PLASTOMATIC

SERIES CAFE MULTI-VOLTAGE ELECTRIC ACTUATORS

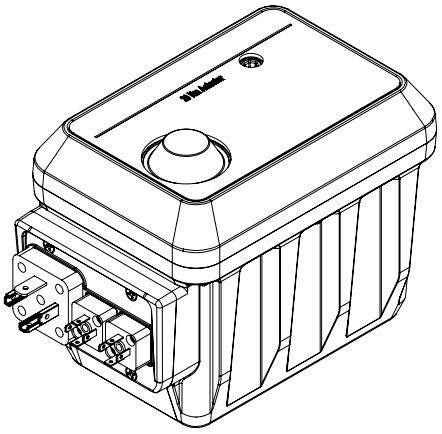
Installation, operation, & maintenance instructions

CONTENTS

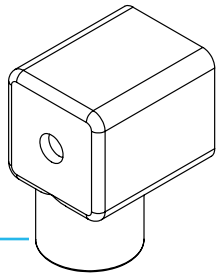
SAFETY INSTRUCTIONS 6
SPECIFICATIONS 7
DIMENSIONS 8
INSTALLATION 9
WIRING 11
- ON/OFF 12
- MODULATION 14
- INPUT/OUTPUT 16

OPERATION 19
- ON/OFF 27
- MODULATION 37
- MODBUS 47

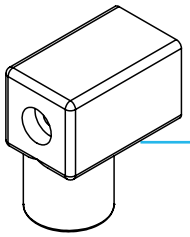
CAFE PARTS LIST



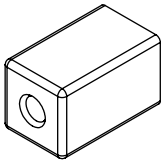
CAFE Actuator x1



Large DIN Connector x1

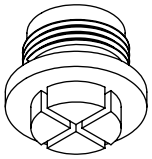


Small DIN Connector (10 o'clock Ground) x1

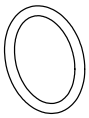


Small DIN Cap x1

For Shipping Purposes Only



Large DIN Cap x1



Large DIN Cap Ring x1

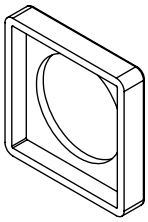
For Shipping Purposes Only

Plastic Shroud x2

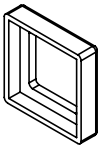
Plastic Gland Shroud x2

Rubber Gland x2

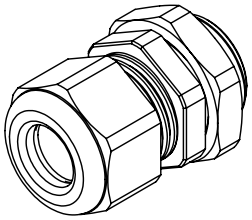
Small DIN Shipping Gasket x1



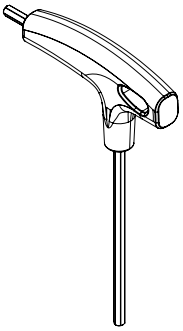
Large DIN Gasket x1



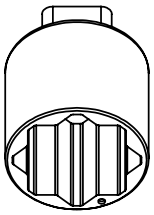
Small DIN Gasket x2



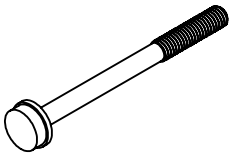
Cable Gland x1



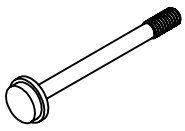
Manual Handle x1



14mm Double Square Coupler x1



Large DIN Screw x1



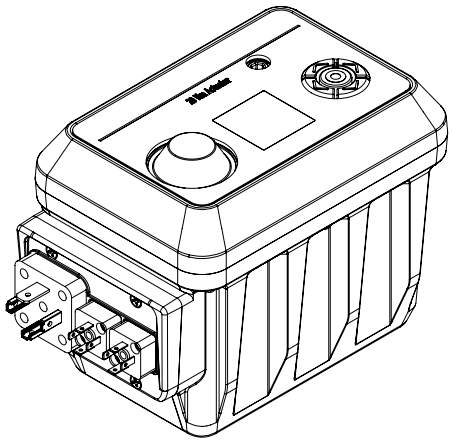
Small DIN Screw x2

Large DIN Screw Gasket x1

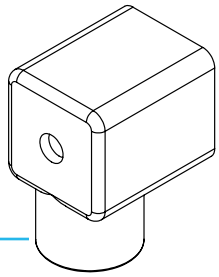
Small DIN Screw Gasket x2

Documentation

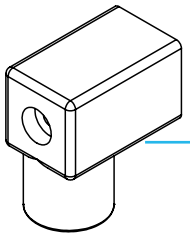
ON/OFF CAFE NITRO PARTS LIST



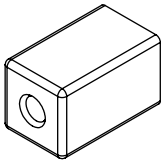
CAFE NITRO Actuator x1



Large DIN Connector x1

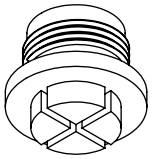


Small DIN Connector (10 o'clock Ground) x1

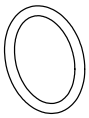


Small DIN Cap x1

For Shipping Purposes Only



Large DIN Cap x1



Large DIN Cap Ring x1

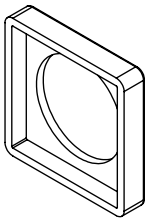
For Shipping Purposes Only

Plastic Shroud x2

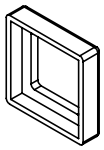
Plastic Gland Shroud x2

Rubber Gland x2

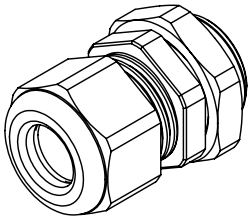
Small DIN Shipping Gasket x1



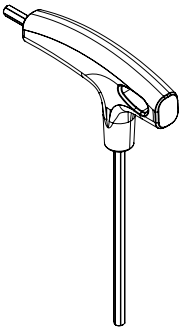
Large DIN Gasket x1



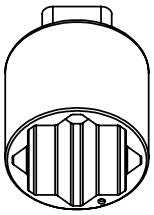
Small DIN Gasket x2



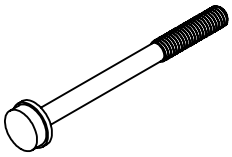
Cable Gland x1



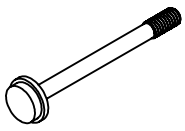
Manual Handle x1



14mm Double Square Coupler x1



Large DIN Screw x1



Small DIN Screw x2

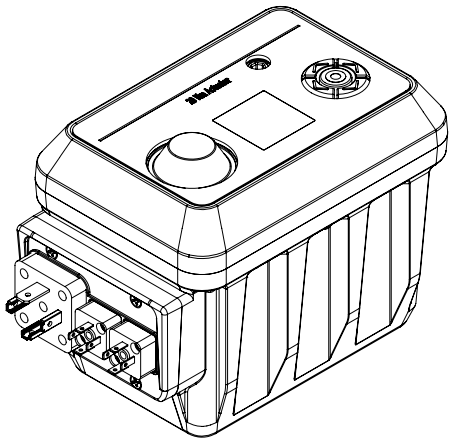
Large DIN Screw Gasket x1

Small DIN Screw Gasket x2

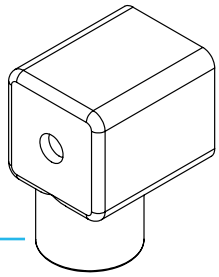
Documentation

PLASTOMATIC

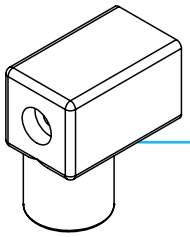
CAFE NITRO W/ CONTROL PARTS LIST



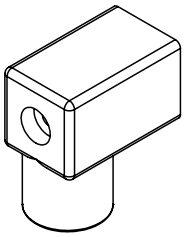
CAFE NITRO Actuator x1



Large DIN Connector x1

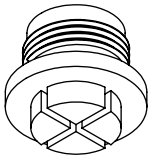


Small DIN Connector
(10 o'clock Ground) x1

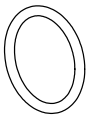


Small DIN Connector
(6 o'clock Ground) x1

For Shipping Purposes Only



Large DIN Cap
x1



Large DIN Cap
Ring x1

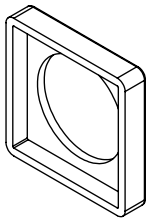
For Shipping Purposes Only

Plastic
Shroud x2

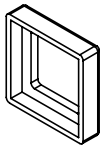
Plastic Gland
Shroud x2

Rubber Gland
x2

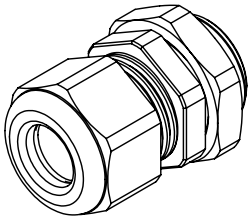
Small DIN
Shipping Gasket
x1



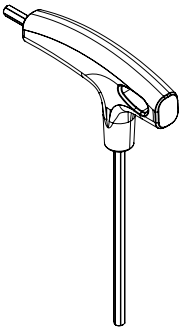
Large DIN Gasket
x1



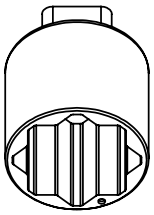
Small DIN Gasket
x2



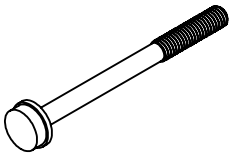
Cable Gland x1



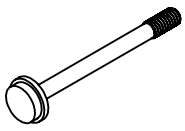
Manual Handle
x1



14mm Double Square
Coupler x1



Large DIN Screw
x1



Small DIN Screw
x2

Large DIN Screw
Gasket x1

Small DIN
Screw Gasket x2

Documentation

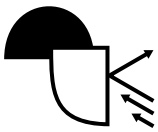
SAFETY INSTRUCTIONS

Damage caused by non-compliance to these instructions will not be covered by our warranty. Read these instructions BEFORE installing or connecting the actuator. Electric actuators operate with the use of live electricity. It is recommended that only qualified electricians or people instructed in accordance with electrical engineering, and familiar with local electrical, health and safety directives, be involved in the connection of these actuators. It is strongly recommended that each actuator has its own independent fused system to protect it against the influence of other electrical devices connected to the system. Follow instructions carefully. This unit is designed to be connected to equipment which can be hazardous to persons and property if used incorrectly. Remove power to unit before wiring connections. Do not use unit if plastic enclosure is cracked or broken.

PROTECTION AGAINST ELECTRIC SHOCK. CLASS I (EARTHED DEVICE)

WARNING/CAUTION/DANGER INDICATES A POTENTIAL HAZARD. FAILURE TO FOLLOW ALL WARNINGS MAY LEAD TO EQUIPMENT DAMAGE, INJURY, OR DEATH.

ELECTROSTATIC DISCHARGE (ESD)/ ELECTROCUTION DANGER ALERTS USER TO RISK OF POTENTIAL DAMAGE TO PRODUCT BY ESD, AND/OR RISK OF POTENTIAL OF INJURY OR DEATH VIA ELECTROCUTION.



PERSONAL PROTECTIVE EQUIPMENT (PPE) ALWAYS UTILIZE THE MOST APPROPRIATE PPE DURING INSTALLATION AND SERVICE.

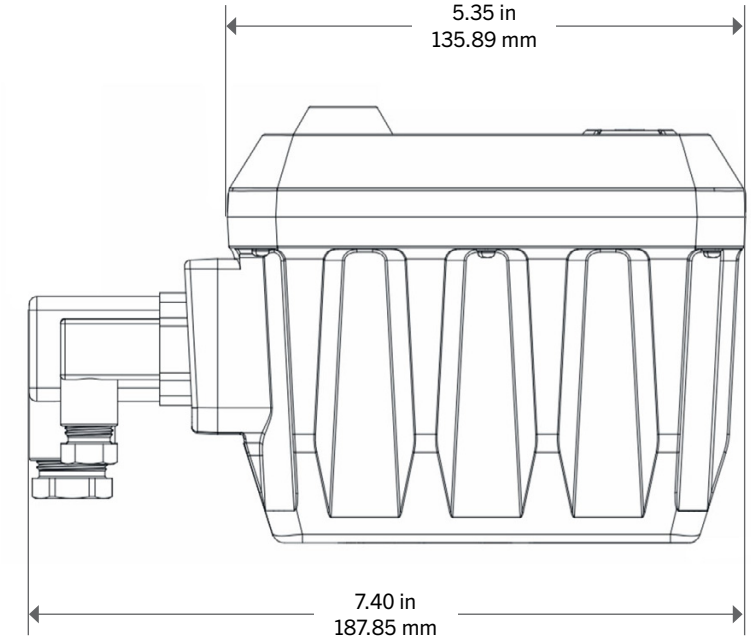
NOTE/TECHNICAL NOTES HIGHLIGHTS ADDITIONAL INFORMATION OR DETAILED PROCEDURE.

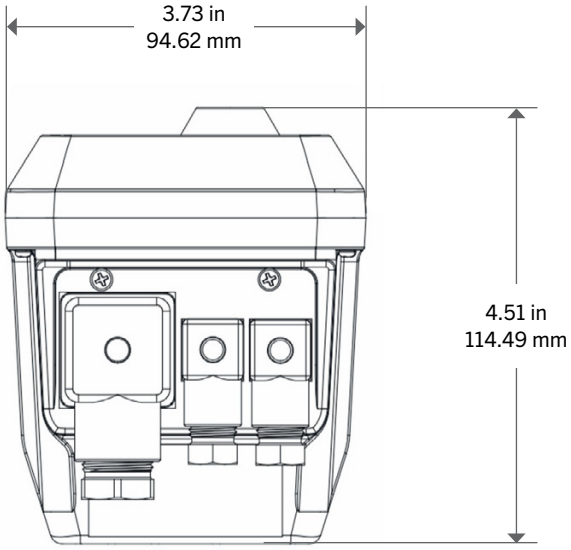
SPECIFICATIONS

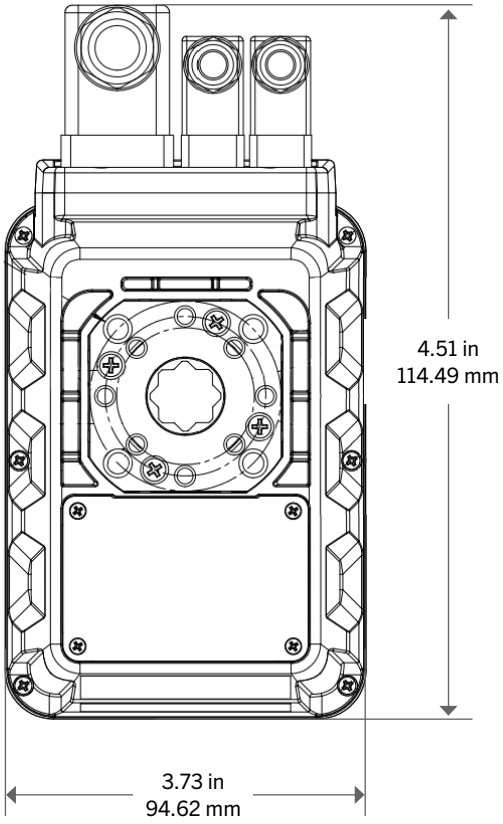
Sizes	3/8"-2" Ball Valves	
Actuator	**CAFE**	**CAFE NITRO**
Input Voltage (+1.1 V_R / -0.85 V_R)	24 Vdc, 24 Vac, 110-240 Vac	24 Vdc, 24 Vac, 110-240 Vac
Frequency	DC, 50Hz/60Hz	DC, 50Hz/60Hz
Working Time 0-90° No Load) ±10%	5 seconds preset	5 seconds preset - up to 10 sec via display
Multivoltage Maximum Run Torque (Nm/ in-lbs.)*	15 / 133	15 / 133
Maximum Break Torque (Nm/in-lbs.)	20 / 177	20 / 177
On/Off Duty Rating %	75	75
Modulating Duty Rating %	100	100
IP Rating—IEC 60529	IP67	IP67
Working Angle Standard	90°/180°	90°/180°
Application	Indoor **	Indoor**
Temperature Range (°F / °C)	-4 to 122 / -20 to 50	-4 to 122 / -20 to 50
Anti-Condensation Heater (W)	3.5	3.5
Input Power (@24VDC)max	35 W	35 W
Current Full Load: 24Vdc, 24Vac 1p 50/60Hz, 110-240Vac 1ph 50/60Hz	1.4 A, 1.5 A, 0.3 - 0.15 A	1.4 A, 1.5 A, 0.3 - 0.15 A
Discrete Control Input	Input Power	Input Power
Analog Control Input		0-10V,2-10V,0-20mA,4-20mA
Discrete Output (Volt Free)	Relay (ON/OFF)	Relay (Programmable)
Discrete Output Activation offset	approx. 5°	approx. 5°
Analog Control Output	–	0-10V,2-10V,0-20mA,4-20mA
Analog Control Impedance	–	6.1 KOhm
Analog Load Impedance	–	50 KOhm (V) - 600 Ohm (A)
Max Current per Discrete Output (Resistive)	4 A	4 A
Max Voltage per Discrete Output	240 VAC/DC	240 VAC/DC
Resistance per Discrete Output	25 mOhm	25 mOhm
Communication Control IN/OUT	–	MODBUS RS 485
Comm. Baud Rate	–	9600, 19200, 57600 Baud
Comm Available Registers	–	12
Local Signaling	Multicolor LED	Multicolor LED
Manual Remote Signaling	–	Supported**
Event Scheduler	–	Supported**
User Interface	–	OLED w/full navigation Keypad
Electrical Interconnections	Field Attachable Type A,C	Field Attachable Type A,C Customization Supported
Fail Safe	–	Supported***
Enclosure	GF-PP	GF-PP
Weight (kg/lbs)	1.25kg / 2.75 lbs.	1.25kg / 2.75 lbs.
Drive Socket	14 mm Double Square	14 mm Double Square

*20 / 177 (Nm/ in-lbs.) available with voltage specific motors with extended cycle times; consult factory. ** Outdoor applications consult factory. ***Additional Module Required.
Battery pack for Fail Safe operation is not operator replaceable. Consult factory.

