are provided for Mains supply, Motor power, Travel Limits switches, Push Buttons, Photocell and Safety Edge and 24VDC Auxiliary power (250mA max)

The installation should only be carried out by a trained competent person and in accordance with all local legislation. Please read the instructions in full prior to installation

Board Layout



No	Item	Description	Notes
1	X1	Antenna	Option
2	X2	Mains Power Supply	
3	X3	Motor Connection	
4	X4	Ancilliary Inputs / Outputs	
5	X5 / X6	Test Points	
6	X7	Radio Card Socket (1 / 2 channel)	Option
7	X9	Membrane Keypad Connection	Option
8	X11	Lamp PCB Socket	Option
9	X12	External Auto Close Input	
10	X14	Loop Detector Socket	Option
11	X15 / 17	Test Points	
12	X18	Membrane LED connection	Option
13	S1	DIP Switches	
14	S3 / S4	On Board OPEN / CLOSE buttons	
15	S5	OWR (over-ride) button	
16	F1	Fuse	630mA - T
17	K1 / K2	OPEN / CLOSE Contactors	
18	D5	POWER LED - GREEN	
19	D8	SAFETY FAIL LED - AMBER	
20	D10	STOP - RED	
21	D12	SPEED / RUNT - RED	
22	D14	CLOSE LIMIT SWITCH - AMBER	
23	D15	OPEN LIMIT SWITCH - AMBER	
24	D16	OPEN PUSHBUTTON - AMBER	
25	D17	CLOSE PUSH BUTTON - AMBER	

Hard Wired Connections

Connector	Terminal	Label	Contact	Function
X1	1	Antenna		
	2	Antenna Shield		
X2	1, 2, 3	3ph 400V 50Hz		
	4	Neutral		
	5	Power Supply - Earth		
X3	1, 2, 3	U, V, W (motor phase)		
	4	Motor Earth		
X4	1	THERMO	N/C	Thermal trip - motor
	2	Common	-	Thermo/Emergency Stop - Common
	3	EMERGENCY STOP	N/C	Emergency Stop - Push Button
	4	STOP	N/C	Push Button - STOP
	5	Common	-	Push Button - Common
	6	OPEN	N/O	Push Button - OPEN
	7	CLOSE	N/O	Push Button - CLOSE
	8~9	PHOTOCELL	N/C	Photocell Contact
	10	Common	-	Limit Switch - Common
	11	CLOSE LIMIT SW	N/C	CLOSE Limit Switch
	12	OPEN LIMIT SW	N/C	OPEN Limit Switch
	13	1/2 OPEN LIMIT SW	N/C	1/2 OPEN Limit Switch
	14	24V DC OUTPUT (+)	-	+24V DC Auxiliary supply output
	15	24V DC OUTPUT (-)	-	0V Auxiliary supply output
	16	ELEC EDGE 8K2	-	8.2k Resistive Safety Edge
	17~18	PNEU. SAFETY	N/C	Pneumatic Safety Edge
	19~20~21	OPTICAL EDGE	-	Optical safety Edge
X12	1~2	EXT. AUTO CLOSE	N/C	External Auto Close Connection

DIP Sw Functions			OFF	ON
	1	Operation - OPEN direction	Dead-man OPEN	Impulse OPEN
	2	Operation - CLOSE direction	Dead-man CLOSE	Impulse CLOSE
	3	External 'Auto-Close' operation (x12)	Disabled	Active
	4	GO Function - OPEN-STOP-CLOSE	Disabled	Active
	5	Electric safety Edge 8k2 enabled	Disabled	Active
	7	After-run/Safety Edge Mon. enabled	Disabled	Active
	8	Service Interval Counter	Disabled	Active

Installation

1) Controller should be mounted in suitable enclosure for the environment and be:
    a. Vertically mounted and free from vibration
    b. Not exposed to and is free from all dust and debris
    c. Fitted with appropriate cable glands to maintain IP rating of enclosure selected
    d. Fitted with appropriate wall fixings used to secure the enclosure
2) Ensure that all power is **OFF** before connecting any wiring to the controller or motor referring to the connection details in this manual,
3) Check **ALL** wiring connections are secure upon completion