DIMENSIONS

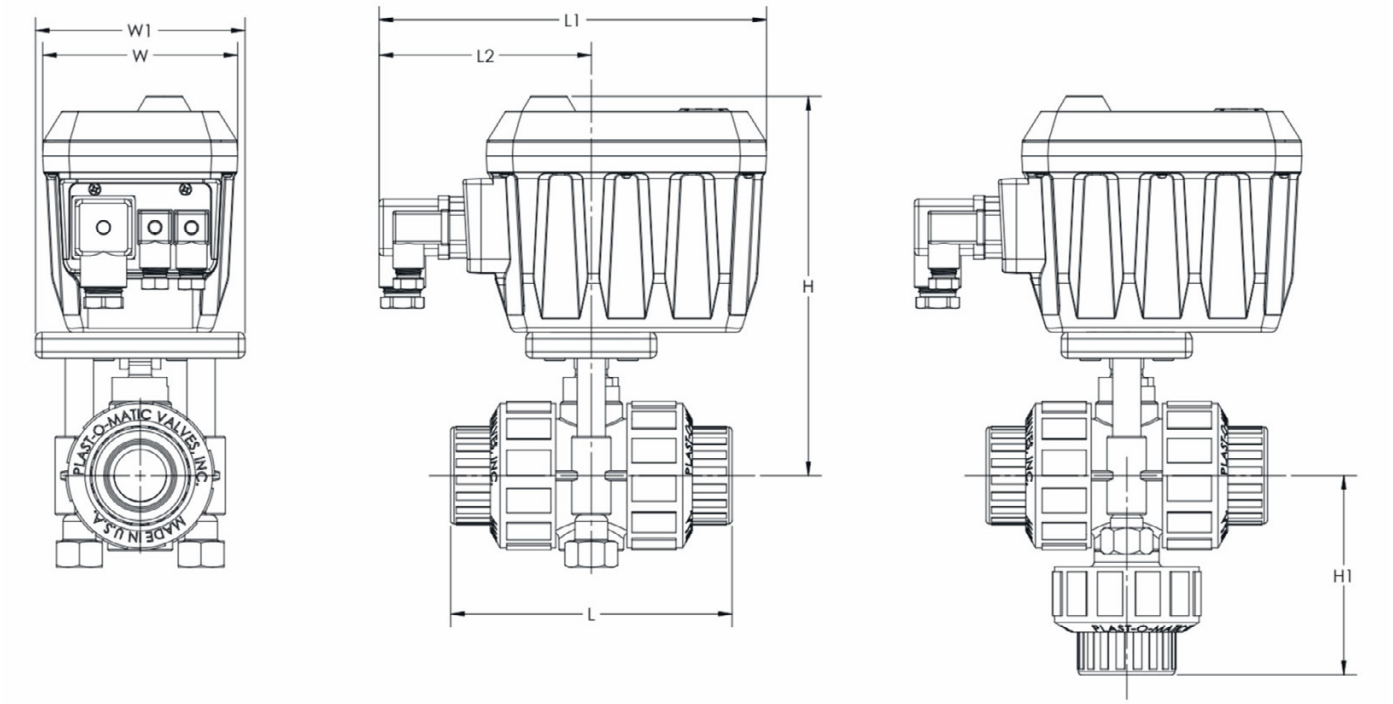




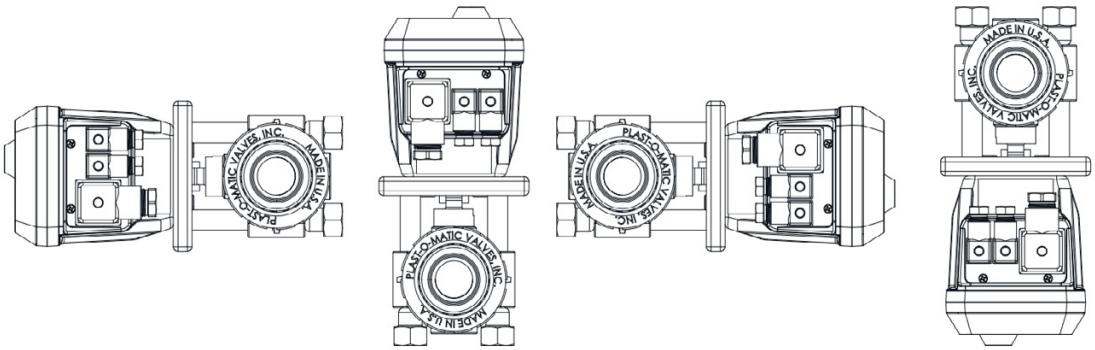


PLASTOMATIC

INSTALLATION



MODEL	SIZE		L		L1		L2		H		H1		W		W1	
	IN	DN	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
CAFE/CAFEN-037	3/8"	16	4.13	104.8	7.40	187.8	4.05	102.9	6.48	164.7	2.75	69.9	3.73	94.6	4.00	101.6
CAFE/CAFEN-050	1/2"	20	4.13	104.8	7.40	187.8	4.05	102.9	6.48	164.7	2.75	69.9	3.73	94.6	4.00	101.6
CAFE/CAFEN-075	3/4"	25	4.75	120.7	7.40	187.8	4.05	102.9	6.90	175.2	3.25	82.6	3.73	94.6	4.00	101.6
CAFE/CAFEN-100	1"	32	5.38	135.5	7.40	187.8	4.05	102.9	7.25	184.1	3.81	96.8	3.73	94.6	4.00	101.6
CAFE/CAFEN-125	1¼"	40	6.7	170.2	7.40	187.8	4.05	102.9	7.87	199.9	5.00	127.0	3.73	94.6	4.00	101.6
CAFE/CAFEN-150	1½"	50	6.75	171.5	7.40	187.8	4.05	102.9	7.87	199.9	5.00	127.0	3.73	94.6	4.00	101.6
CAFE/CAFEN-200	2"	63	7.90	200.7	7.40	187.8	4.05	102.9	7.87	199.9	5.56	141.2	3.73	94.6	4.00	101.6



MOUNTABLE IN ALL ORIENTATIONS

MOUNTING TO PLAST-O-MATIC BALL VALVE

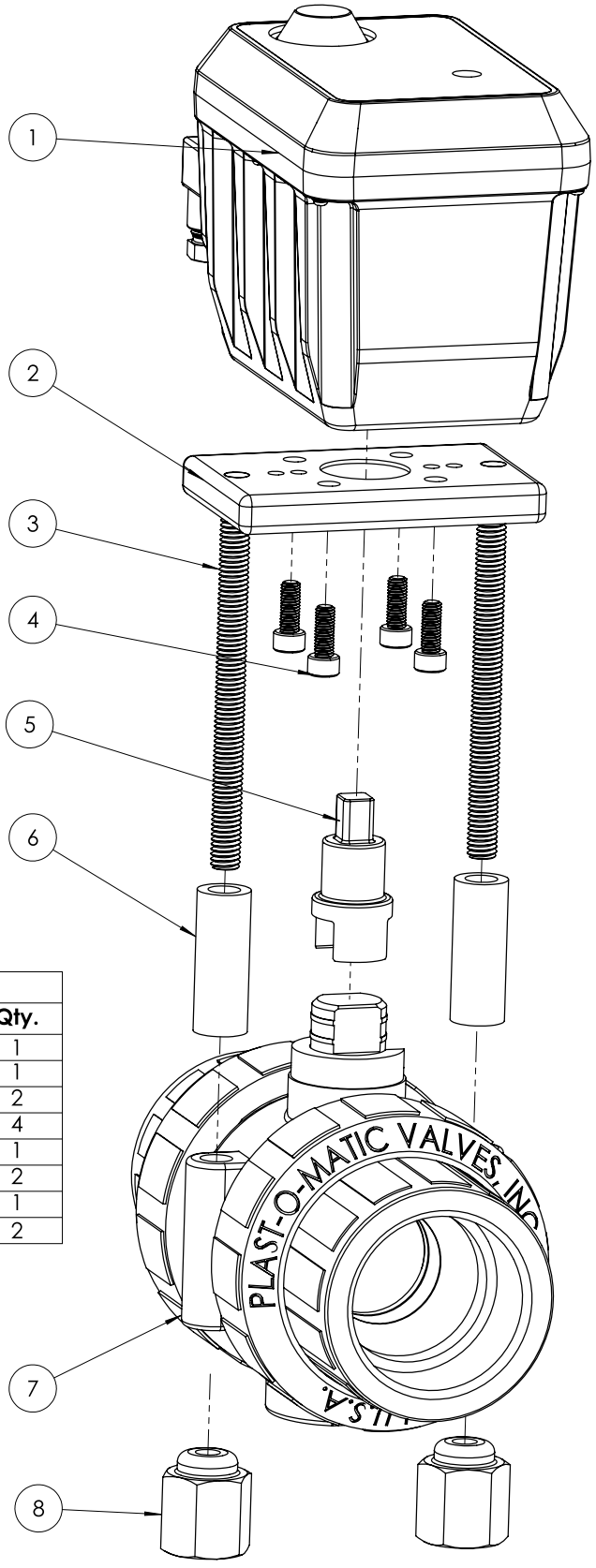
1. Ensure the ball valve and the actuator are set to the closed position. The ball valve stem must be perpendicular to the flow direction, see drawing view

2. Thread the (2) mounting studs (item 3) into the mounting plate (item 2). Refer to the mounting plate detail view to determine which holes in the mounting plate are used for the appropriate valve size. Thread the studs into the bracket so That they are approximately flush with The top of the mounting plate. Use of a thread locking fluid, such as Loctite threadlocker is recommended.

3. Install the mounting plate (item 2) onto The actuator (item 1) using the (4) Assembly screws (item 4). Tighten to 40 in.lbs. Use of a thread locking fluid, such as Loctite threadlocker is recommended.

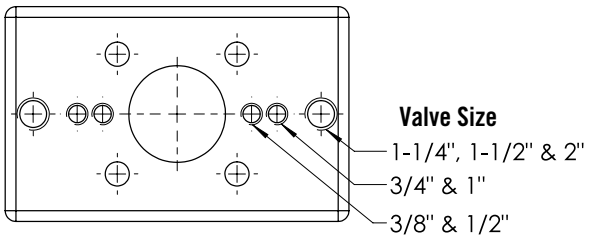
4. Install the coupler (item 5) onto the shaft of the ball valve (item 7). Assemble the ball valve (item 7) onto the actuator (item 1). The coupler (item 5) is inserted into the output drive of the actuator and the mounting studs go through the spacers (item 6) and the ball valve mounting lugs.

5. Install the hex nuts (item 8) onto the mounting studs (item 3) and tighten. For 3/8"-1" valves, tighten to 15 in.Lbs. for 1-1/4" - 2" valves, tighten to 25 in.Lbs.



Mounting Kit Components		
Item No.	**Description**	**Qty.**
1	Cafe or Cafe Nitro Actuator	1
2	Mounting Plate	1
3	Mounting Studs	2
4	Assembly Screws	4
5	Coupler	1
6	Spacers	2
7	2-Way or 3-Way Ball Valve	1
8	Hex Nuts	2

MOUNTING PLATE DETAIL



WIRING

Protection against electric shock - Class I device (earthed device).
All pole disconnection is required. Use copper conductors only.

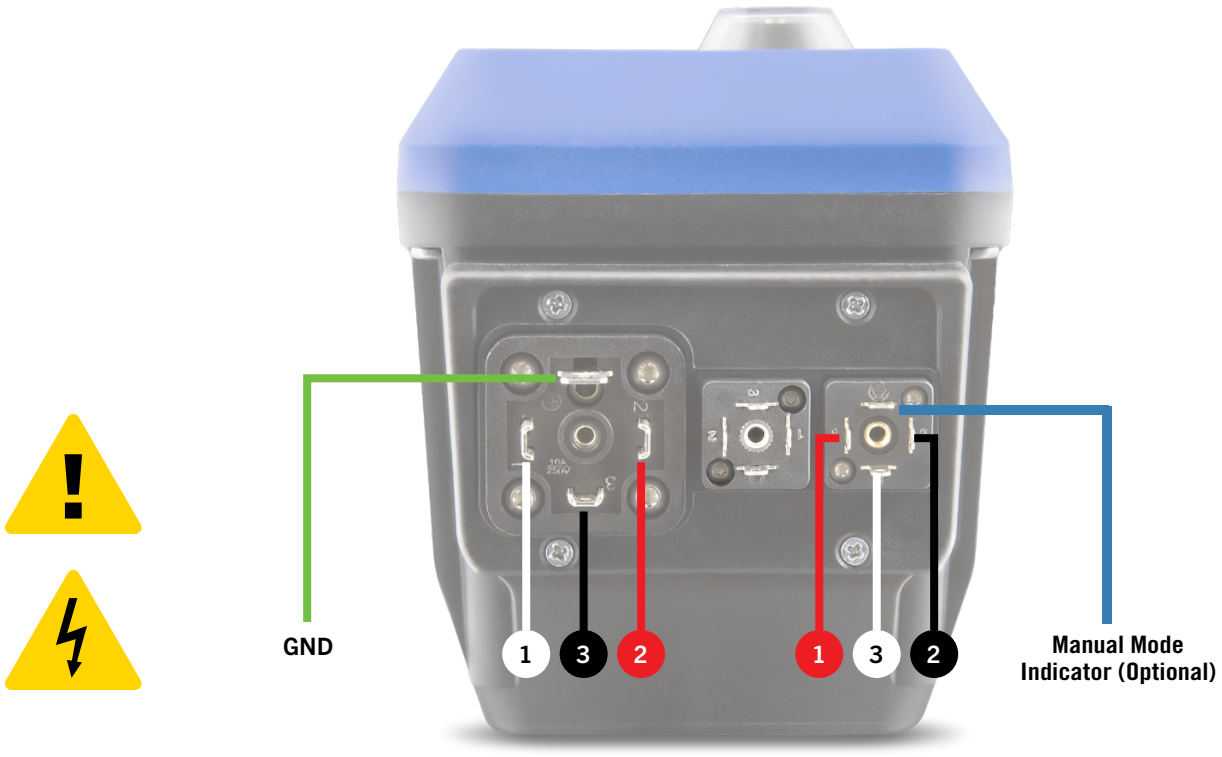
BEFORE connecting, ensure the voltage to be applied is within the range shown on the ID label. Do NOT connect a voltage in excess of the intended design or irreparable damage will be caused and will NOT be covered by our warranty. Actuator Power Supply must be on a dedicated circuit and must be grounded.

CAFE actuators are multi-voltage capable with automatic voltage sensing. All connections are made using the supplied external DIN plugs. The rotation is factory set so under normal circumstances there is no need to remove the cover to connect electrically – removing the cover invalidates the warranty.

Water tightness: Ensure that all rubber gaskets are correctly installed when securing the Field attachable connectors to the actuator. Failure to do so could allow water ingress. Damage caused by this installation error will invalidate any warranty. Do not over-tighten the securing screw. Note that the profile gasket is part of the Field attachable connector.

ON/OFF WIRING

(3 WIRES AC/DC)



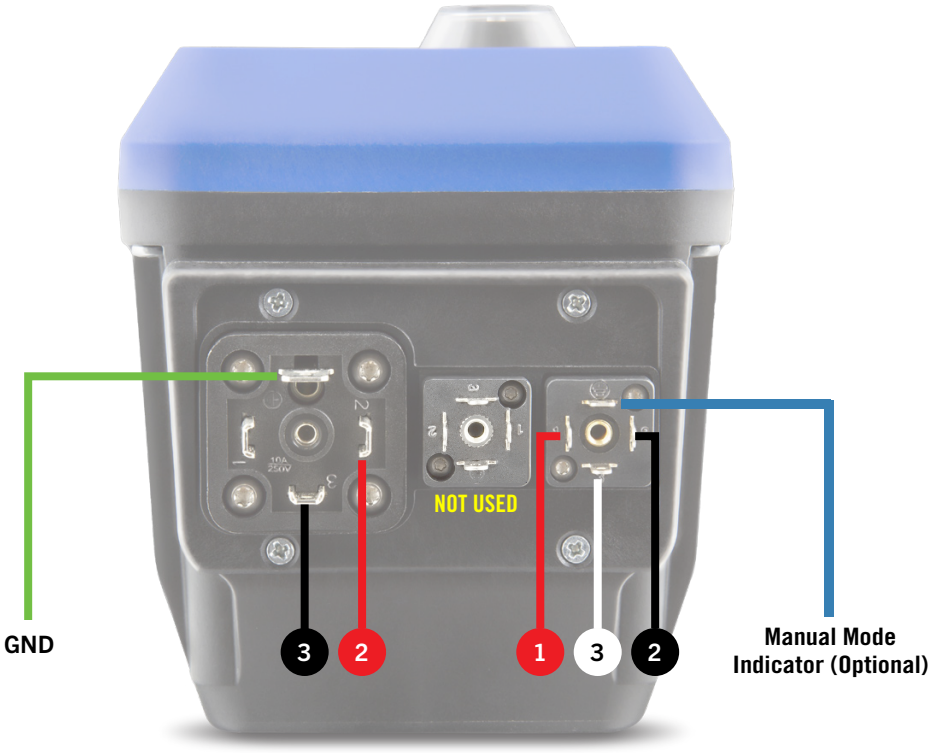
PINOUT		INPUT POWER				ANALOG IN/OUT				DISCRETE OUTPUT (RELAYS)			
		1	2	3	⏚	1	2	3	⏚	1	2	3	⏚
ON	AC	(N)	–	(L)	(GND)	–	–	–	–	COMMON		*ON	–
	DC	(-)	–	(+)	(GND)	–	–	–	–	COMMON		*ON	–
OFF	AC	(N)	(L)	–	(GND)	–	–	–	–	COMMON	**OFF		–
	DC	(-)	(+)	–	(GND)	–	–	–	–	COMMON	**OFF		–
TA	AC	(N)	(L)	(L)	(GND)	–	–	–	–	COMMON	–	–	–
	DC	(-)	(+)	(+)	(GND)	–	–	–	–	COMMON	–	–	–

DISCRETE OUTPUTS: Chart indicates settings from Factory. Configuration can be changed via User Interface. *The corresponding Relay closes to indicate ON position **The corresponding relay closes to indicate OFF position

TA: Third Angle position. See page 35.