Setting Travel Limits

1) Manually haul the door to mid position
2) Ensure ALL dipswitches are set to **OFF**
3) Re-apply mains supply power
4) Press the open button and observe the operating direction, the door should move in dead-man operation in the opening direction
    a. If not correct, turn the Main Supply Power **OFF**, rotate any two of the motor phases U, V, W i.e. (U&V) (U&W) or (V&W)
    b. Turn mains supply power ON and re-check for correct direction
5) Using pushbuttons move the door to its fully open position, then set the open travel limit cam
   Repeat in the close direction setting the close travel limit cam
   Fully open & close the door and check end of travel positions adjust travel limits if necessary

Dipswitch Functions

Dipswitch			
SW	**Description of function**	**OFF**	**ON**
SW1	Operation – OPEN direction	Dead-man OPEN	Impulse OPEN
SW2	Operation – CLOSE direction	Dead-man CLOSE	Impulse CLOSE
SW3	External 'Auto-Close' operation (term X12)	DISABLED	ACTIVE
SW4	Go function (OPEN-STOP-CLOSE-STOP)	DISABLED	ACTIVE
SW5	Electric Safety Edge 8k2 enabled	DISABLED	ACTIVE
SW6	Optical Safety Edge enabled	DISABLED	ACTIVE
SW7	After-run/Safety Edge Mon. enabled	DISABLED	ACTIVE
SW8	Service Interval Counter	DISABLED	ACTIVE

Types of Operation

1) **Dead man Open / Close** - With all DIP Switches OFF the starter will operate in dead-man condition, I.e. motor will stop when the control button is released
2) **Impulse Open / Dead man Close** – Move DIP Sw 1 to ON position, starter will operate as one press to open / press and hold to close
3) **Impulse Open / Close** – Move DIP Sw 1 and 2 to ON position, starter will operate as one press open / one press to close

In order to comply with current regulations, this condition must only be used in conjunction with a monitored safety edge system

Auto-Close Timer

(This must be used in conjunction with a suitable monitored safety edge system or photocell connected and have DIP Sw 1 and 2 turned on)

The Mini Basic LCCV.2 controller has an auto-close timer that can be set from 1 - 240 seconds; its factory preset time is 15-seconds:
Adjustment of this time can only be changed using either the **'ON BOARD'** or **'MEMBRANE'** buttons **it is not possible using an external prewired push button station**

To select a different time:
1) Set DIP Sw 3 to ON
2) Press open button and run door to top limit
3) When at top limit position, press and hold both the open and close buttons together for 5 secs – the **RED** STOP LED will flash to show leaning mode

Wait for the desired time then press the CLOSE pushbutton once, the red STOP LED will turn off , the time is now stored and the door will immediately close

Go Function

With Dip Sw 4 set to **'ON'**, the Mini Std V7 controller can be run using a single external non-latching N/O pushbutton connected to the pushbutton '**OPEN**' terminal
The OPEN pushbutton will now operate OPEN - STOP - CLOSE - STOP in a sequential mode

Safety Edges

The Mini Std V7 controller has been designed so can be used with and to monitor different types of safety edge, these options include connections for resistive, pneumatic and optical safety edge's
If a safety device is activated during the close cycle, the controller will immediately stop, briefly pause then return to the fully open position. If the AUTO-CLOSE timer has been enabled the door will close again on the expiry of the AUTO-CLOSE time or when the CLOSE button has been pressed.

Pneumatic Safety edge (not to used on a new installation)

This type of safety edge is not monitored and can become problematic and fail to work should any air-leaks occur, therefore is not compliant for new installations and should be restricted to existing / older installations

1) Ensure the pneumatic safety edge has been fitted correctly and has no air leakage
2) Connect the N/C switch contact to (X4) 17~18
3) Set DIP Sw 7 to ON
4) Set OPEN limit switch as normal and set the CLOSE limit switch to a maximum 50mm from the fully open position

Electric Safety Edge (8K2 resistive type)

This type of safety edge is monitored by the Mini-Std, It senses any changes to the resistance value (8k2) flowing through the safety edge

1) Ensure the resistive edge has been correctly assembled and that the resistance value measurers 8k2
2) Connect each wire from the safety edge to (X4) 15~16
3) Set DIP Sw 5 to ON
4) Set DIP Sw 7 to ON
5) Set OPEN limit switch as normal and set the CLOSE limit switch to a maximum 50mm from the fully open position

Optical Safety Edge

This type of safety edge is also monitored by the Mini-Std, It consists of a light barrier transmitter and receiver fitted into each end of the safety edge and senses any interruption to the beam flowing through the safety edge

Only use FRABA compatible optical safety edge

1) Ensure the connections are correct BROWN (+12v) GREEN (signal) WHITE (0v) and they correspond with the board connections (X4) 19~20~21
2) Set DIP Sw 6 to ON
3) Set DIP Sw 7 to ON
4) Set OPEN limit switch as normal and set the CLOSE limit switch to a maximum 50mm from the fully open position

Note:

If any safety device is activated during the close cycle, the controller will immediately stop, briefly pause, and return to the fully open position. If the AUTO-CLOSE timer has been enabled the door will close again on the expiry of the AUTO-CLOSE time or when the CLOSE button has been pressed.