ON/OFF WIRING

(2 WIRES DC)

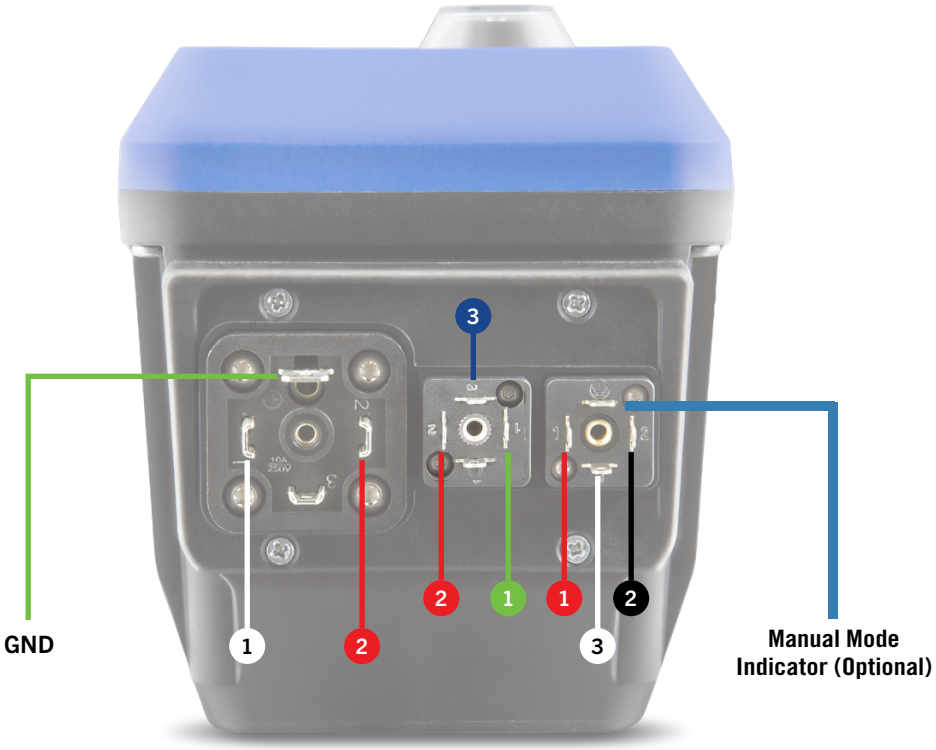


PINOUT		INPUT POWER				ANALOG IN/OUT				DISCRETE OUTPUT (RELAYS)			
		1	2	3	⏚	1	2	3	⏚	1	2	3	⏚
ON	–	–	–	–	–	–	–	–	–	–	–	–	–
	DC	–	(-)	(+)	(GND)	–	–	–	–	COMMON	–	*ON	–
OFF	–	–	–	–	–	–	–	–	–	–	–	–	–
	DC	–	(+)	(-)	(GND)	–	–	–	–	COMMON	**OFF	–	–

DISCRETE OUTPUTS: Chart indicates settings from Factory. Configuration can be changed via User Interface *The corresponding Relay closes to indicate ON position **The corresponding relay closes to indicate OFF position

MODULATION WIRING

(mA) OR (V)

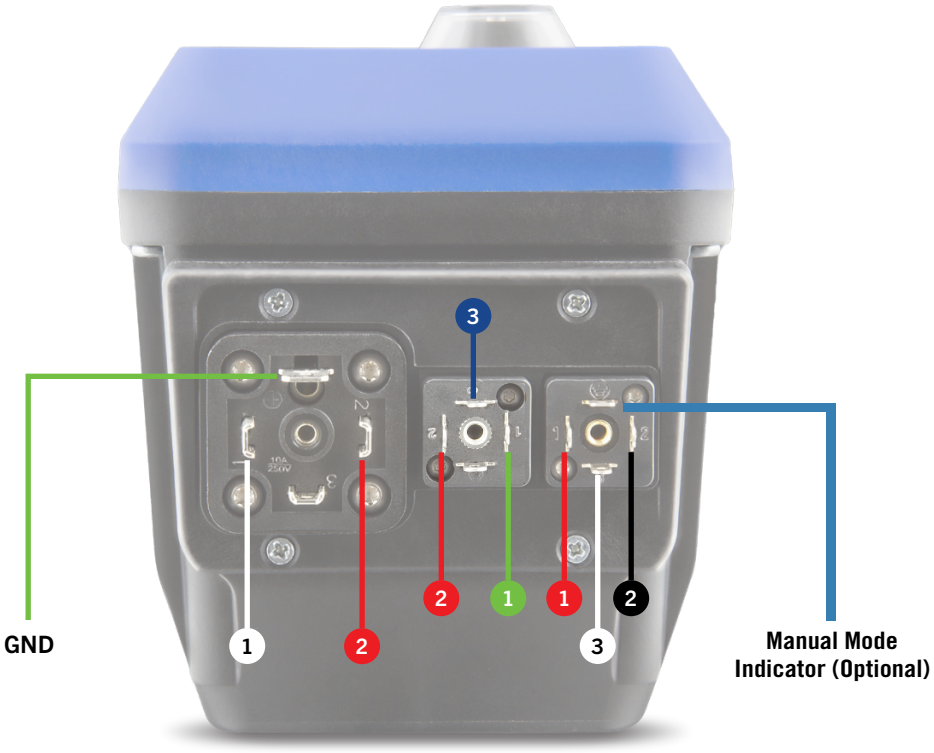


PINOUT	INPUT POWER				ANALOG IN/OUT				DISCRETE OUTPUT (RELAYS)			
	1	2	3	⏚	1	2	3	⏚	1	2	3	⏚
AC	(N)	(L)	–	(GND)	COMMON	IN	OUT	–	COMMON	**OFF	*ON	–
DC	(-)	(+)	–	(GND)	COMMON	IN	OUT	–	COMMON	**OFF	*ON	–

DISCRETE OUTPUTS: Chart indicates settings from Factory. Configuration can be changed via User Interface. *The corresponding Relay closes to indicate ON position **The corresponding relay closes to indicate OFF position

MODULATION WIRING

MODBUS



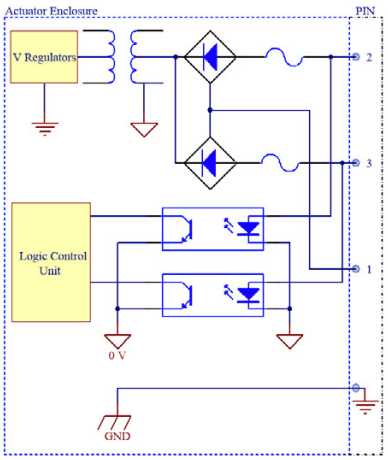
PINOUT	INPUT POWER				MODBUS				DISCRETE OUTPUT (RELAYS)			
	1	2	3	⏚	1	2	3	⏚	1	2	3	⏚
AC	(N)	(L)	–	(GND)	COMMON	A-D-D0	B+D+D1	–	COMMON	**OFF	*ON	–
DC	(-)	(+)	–	(GND)	COMMON	A-D-D0	B+D+D1	–	COMMON	**OFF	*ON	–

DISCRETE OUTPUTS: Chart indicates settngs from Factory. Configuration can be changed via User Interface. *The corresponding Relay closes to indicate ON position **The corresponding relay closes to indicate OFF position

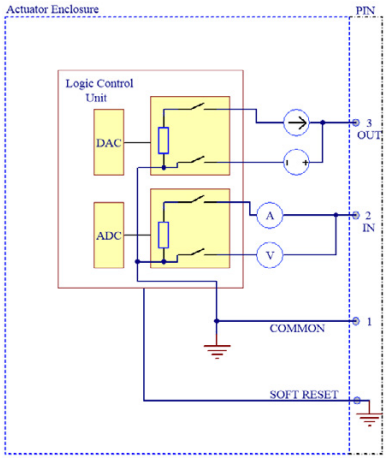
INPUT/OUTPUT WIRING

INTERNAL CONFIGURATIONS

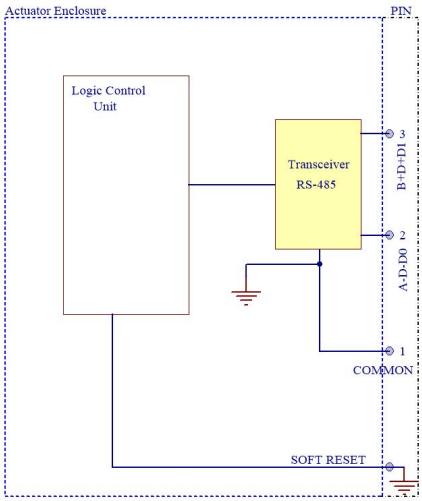
(ON/OFF) DISCRETE CONTROL INPUT POWER



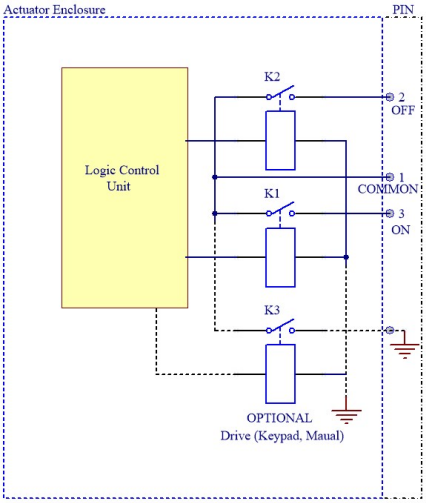
(MODULATION) ANALOGUE CONTROL IN/OUT



(MODBUS) COMM. CONTROL RS 485



(ALL MODELS) DISCRETE OUTPUTS VOLTAGE FREE RELAYS

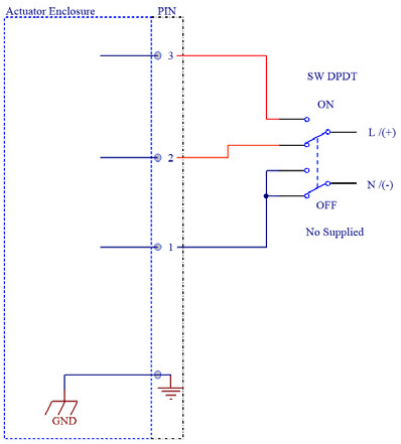


PLASTOMATIC

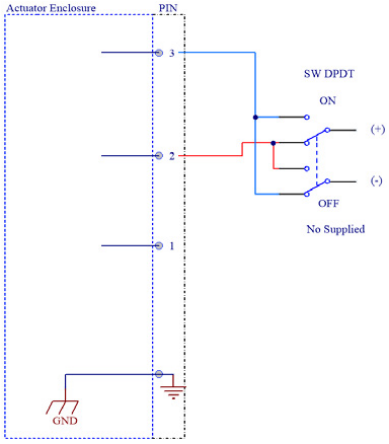
INPUT/OUTPUT WIRING

TYPICAL APPLICATION WIRING

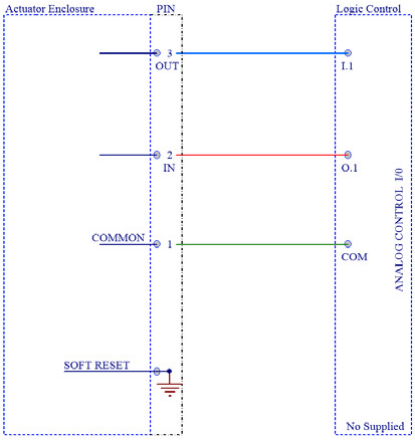
(ON/OFF) DISCRETE CONTROL INPUT – INPUT POWER - 3 WIRES, AC/DC



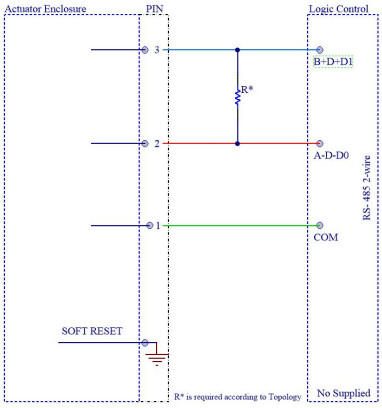
(ON/OFF) DISCRETE CONTROL INPUT – INPUT POWER - 2 WIRES, DC



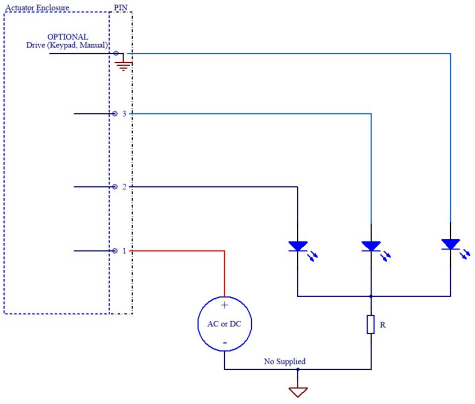
(MODULATION) ANALOGUE CONTROL IN/OUT



(MODBUS) COMM. CONTROL - RS485



(ALL MODELS) DISCRETE OUTPUTS – VOLTAGE FREE RELAYS



MODBUS REGISTRY TABLE

ModBus	Register	Description	Name	Displays	Value (Default Prog)	Min Value	Max Value	Read / Write
High	40000	Fault Code	-	STATUS, ALARMS	0	0	6	R
			Overload	STATUS, ALARMS	1			R
			Over Temp	STATUS, ALARMS	2			R
			Power Loss	STATUS, ALARMS	3			R
			Signal Loss	STATUS, ALARMS	4			R
			Hard. Fault	STATUS, ALARMS	5			R
			Dual Signal	STATUS, ALARMS	6			R
Low		Input Mode	0-10 V	STATUS, ANALOG IN	0	0	11	R/W
			2-10 V	STATUS, ANALOG IN	1			R/W
			0-20 mA	STATUS, ANALOG IN	2			R/W
			4-20 mA	STATUS, ANALOG IN	3			R/W
			ON/OFF	STATUS	4			R/W
			MODBUS	STATUS	5			R/W
			RTC	STATUS	6			R/W
			Problem	STATUS	8			R/W
			Keypad	STATUS	9			R/W
			Calibration	STATUS	10			R/W
			Manual	STATUS	11			R/W
High	40001	Current Position	Position	STATUS	0	0	100	R
Low								
High	40002	Set Point	Setpoint	STATUS, KEYPAD CONTROL	0	0	100	R/W
Low								
High	40003	Load Motor	Load	HARD. MONITOR	0	0	3000	R
Low								
High	40004	Battery Voltage	Battery	HARD. MONITOR	829	0	900	R
Low								
High	40005	Micro Processor Temperature	Int Temp (°C/°F)	HARD. MONITOR	25	0	80	R
Low								
High	40006	Power Loss	Open	POWER LOSS	0	0	3	R/W
			Close		1			R/W
			Hold		2			R/W
			Angle		3			R/W
Low		Signal Loss	Open	COMM LOSS	0	0	3	R/W
			Close		1			R/W
			Hold		2			R/W
			Angle		3			R/W
High	40007	Relay 1 Configuration	Status Open	RELAY 1	0	0	4	R/W
			Status Close		1			R/W
			Fault		2			R/W
			Force Close		3			R/W
			Foce Open		4			R/W
Low		Relay 2 Configuration	Status Open	RELAY 2	0	0	4	R/W
			Status Close		1			R/W
			Fault		2			R/W
			Force Close		3			R/W
			Foce Open		4			R/W
High	40008	Language Configuration	English	LANGUAGE	0	0	1	R/W
			Español		1			R/W
Low		Third Angle Percentage	Angle TA3	ANGLE TA3	50	0	100	R/W
High	40009	Speed Max Motor Value	Speed Max	NONE	2500	250	2500	
Low								
High	40010	Overload Time Configuration	Persist	OVERLOAD	0	0	3	R/W
			1 Sec		1			R/W
			2 Sec		2			R/W
			3 Sec		3			R/W
Low		Dead Band Configuration	Dead Band	DEAD BAND	0	0	5	R/W
High	40011	Default Close Position Sensor Value	Set Closed	CALIBRATION	680	50	4050	R/W
Low								
High	40012	Default Open Position Sensor Value	Set Opened	CALIBRATION	1724	50	4050	R/W
Low								
High	40013		Spare					
Low								
High	40014		Spare					
Low								

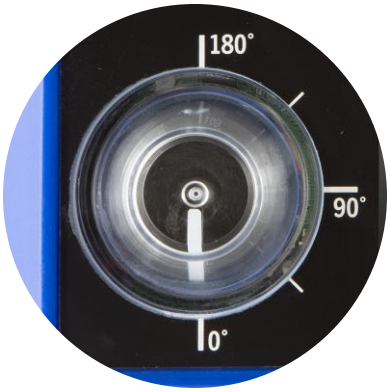
FEATURES


LED Ring Indicator
Display
Manual Drive
PLASTOMATIC®
CLOSE
OPEN
180°
90°
0°
USA Assembled
USA Engineered
Keypad
Visual Indicator


Discrete Control Input
Input Power
Discrete Output
Voltage Free Relays
Analog Control IN/OUT or
Comm. Control – Modbus

FEATURES

Manual Override: Use a 4 mm hex wrench to drive the actuator manually. Rotating the manual drive counter clockwise will open the valve in a standard orientation. Rotating the manual drive clockwise will close a valve that is in the open position.