After run/Safety Edge Monitoring

. Setting S1 Dipswitch 7 to ON will enable the After-run function.
This uses the Close limit (set 50mm from the floor) as a safety edge override limit.
When the Closed limit is activated the operator electronically overruns this limit (max. of 0.3 seconds) until a signal from the safety edge is received.
If no safety edge signal is received the **AMBER** Safety Fail LED will flash and the controller will revert to dead-man until the fault is cleared
Pressing the OWR (override) and CLOSE pushbuttons simultaneously will override the fault condition.

Service Counter

The Mini Std V7 has a settable service interval counter that can be set via the S1 Dipswitches, each dipswitch equates to a set number.

S1 Dipswitch			
D/Sw	**Count**	**D/Sw**	**Count**
1	1,000	5	30,000
2	5,000	6	40,000
3	10,000	7	50,000
4	20,000	8	Not used

Setting the Service Interval Counter:

1) Note and record all S1 Dipswitch settings
2) Set ALL S1 Dipswitches to OFF
3) Set S1 Dipswitch 8 to ON
4) Set **only one other** S1 Dipswitch to ON
5) Press simultaneously the OWR, CLOSE and OPEN pushbuttons for 3-seconds
6) The Service LED will illuminate for 3-seconds to confirm
7) Return ALL S1 Dipswitches to their original settings and test the door for correct operation

Resetting the Service Interval Counter

1) Press simultaneously the OWR, CLOSE and OPEN pushbuttons for 3-seconds
2) The Service LED will illuminate for 3-seconds to confirm

Disabling the Service Interval Counter

1) Note and record all S1 Dipswitch settings
2) Set ALL S1 Dipswitches to ON
3) Press simultaneously the OWR, CLOSE and OPEN pushbuttons for 3-seconds
4) The Service LED will illuminate for 10-seconds to confirm
5) Return ALL S1 Dipswitches to their original settings and test the door for correct operation

LED Status Indicators

LED	Description	Colour	Status	Description of status
D5	POWER	Green	ON	24VDC supply is ON
D8	SAFETY FAIL	Amber	Flashing	S1 D/SW 6 is ON (but no signal from the safety edge)
		Amber	ON	Open circuit safety device(s) / incorrectly set S1 D/SW 5
D10	STOP	RED	ON	Open circuit Stop circuit / incorrectly set limit switches
		RED	Flashing	Auto-Close Timer learning mode
D12	SPEED/RUNT.	Red	ON	Run Time of door has expired
		Red	Flashing	Service Indicator - Door requires servicing
D14	CLOSE limit switch	Amber	ON	Open circuit limit switch - Close
D15	OPEN limit switch	Amber	ON	Open circuit limit switch - Open
D16	OPEN pushbutton	Amber	ON	OPEN pushbutton is ON
D17	CLOSE pushbutton	Amber	ON	CLOSE pushbutton is ON

EC DECLARATION
OF INCORPORATION

PRODUCT: 3-phase motor controller

MODEL NUMBER: Mini Standard V7

DECLARATION:

The product to which this Declaration of Incorporation relates to must only be put into service in a completed machine or system that complies with the requirements of the machinery Directive 2006/42/EC.

The controller meets the following EC Directives:

EMC Directive 2004/108/EC
Low Voltage Directive 2006/95/EC

Harmonised standards:

EN60493-1
EN61000-6-2
EN61000-6-3
EN12453:2001
EN12445

DECLARATION MADE BY: David Butler
Technical Manager

ON BEHALF OF: Ellard Ltd
Roundthorn Industrial Estate
Wythenshawe
Manchester. M23 9NX

Tel: +44(0)61 945 4561
Fax: +44(0)61 945 4566

WWW: ellard.co.uk
Email: sales@ellard.co.uk

ellard

Ellard Limited, Dallimore Road, Roundthorn Industrial Estate, Wythenshawe
Manchester M23 9NX Tel: 0161 945 4561 Fax: 0161 945 4566
e-mail: sales@ellard.co.uk www.ellard.co.uk