Visual indicator: Graphically indicates the approximate position of the valve with respect to the full working angle. Typical working angles are 90° or 180°. For a valve that has been set up as Normally Closed, the indicator will move from 0° to Max Working angle when opening. The action is reversed when closing the valve.

LED Ring Indicator: The base ring of the barrel type indicator will illuminate according to different states of running conditions in the actuator. See chart "LED RUNNING STATES"

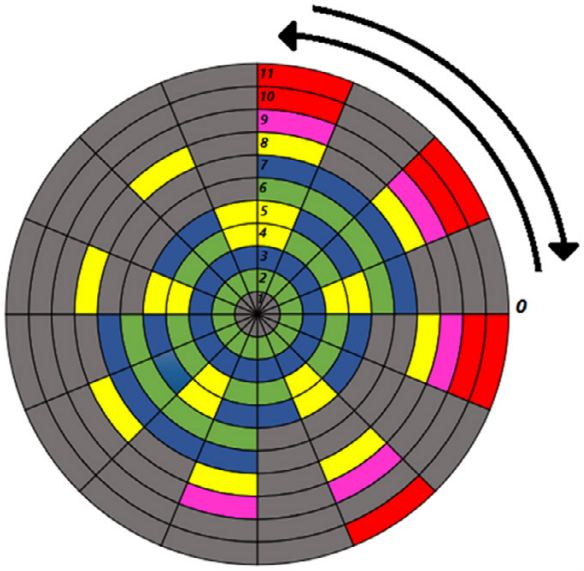
Key Pad: Center pad ○ is SELECT. Use the fully directional key pad to navigate the menu. When driving the actuator in key pad control, the < pad rotates the actuator counter clockwise. When driving the actuator in Keypad Control the > pad rotates the actuator clockwise.

LED RING INDICATOR RUNNING STATES

ON/OFF ACTUATOR — ACTUATOR OPERATIONAL STATUS

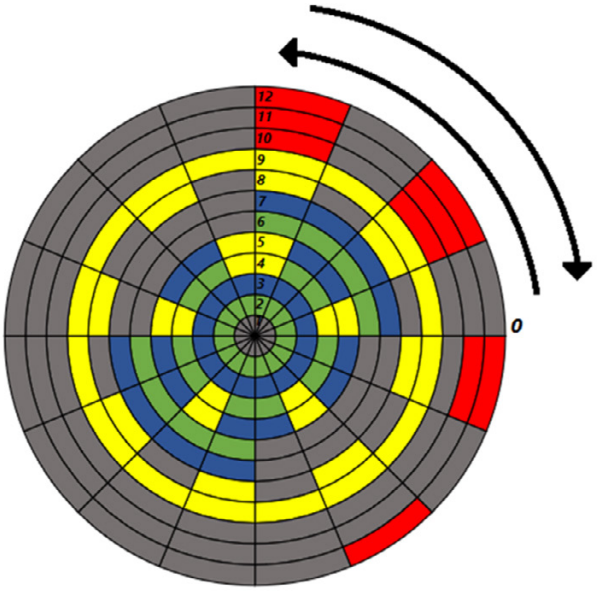
1. No power detected
2. In position open
3. In position close
4. Opening
5. Closing
6. Torque limit engaged, moving from close to open
7. Torque limit engaged, moving from open to close
8. Actuator in MANUAL or KEYPAD mode
9. Dual signal (third angle)
10. Over temperature
11. Overload

(200 msec/block)



MODULATING ACTUATOR — ACTUATOR OPERATIONAL STATUS

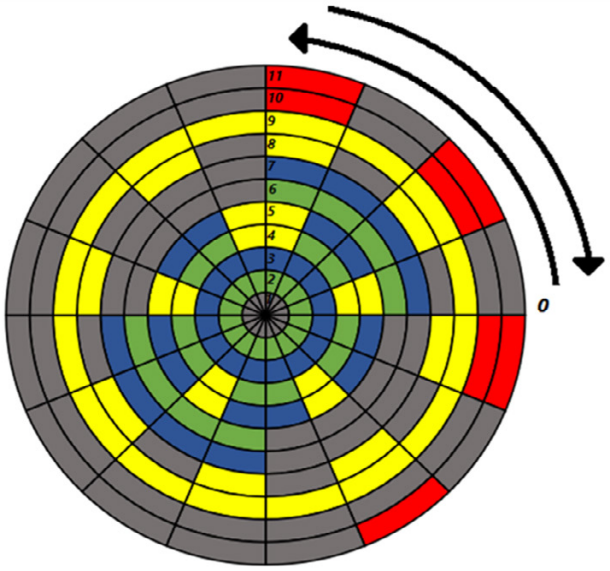
1. No power detected
2. In position open
3. In position close
4. Opening
5. Closing
6. Torque limit engaged, moving from close to open
7. Torque limit engaged, moving from open to close
8. Actuator in MANUAL or KEYPAD mode
9. Actuation feedback complete
10. Signal loss
11. Over temperature
12. Overload



LED RING INDICATOR RUNNING STATES

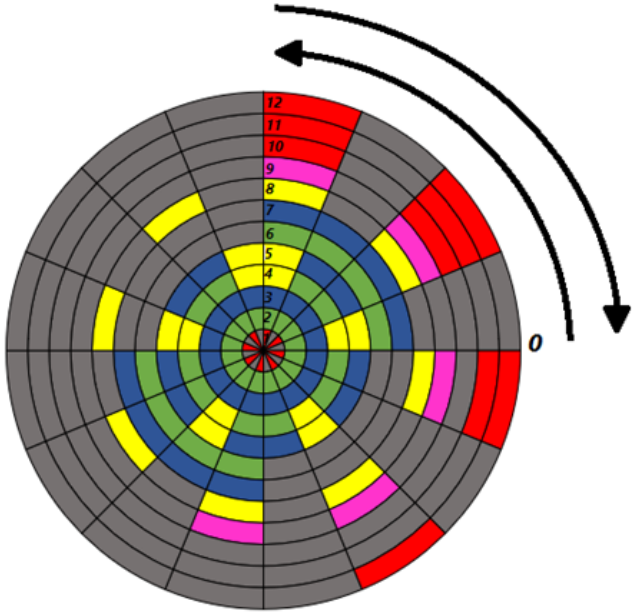
MODBUS ACTUATOR	ACTUATOR OPERATIONAL STATUS

1. No power detected
2. In position open
3. In position close
4. Opening
5. Closing
6. Torque limit engaged, moving from close to open
7. Torque limit engaged, moving from open to close
8. Actuator in MANUAL or KEYPAD mode
9. Actuator feedback complete
10. Over temperature
11. Overload



FAIL SAFE ACTUATOR	ACTUATOR OPERATIONAL STATUS

1. No power detected - fail safe
2. In position open
3. In position close
4. Opening
5. Closing
6. Torque limit engaged, moving from close to open
7. Torque limit engaged, moving from open to close
8. Actuator in MANUAL or KEYPAD mode
9. Dual signal (third angle)
10. Signal loss
11. Over temperature
12. Overload



LED RING INDICATOR RUNNING STATES

No power detected: LED ring indicator is off. The power circuit that feeds the actuator has been turned off.

In position open: LED ring indicator is steady green. The actuator has reached the max. working angle. Typically 90° or 180°. A valve that has been set up as Normally Closed, is now fully open.

In position closed: LED ring indicator is steady blue. The actuator is at the minimum working angle. Typically 0° . A valve that has been set up as Normally Closed, is now fully closed.

Opening: LED ring indicator blinks yellow and green for the length of the run. In the case of ON/OFF actuators the run goes from closed to open. In the case of Modulating or Modbus actuators the run is according to the proportional control signal.

Closing: LED ring indicator blinks yellow and blue for the length of the run. In the case of ON/OFF actuators the run goes from open to close. In the case of Modulating or Modbus actuators the run is according to the proportional control signal.

Torque Limit engaged, moving from close to open: LED ring indicator blinks green indicating that the actuator has reached 80% of the load limit for the length of the run. Actuator will operate normally. In the case of ON/OFF actuators the run goes from closed to open. In the case of Modulation or Modbus actuators the run is according to the proportional control signal when opening the valve.

Torque Limit engaged, moving from open to close: LED ring indicator blinks blue indicating that the actuator has reached 80% of the load limit for the length of the run. In the case of Modulation or Modbus actuators the run is according to the proportional control signal when closing the valve.

Actuator in MANUAL or KEYPAD mode: LED ring indicator blinks yellow indicating, that the actuator is in manual mode. Actuator can be controlled via the keypad or 4mm Hex Wrench, depending on the setting. Only available on actuators with Display and keypad.

Dual Signal (Third Angle): Only available for ON/OFF actuators with Display and keypad. LED ring indicator blinks pink indicating that the actuator has received two control signals. The default setting for this condition is 50 % of the working angle.

Over Temperature: Critical Alarm. LED ring indicator bursts in a set of 3 red blinks, indicating that the max. internal safe operating temperature has been reached. The actuator will not operate until the internal temperature falls below the threshold or the cause of rise in temperature has been removed.

Overload: Critical Alarm. LED ring indicator bursts in a set of 4 red blinks, indicating that the max. torque has been reached. The actuator will fall into this alarm for as long as the overload condition persist. The actuator will stop within one second. CAFEN Actuators can modify this behavior from the Overload menu.

Actuation feedback complete: Only available for Modulating and Modbus CAFEN Actuators. Yellow LED indicator indicates that the propositional position has been reached.

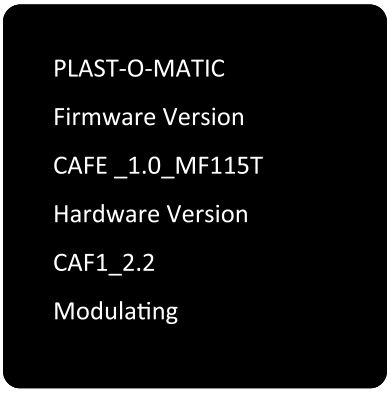
Signal Loss: Critical Alarm. Only available for CAFEN Actuators set to Modulation control signal 2-10V or 4-20 mA. LED ring indicator bursts in a set of 2 red blinks, indicating that the proportional control signal is lost. The actuator will recover from this alarm once the control signal is reestablished.

NO Power Detected. Fail Safe: Critical Alarm. Only available for actuators with Fail Safe Kit. The LED ring indicator blinks red. The power circuit that feeds the actuator has been turned off and the Fail Safe condition has been activated. The actuator will recover from this alarm once the power is reestablished.

INITIALIZATION DISPLAY

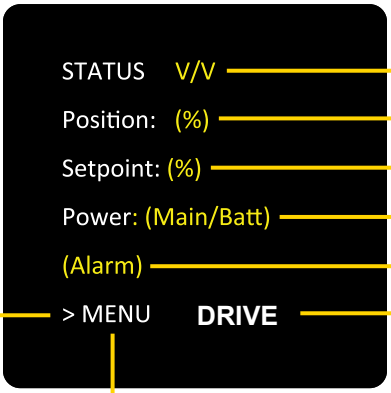
WELCOME DISPLAY

FIRMWARE & HARDWARE VERSION INFORMATION



Indicates the type of Actuator:
ON/OFF, Modulating, or Modbus

STATUS DISPLAY



Type of IN/OUT control signal

Actual Position as a % of working angle

Desire Position as a % of working angle

Power Source, Main or Battery

Last Triggered Alarm

Cursor

Short cut to Drive Control

Select MENU

STATUS DISPLAY

STATUS display allows you to navigate between **MENU** and **DRIVE** Control. Using the directional keypad place the cursor > **o**n the desired option and press SELECT.

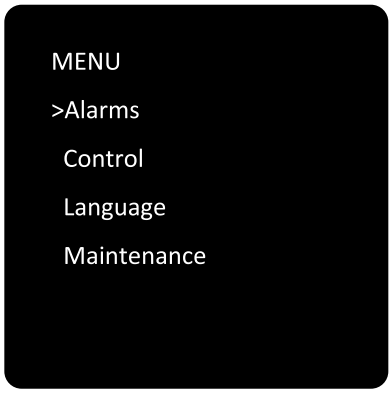
STATUS display will indicate the type of input and output control signal according to the type of actuator.
ON/OFF: Only ON/OFF control. See wiring **o**n pages 8 and 9.
MODULATING: Available options are V/V, mA/mA, V/mA, mA/V with additional combinations for 0-10V, 2-10V, 0-20 mA, and 4-20mA. See wiring on page 10.
MODBUS: Only Modbus control. See wiring **on** page 11.

The working angle can be set up from 0° to 3°.
Position in STATUS display indicates the actual position as a % of the working angle.
Setpoint in STATUS display indicates the desired position as a % of the working angle.

Power in STATUS display indicates the source of power. All actuators use Main as the default source. Actuators with Fail Safe will switch to Batt (Battery) at power loss.

STATUS display will show the last triggered alarm during a failed operation. Triggered alarms during failed operation are: **power loss, over torque, over temperature, signal loss, concurrent signal, and hardware failure.**

MAIN MENU



MENU Display gives access to the root menu. The main menu is categorized as Alarms, Control, Language and Maintenance. Each category contains sub-menus that are specific to the type of actuator; ON/OFF, Modulating, Modbus.

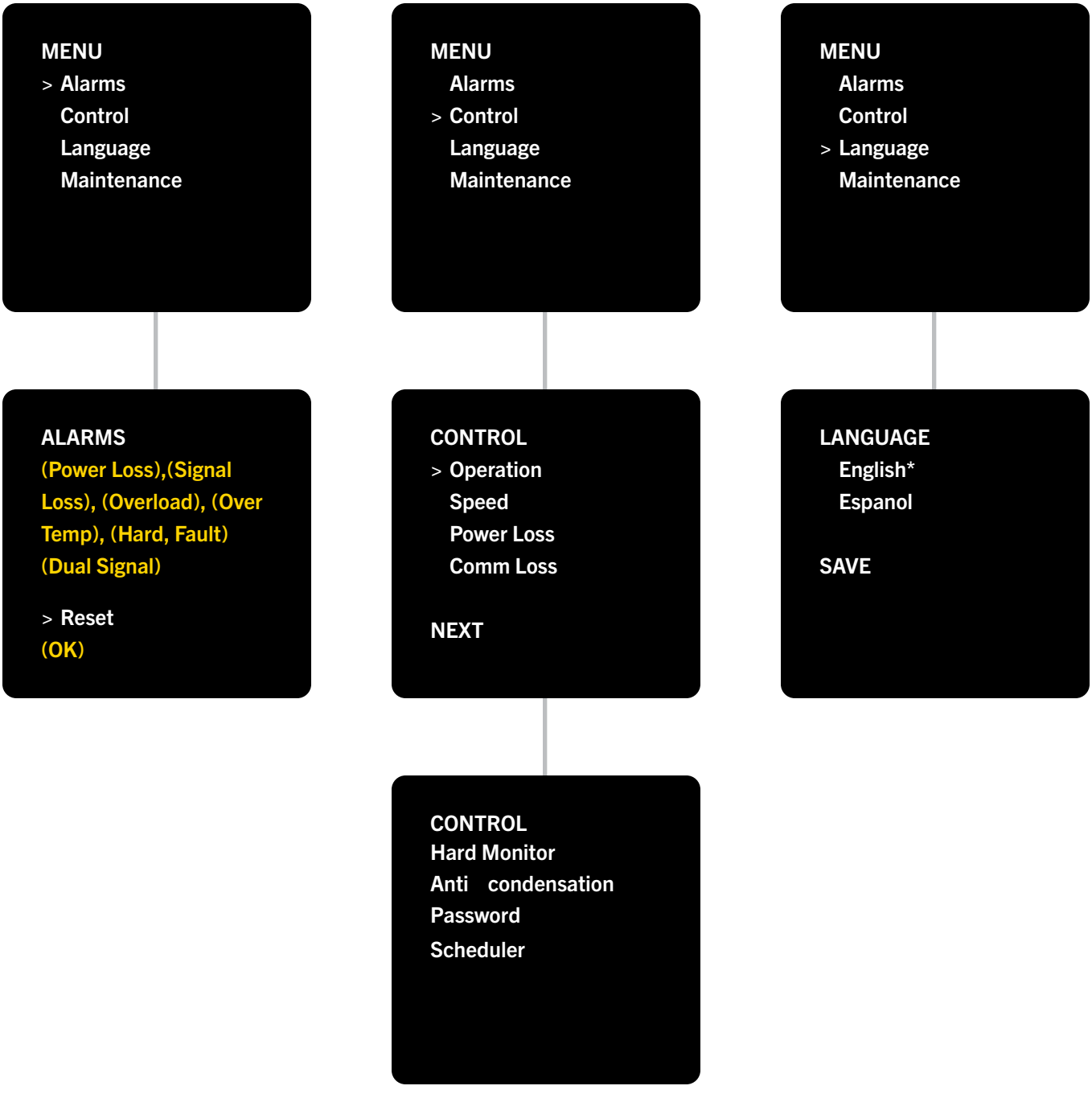
Alarms: Enter this sub-menu to reset any of the triggered alarms presented in the STATUS display. A record of the last three alarms is kept in this sub-menu. Overload, Over Temp, and Hard Fault are considered critical alarms and must be reset via this menu. User should clear the condition that generated the alarm. Other alarms reset once the triggered condition is removed or restored.

Control: Enter this sub-menu to change settings that affect the way the actuator behaves with the control signals. These sub-menus are password protected by default. 0 0 0 0 is the default factory password. The password can be deactivated; see PASSWORD in CONTROL menu.

Language: Enter this sub-menu to select your preferred language. English and Español are available.

Maintenance: Enter this sub-menu to change settings that affect the way the actuator behaves with the external assembly; i.e. the mounted valve. These sub-menus are password protected by default. 0 0 0 0 is the default factory password. The password can be deactivated; see PASSWORD in CONTROL menu.

(ON/OFF) MAIN MENU AND SUB-MENU



(ON/OFF) MAIN MENU AND SUB-MENU

MENU
- Alarms
- Control
- Language
- > Maintenance

MAINTENANCE
- > Calibration
- Overload
- Hysteresis
- Drive

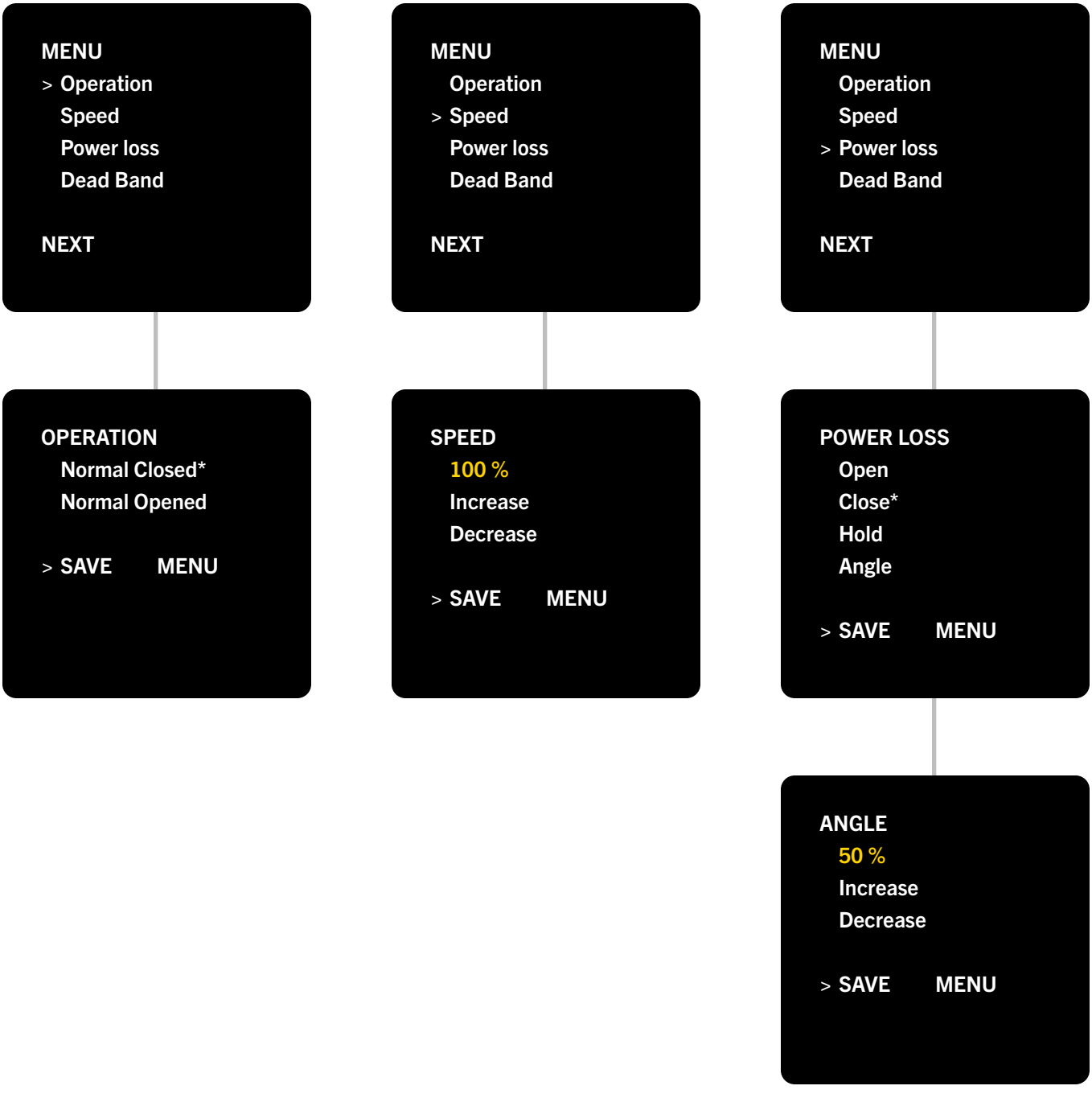
NEXT

MAINTENANCE
- Relay Options
- Third Angle
- Factory Setting

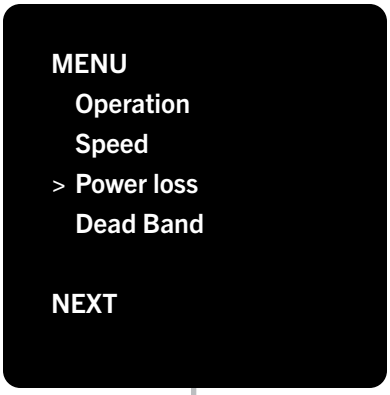
Record of the last three triggered alarms will be saved in display.

Scheduler is only available in ON/ OFF actuators with Display, Keypad and RTC kit. Consult Factory.

(ON/OFF) CONTROL AND SUB-MENU OPTIONS



(ON/OFF) CONTROL AND SUB-MENU OPTIONS



OPERATION Normal Closed operation is the default. Actuator will close a valve when responding to an OFF signal or minimum proportional control value. Actuator will open a valve when responding to an ON signal or max. proportional control value. Normal Open is the reverse operation. Always save the selection.

SPEED 100% is the default . Move the cursor to "increase" or "decrease" and then press O to change %.

POWER LOSS At power loss, Fail Safe actuators will close by default. Use the key pad to change the selection. ANGLE allows the user to set a desired fail position within the working angle at power loss.

DEAD BAND Default setting is 0%. Move cursor to "increase" or "decrease" and then press O to change % in relation to working angle up to 5%. Always save the selection.

HARDWARE MONITOR Keeps track of important parameters of the actuator. Run Time is a counter of each continuous run regardless of the direction

ANTICONDENSATION ON is the default. 82° F is the default threshold. Below the threshold a internal heater will turn ON. The threshold can be turned OFF to prevent the heater from turning ON. Always save the selection.

PASSWORD ON is the default. Change password by entering a New Password. 0 0 0 0 is the factory default password. Move the cursor to PASSWORD and press O to deactivate the password protection. Enter your password and select OK. Always save the selection. ALWAYS REMEMBER YOUR NEW PASSWORD. Losing your new PASSWORD will prevent you from changing password protected settings.

LED Default setting is ON. Allows the user to turn off the LED Ring Indicator ON or OFF.

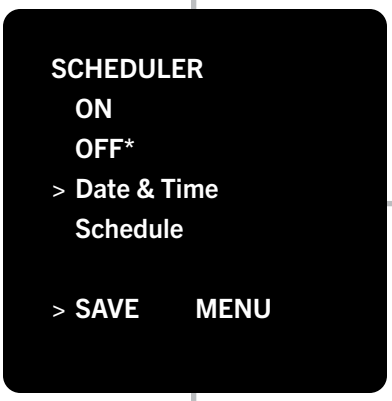

MENU
> Hardware Monitor
Anticondensation
Password
Scheduler
HARDWARE MONITOR
Load: 0 mA
Int. Temp: 130°F
Battery: 8.52 V
Run Time: 15
> MENU
MENU
Hardware Monitor
> Anticondensation
Password
Scheduler
ANTICONDENSATION
82°F
Increase
Decrease
ON
> SAVE MENU
MENU
> Hardware Monitor
Anticondensation
Password
Scheduler
PASSWORD ON/OFF
Old Password
0 0 0 0
New Password
0 0 0 0
> SAVE MENU
LOGIN ON/OFF
Enter Password
0 0 0 0
>OK NO
MENU
Dead Band
Hardware Monitor
Anticondensation
Password
> LED
LED
ON*
OFF
>SAVE

(ON/OFF) CONTROL AND SUB-MENU OPTIONS

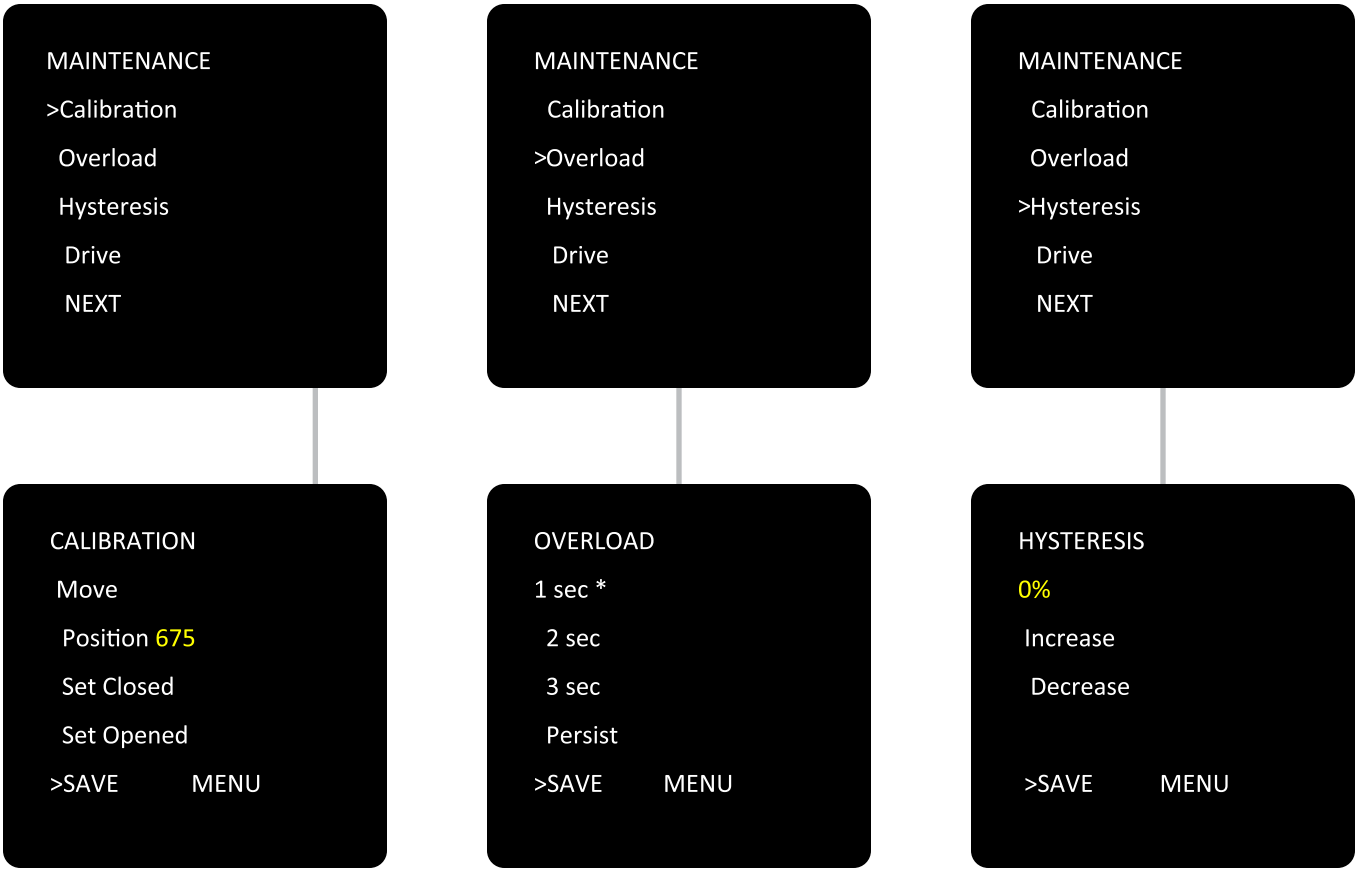
SCHEDULER Selected models include an Event scheduler . Two events for valve OPEN/ CLOSE can be set up per day . This feature must be turned ON prior to being used. DATE & TIME must be updated for the internal clock to synchronize with the real time clock.

Always save the selection.

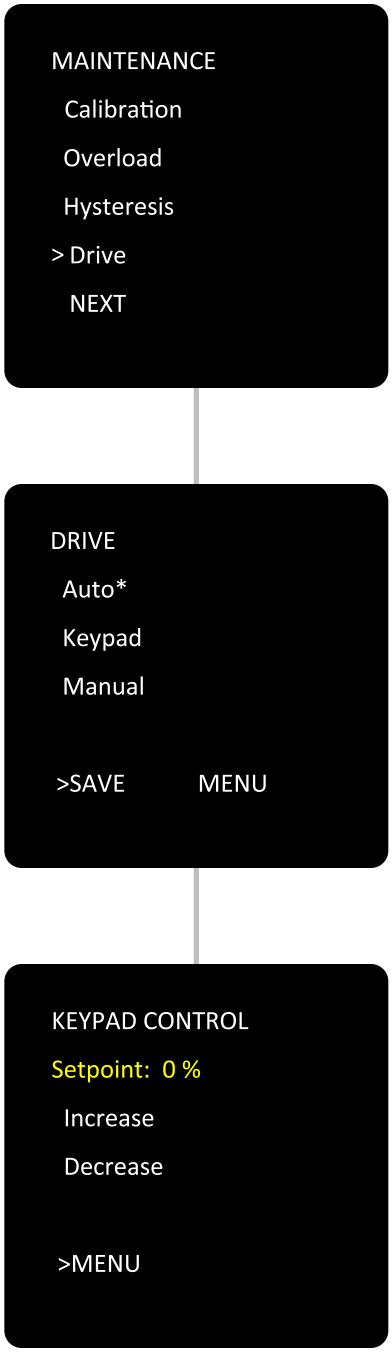
Discrete Control Inputs are inactive while the SCHEDULER is ON in order to prevent undesired control results.



(ON/OFF) MAINTENANCE AND SUB-MENU OPTIONS



(ON/OFF) MAINTENANCE AND SUB-MENU OPTIONS



CALIBRATION Use this display to set the closed and open position for the actuator. Select “Move” and then use < > to rotate counter clockwise or clockwise respectively. After the desired point is achieved select Set Closed or Set Opened. Repeat same operation for the other point. Always SAVE the selection.

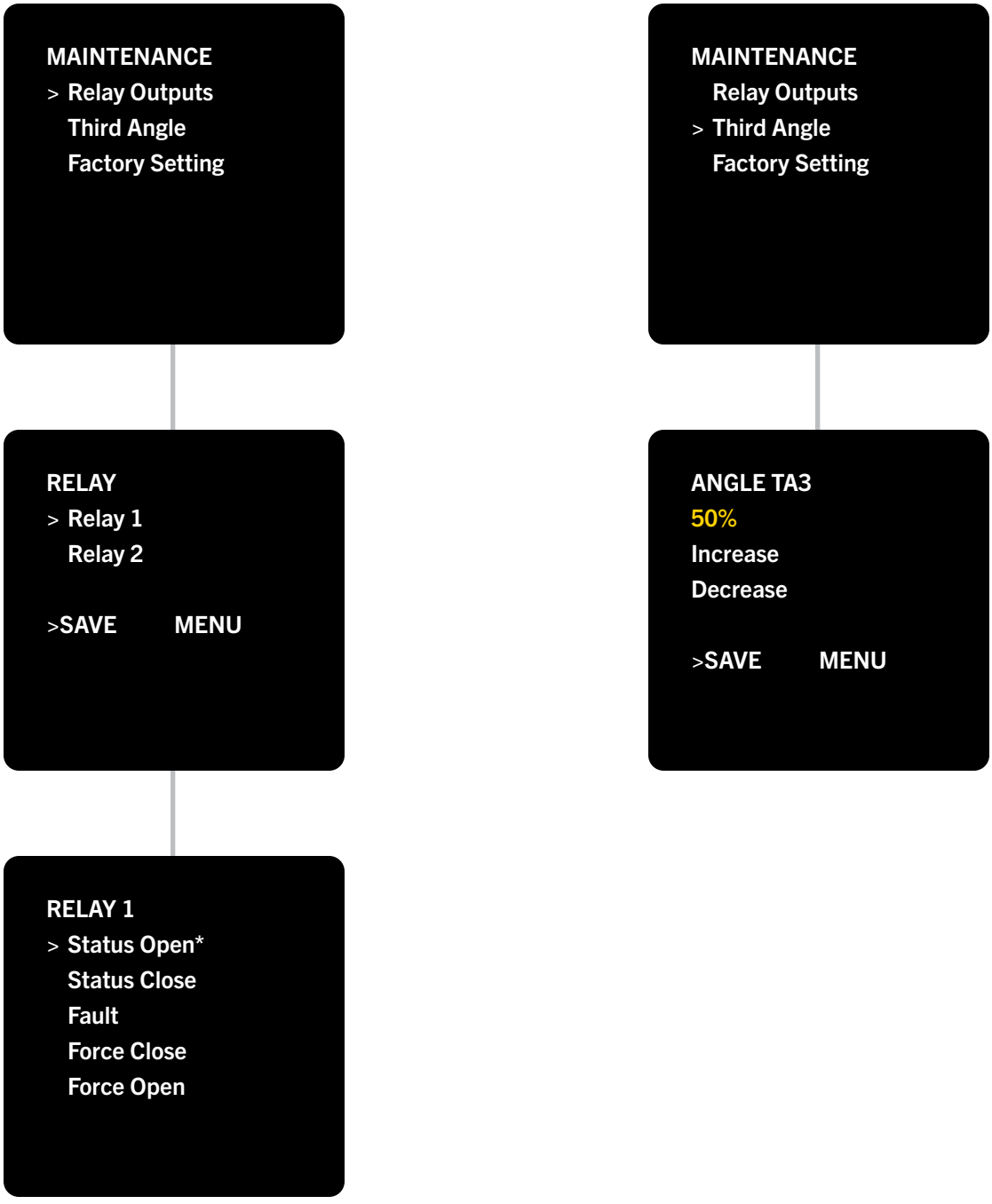
OVERLOAD Use this display to set the time delay for overload detection. Default is 1 second. Persist will keep trying the operation 5 consecutive times. Always SAVE the selection.

HYSTERESIS Use this display to compensate for any backlash that appears overtime in the link between actuator and the valve stem. Max value is 5 °.

DRIVE Select your method of control. While in Keypad or Manual, the actuator will not respond to control signals . Auto is the default. Always SAVE the selection.

OPTIONAL A signal can be set for keypad or manual selection

(ON/OFF) MAINTENANCE AND SUB-MENU OPTIONS



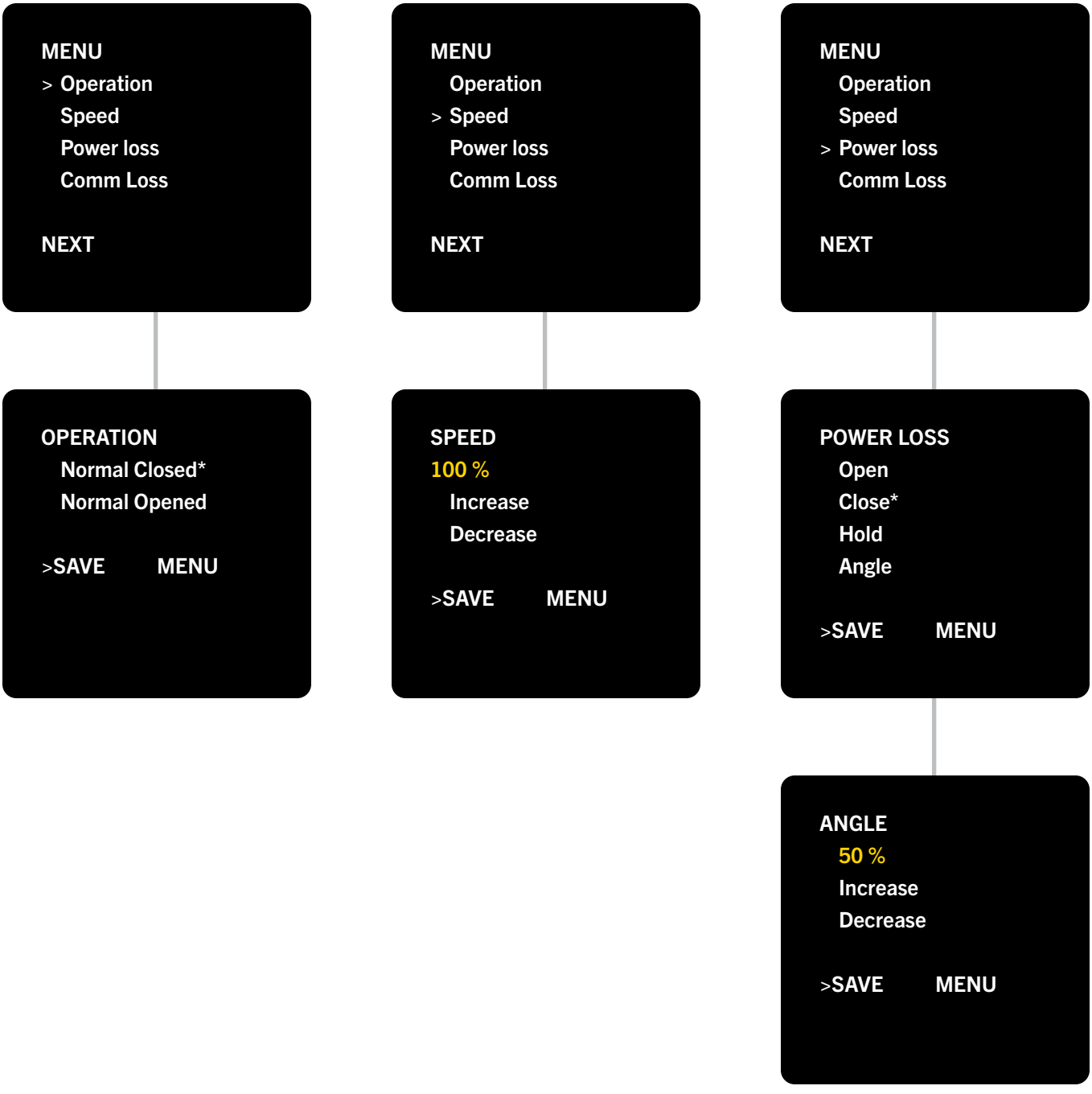
(ON/OFF) MAINTENANCE AND SUB-MENU OPTIONS

(MODULATION) MAIN MENU AND SUB-MENU

(MODULATION) MAIN MENU AND SUB-MENU

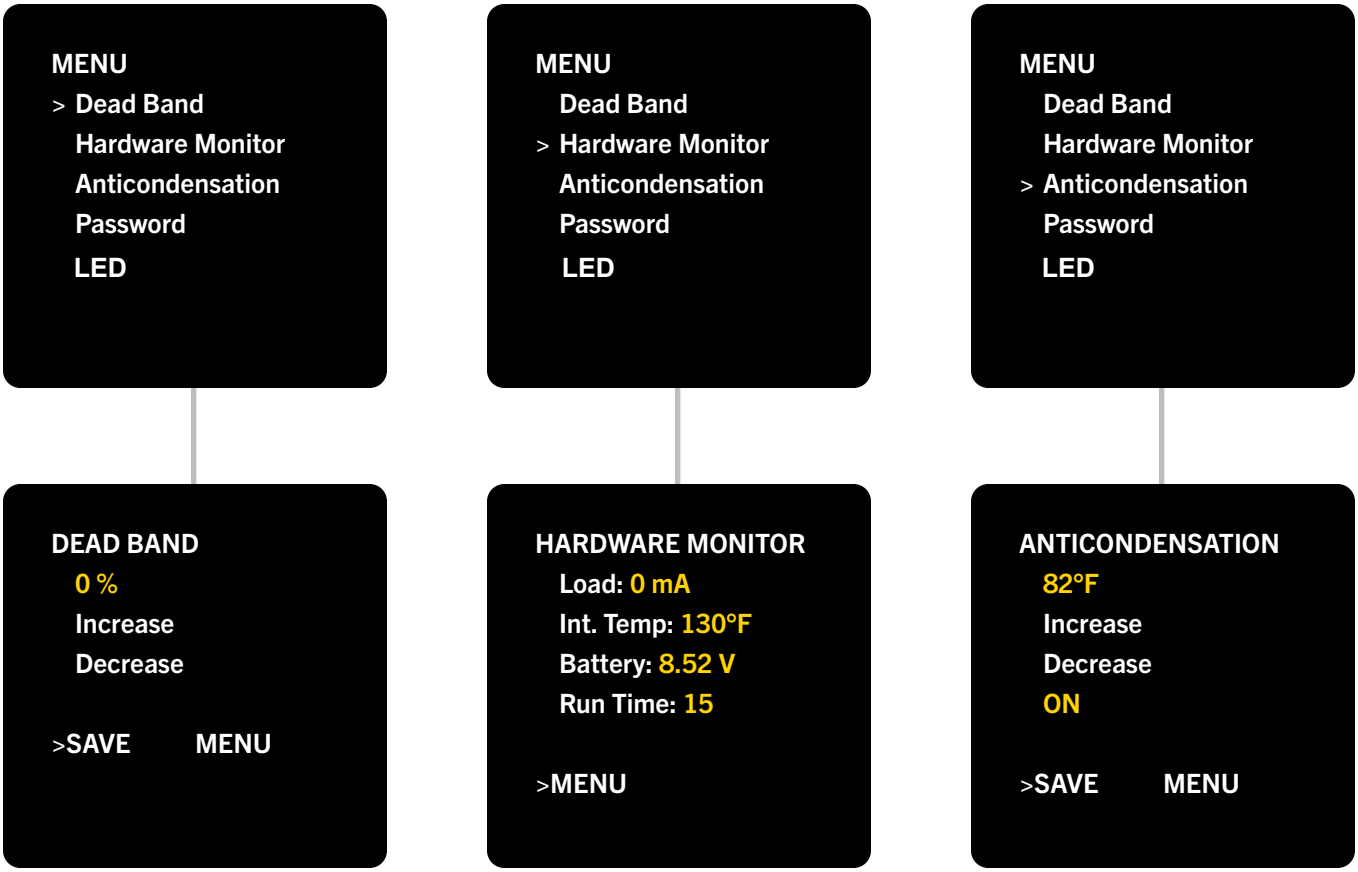
Record of the last three triggered alarms will be saved in display. Overload, Over Temp, and Hard Fault are considered critical alarms and must be reset via this menu. User should clear the condition that generated the alarm. Other alarms reset once the triggered condition is removed or restored.

(MODULATION) CONTROL AND SUB-MENU OPTIONS

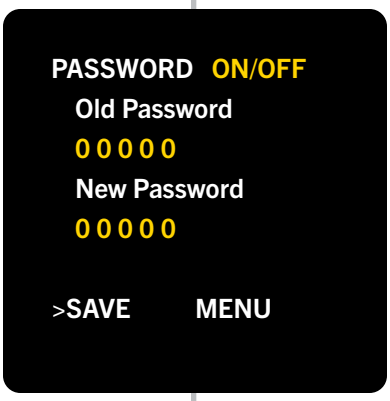


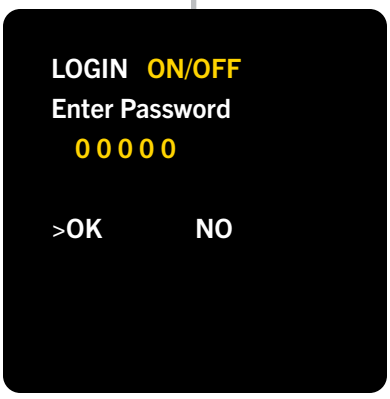
(ON/OFF) CONTROL AND SUB-MENU OPTIONS

(MODULATION) CONTROL AND SUB-MENU OPTIONS



(MODULATION) CONTROL AND SUB-MENU OPTIONS





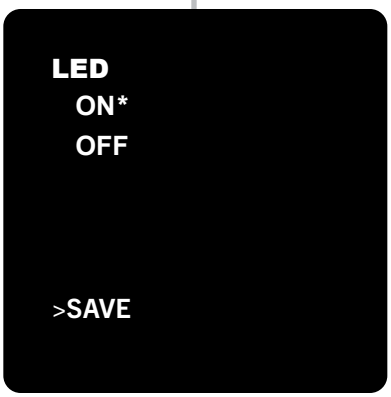
DEAD BAND Default setting is 0%. Move cursor to "increase" or "decrease" and then press O to change % in relation to working angle up to 5%. Always save the selection.

HARDWARE MONITOR Keeps track of important parameters of the actuator. Run Time is a counter of each continuous run regardless of the direction

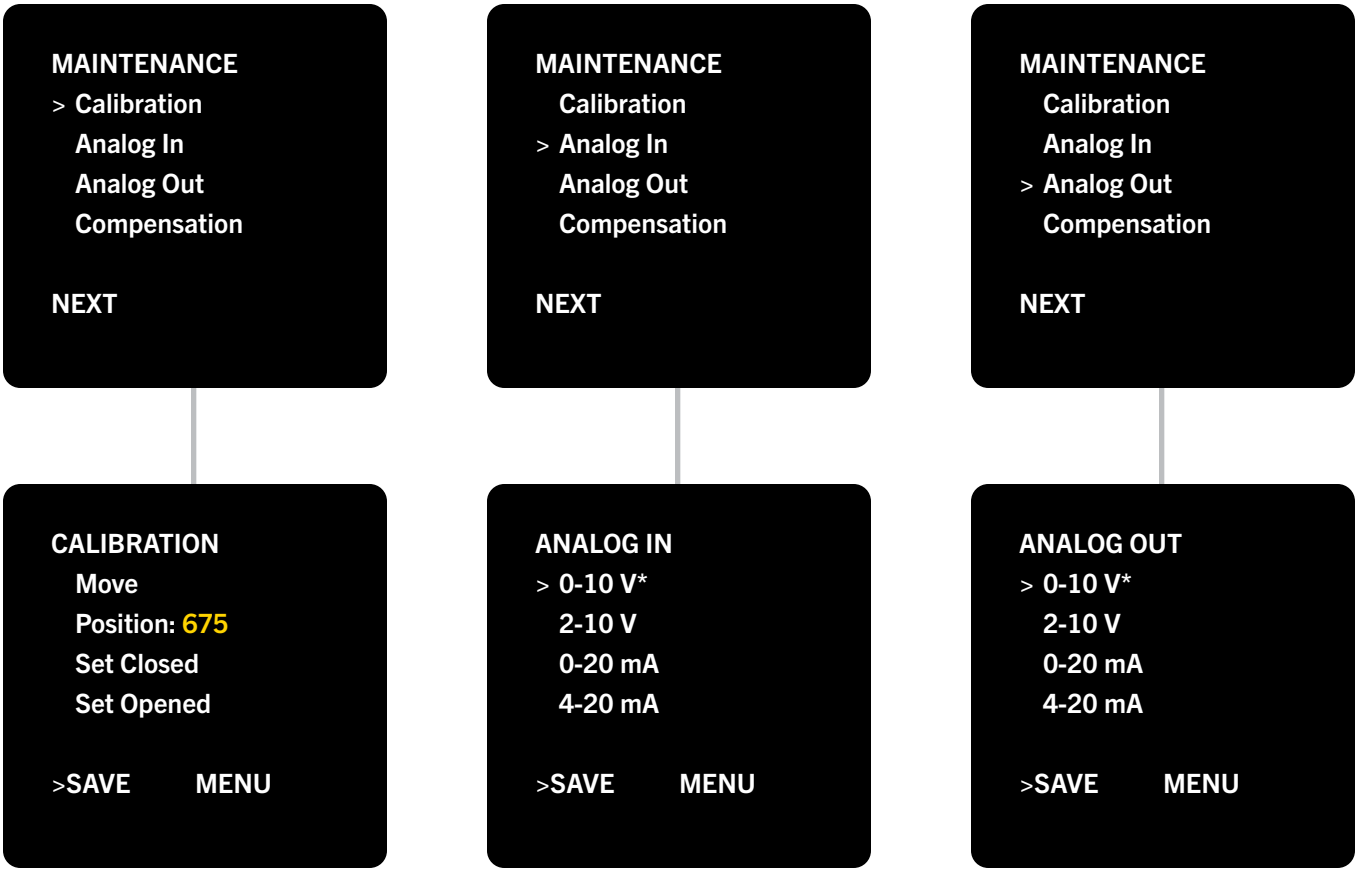
ANTICONDENSATION ON is the default. 82° F is the default threshold. Below the threshold a internal heater will turn ON. The threshold can be turned OFF to prevent the heater from turning ON. Always save the selection.

PASSWORD ON is the default. Change password by entering a New Password. 0 0 0 0 is the factory default password. Move the cursor to PASSWORD and press O to deactivate the password protection. Enter your password and select OK. Always save the selection. ALWAYS REMEMBER YOUR NEW PASSWORD. Losing your new PASSWORD will prevent you from changing password protected settings.

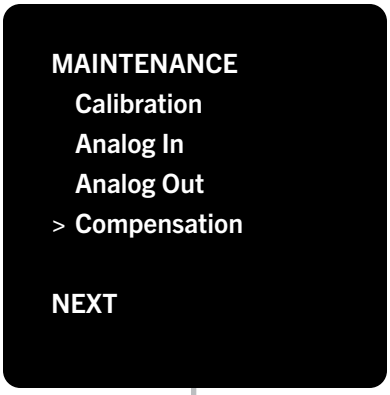
LED Default setting is ON. Allows the user to turn off the LED Ring Indicator ON or OFF.

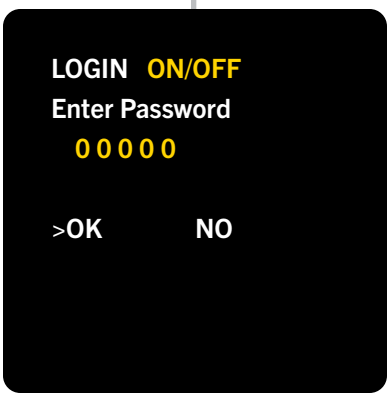


(MODULATION) MAINTENANCE & SUB-MENU OPTIONS



(MODULATION) MAINTENANCE & SUB-MENU OPTIONS





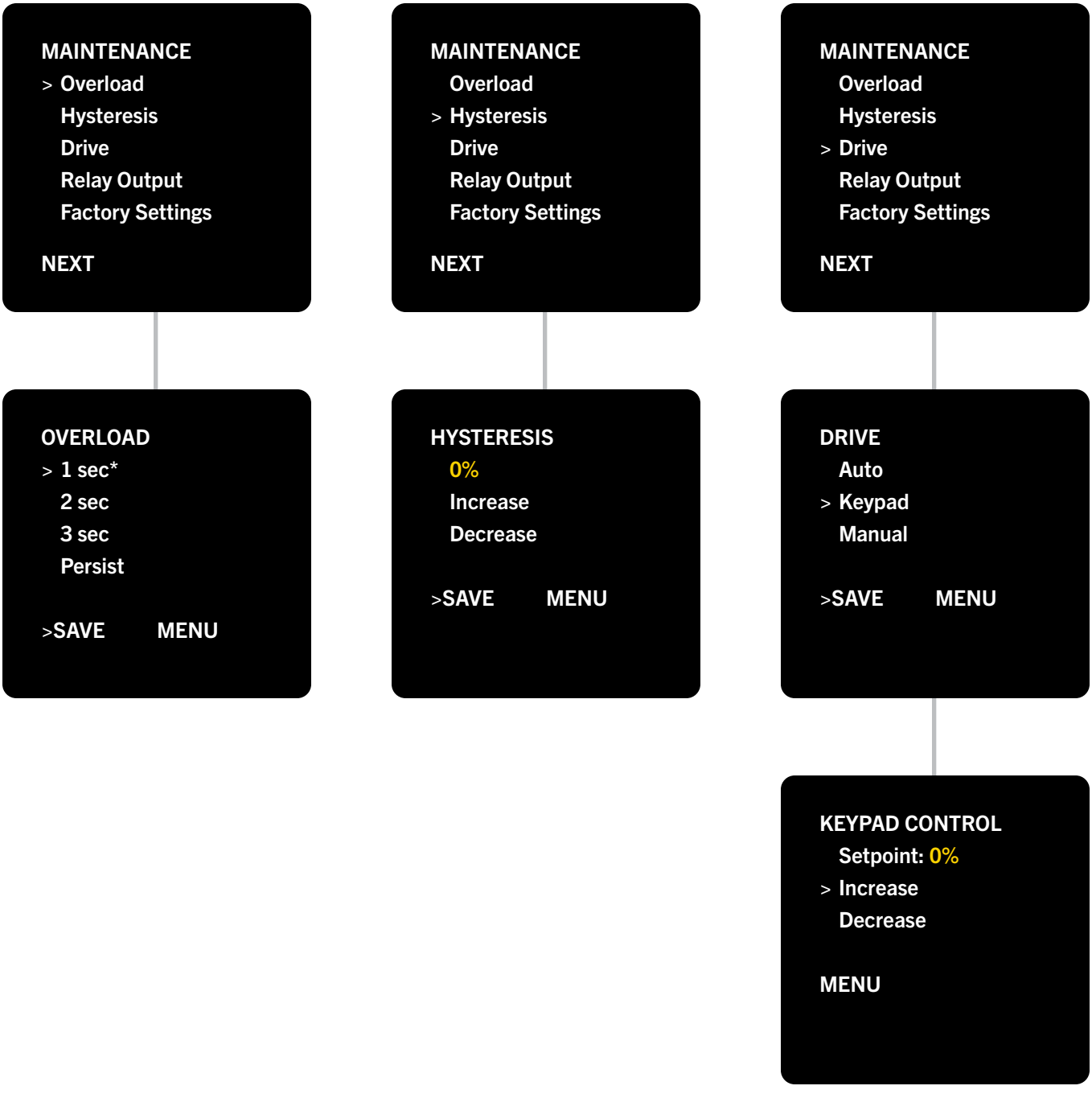
CALIBRATION Use this display to set the closed and open position for the actuator. Select “Move” and then use < > to rotate counter-clockwise or clockwise respectively . After the desired point is achieved select Set Closed or Set Opened. Repeat same operation for the other point. Always SAVE the selection

ANALOG IN Use this display to set the type of input control signal for the proportional control. Always SAVE the selection

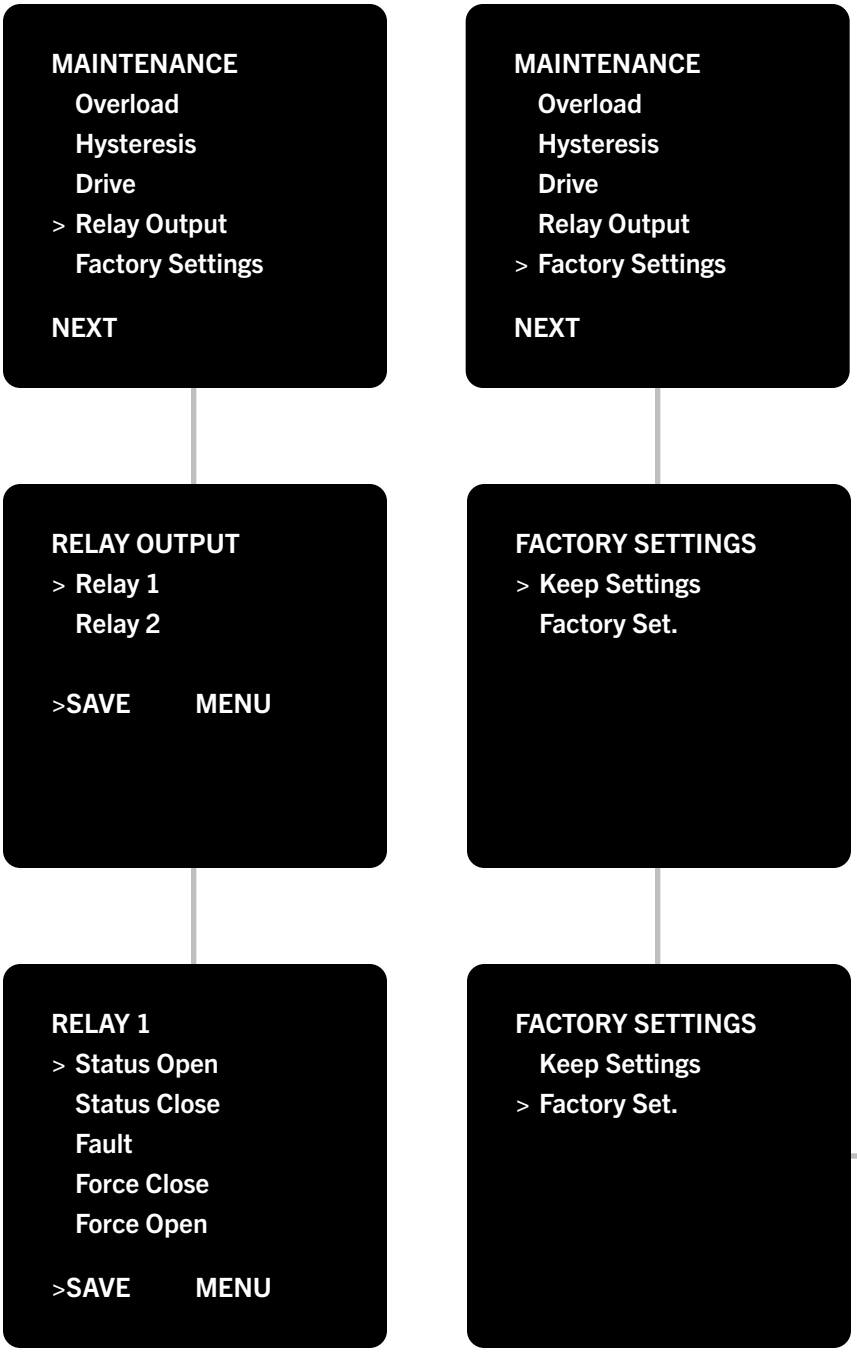
ANALOG OUT Use this display to set the type of output control signal for the proportional control. Always SAVE the selection

COMPENSATION Use this display to set an increase in the feedback signal in order to compensate for unwanted transmission losses. Max. 10% . Default is 0% Always SAVE the selection

(MODULATION) MAINTENANCE & SUB-MENU OPTIONS



(MODULATION) MAINTENANCE & SUB-MENU OPTIONS



OVERLOAD Use this display to set the time delay for overload detection. Default is 1 sec. Persist will keep trying the operation 5 consecutive times. Always SAVE the selection

HYSTERESIS Use this display to compensate for any backlash that appears overtime in the link between actuator and the valve stem. Max value is 5 °.

DRIVE Select your method of control. While in Keypad or Manual, the actuator will not respond to control signals. Auto is the default. Always SAVE the selection.

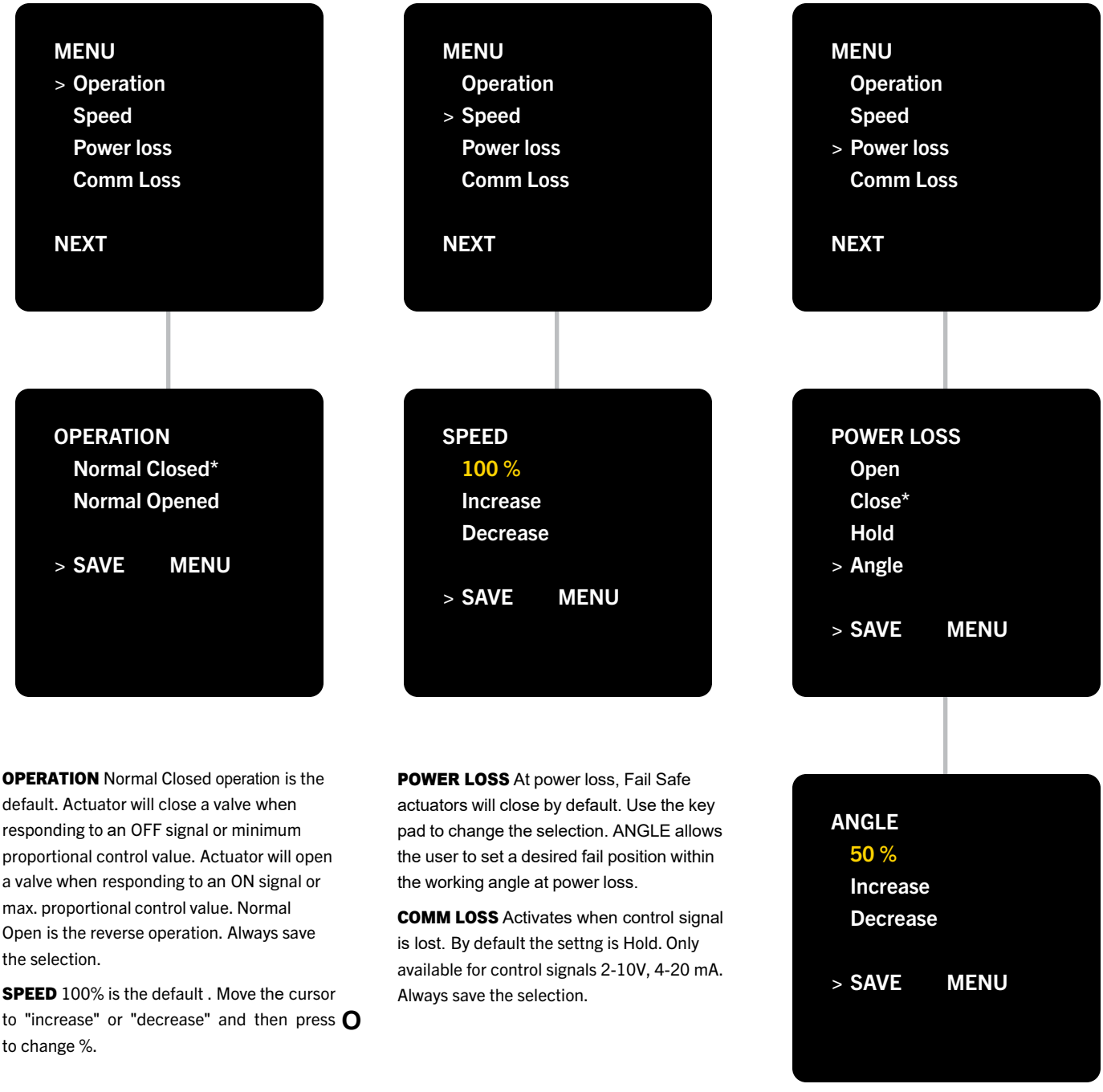
RELAY OUTPUT Use this display to set the type response you want from the discrete outputs. By default Relay 1 is set to indicate the ON (Open condition) and Relay 2 is set to indicate OFF (Closed condition) Always SAVE the selection

FACTORY SETTING Is always password protected regardless if PASSWORD is ON or OFF. Actuator will go back to original settings from factory. 0 0 0 0 is the factory default password. Always save the selection.

(MODBUS) MAIN MENU AND SUB-MENU

(MODBUS) MAIN MENU AND SUB-MENU

(MODBUS) CONTROL AND SUB-MENU OPTIONS



OPERATION Normal Closed operation is the default. Actuator will close a valve when responding to an OFF signal or minimum proportional control value. Actuator will open a valve when responding to an ON signal or max. proportional control value. Normal Open is the reverse operation. Always save the selection.

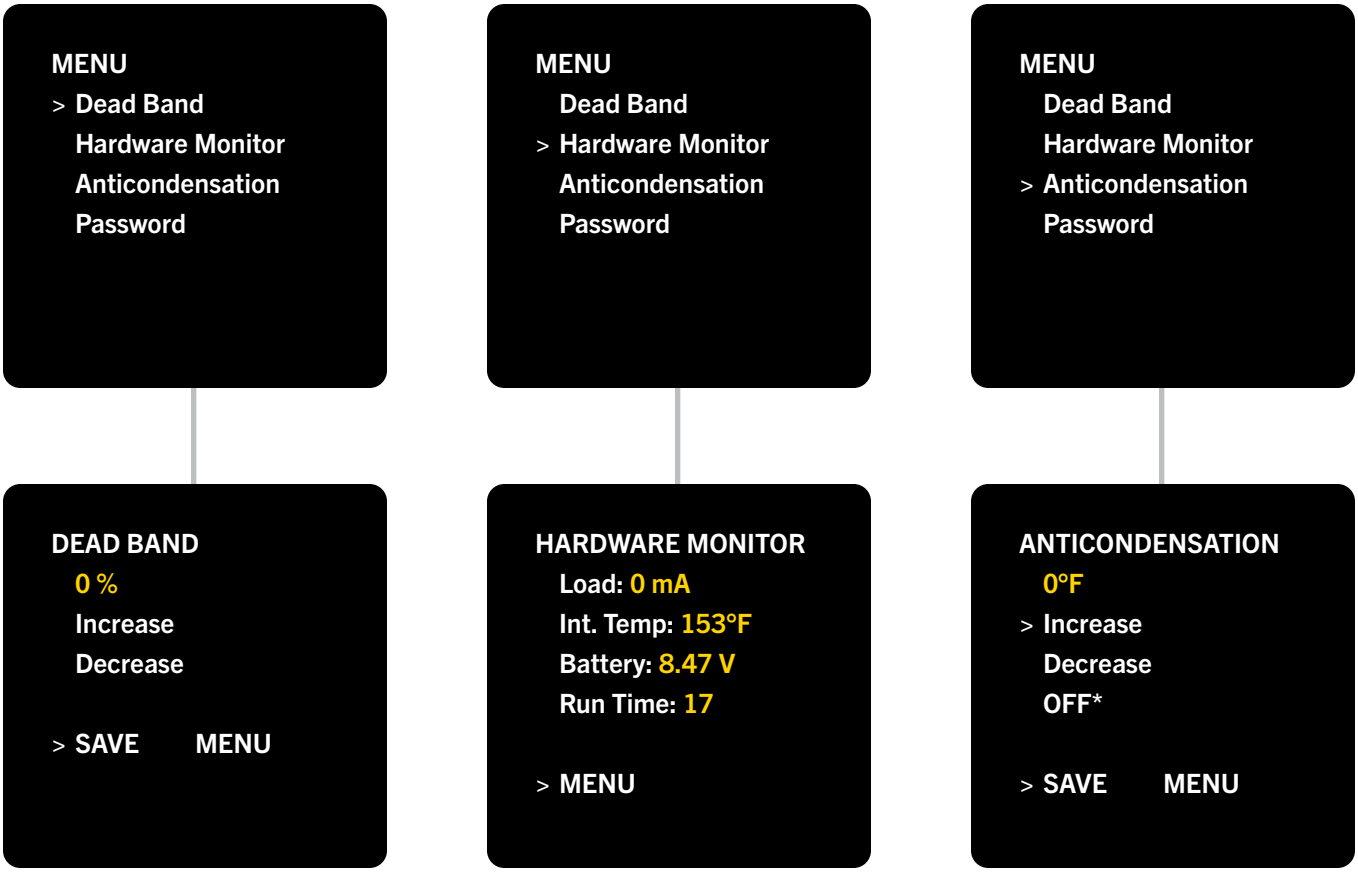
SPEED 100% is the default . Move the cursor to "increase" or "decrease" and then press O to change %.

POWER LOSS At power loss, Fail Safe actuators will close by default. Use the key pad to change the selection. ANGLE allows the user to set a desired fail position within the working angle at power loss.

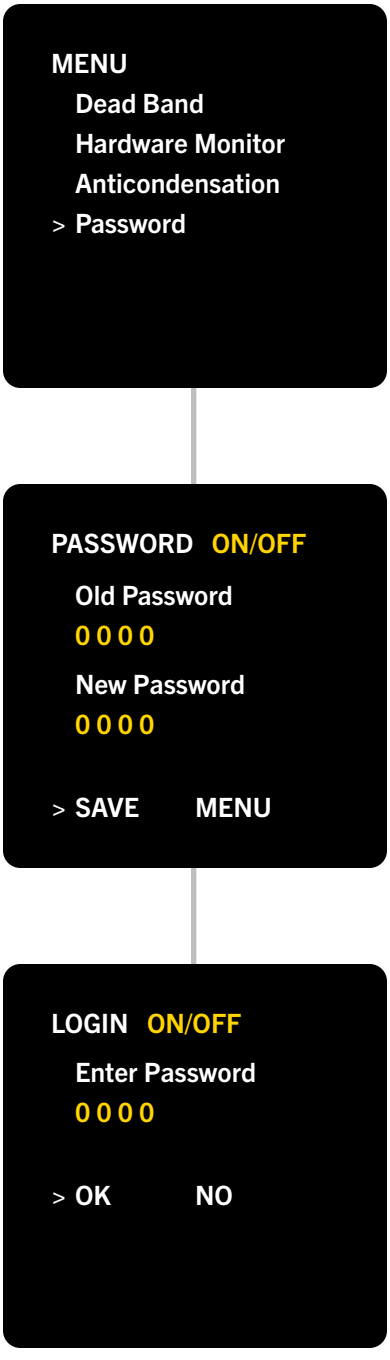
COMM LOSS Activates when control signal is lost. By default the settng is Hold. Only available for control signals 2-10V, 4-20 mA. Always save the selection.

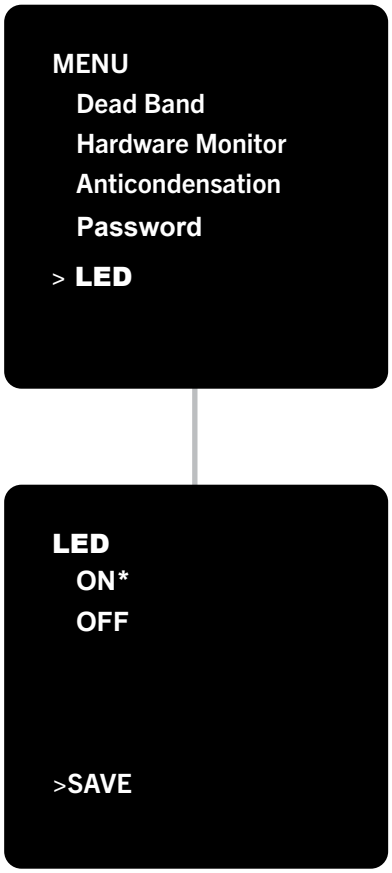
(MODBUS) CONTROL AND SUB-MENU OPTIONS

(MODBUS) CONTROL AND SUB-MENU OPTIONS



(MODBUS) CONTROL AND SUB-MENU OPTIONS





DEAD BAND Default setting is 0%. Move cursor to "increase" or "decrease" and then press O to change % in relation to working angle up to 5%. Always save the selection.

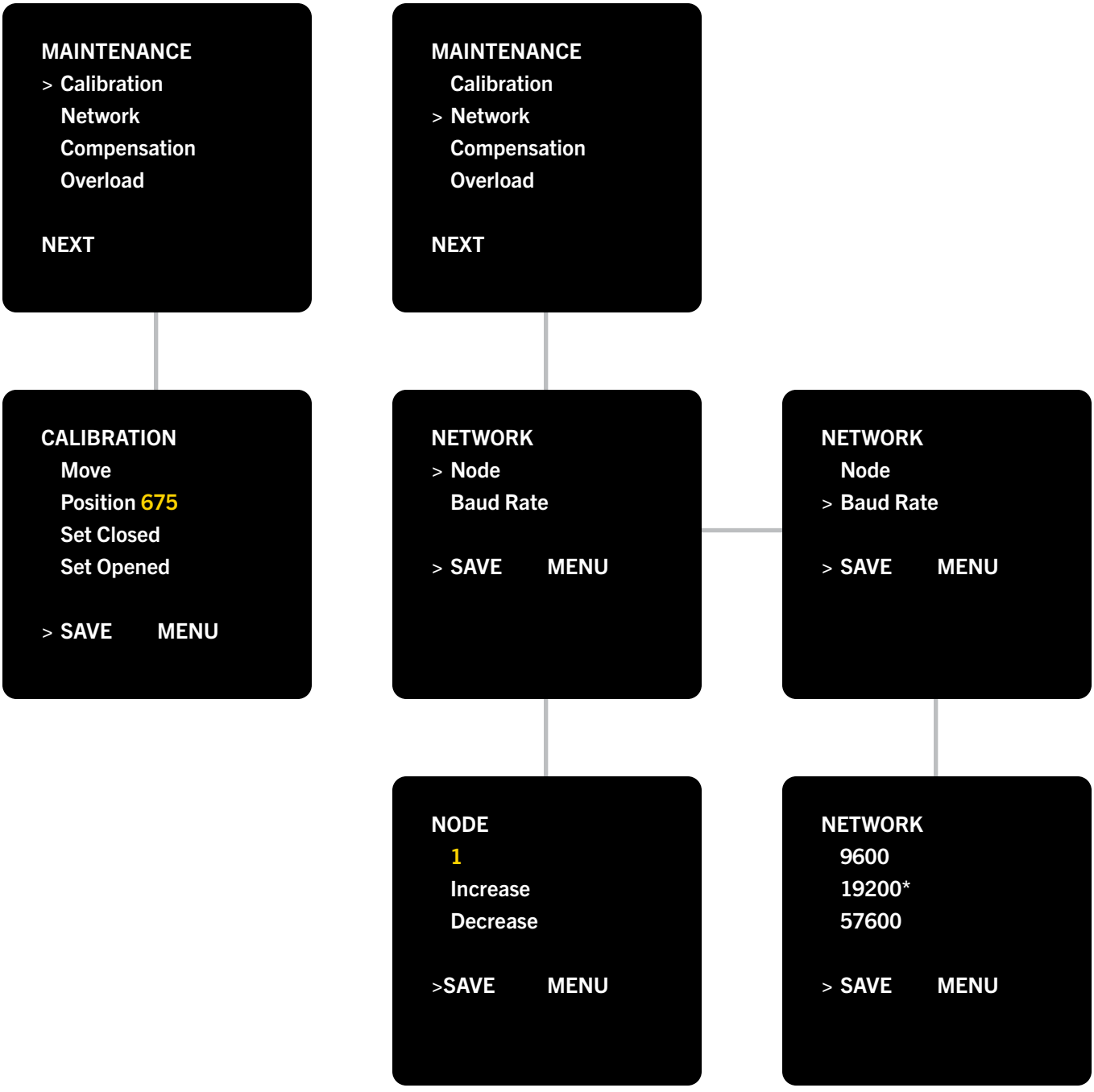
HARDWARE MONITOR Keeps track of important parameters of the actuator. Run Time is a counter of each continuous run regardless of the direction

ANTICONDENSATION ON is the default. 82° F is the default threshold. Below the threshold a internal heater will turn ON. The threshold can be turned OFF to prevent the heater from turning ON. Always save the selection.

PASSWORD ON is the default. Change password by entering a New Password. 0 0 0 0 is the factory default password. Move the cursor to PASSWORD and press O to deactivate the password protection. Enter your password and select OK. Always save the selection. ALWAYS REMEMBER YOUR NEW PASSWORD. Losing your new PASSWORD will prevent you from changing password protected settings.

LED Default setting is ON. Allows the user to turn off the LED Ring Indicator ON or OFF.

(MODULATION) MAINTENANCE & SUB-MENU OPTIONS



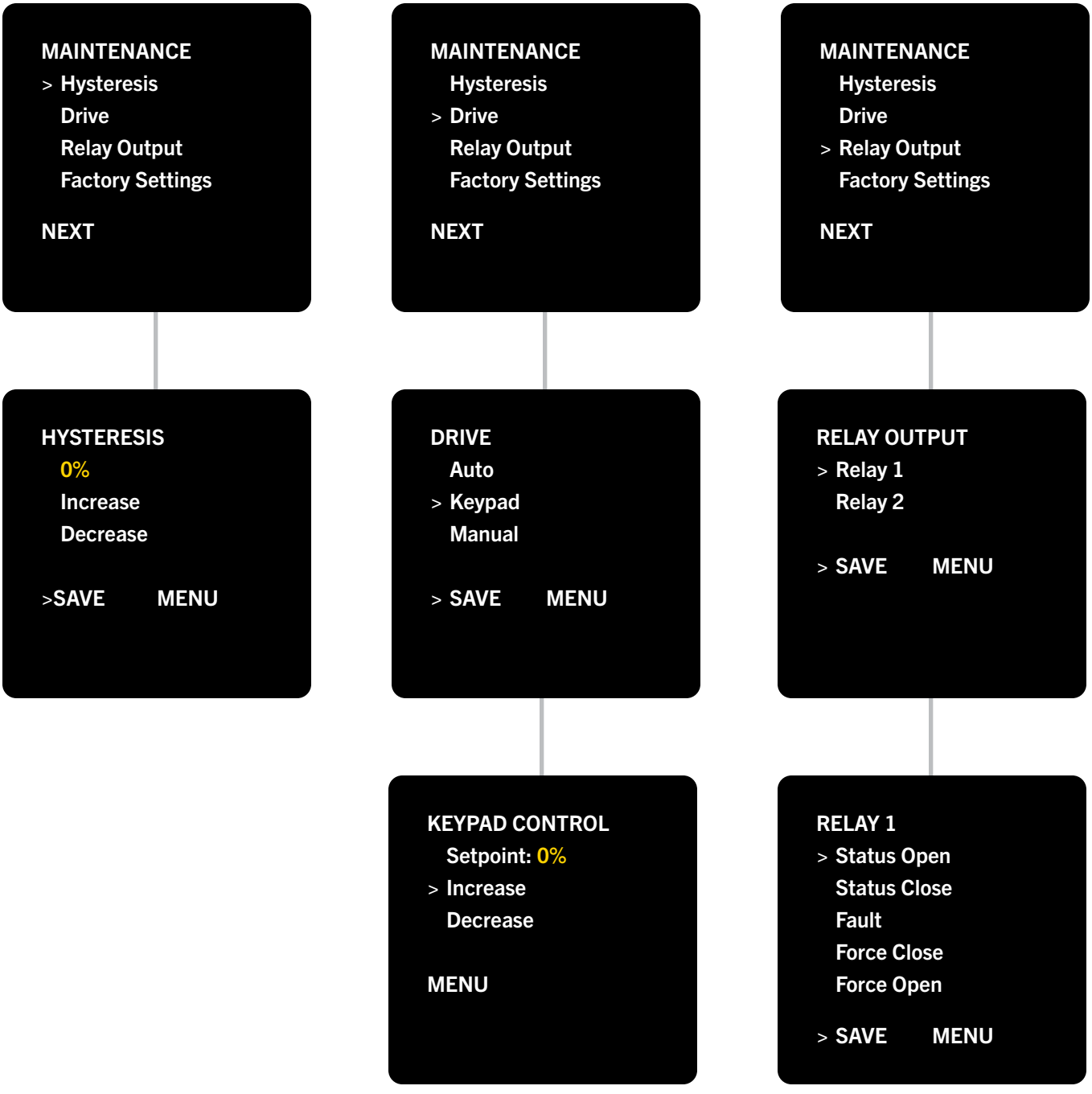
(MODBUS) MAINTENANCE & SUB-MENU OPTIONS

CALIBRATION Use this display to set the closed and open position for the actuator. Select “Move” and then use < > to rotate counter-clockwise or clockwise respectively. After the desired point is achieved select Set Closed or Set Open. Repeat same operation for the other point. Always SAVE the selection .

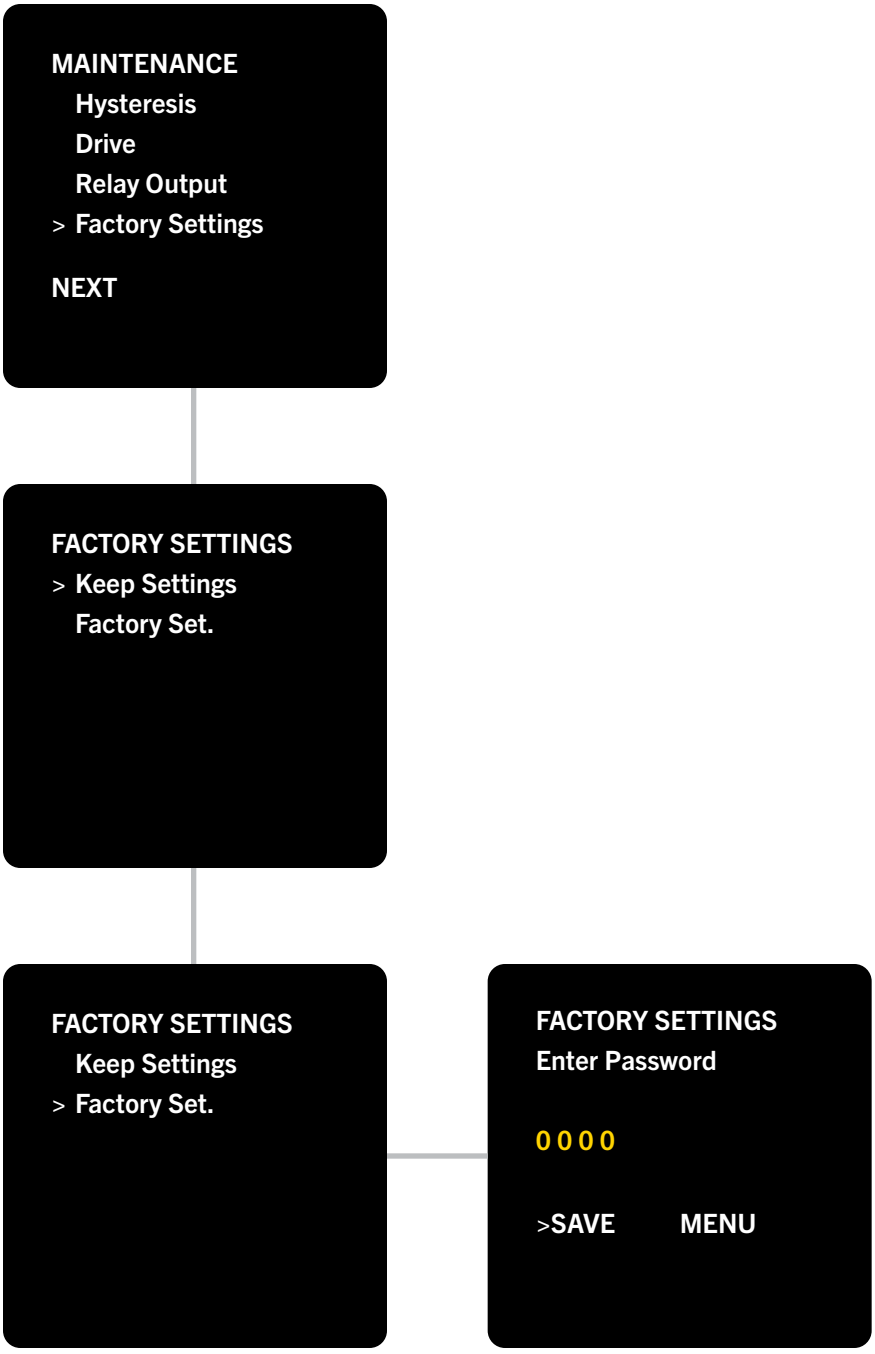
COMPENSATION Use this display to set an increase in the feedback signal in order to compensate for unwanted transmission losses. Max. 10% . Default is 0% Always SAVE the selection.

NETWORK Use this display to set the node of the actuator within the Modbus network. Node and baud rate must be set in advance and in accordance to the existing network. Node 1 and 19200 baud are the default settings. Always save the selection.

(MODBUS) MAINTENANCE & SUB-MENU OPTIONS



(MODBUS) MAINTENANCE & SUB-MENU OPTIONS



OVERLOAD Use this display to set the time delay for overload detection. Default is 1 sec. Persist will keep trying the operation 5 consecutive times. Always SAVE the selection

HYSTERESIS Use this display to compensate for any backlash that appears overtime in the link between actuator and the valve stem. Max value is 5 °.

DRIVE Select your method of control. While in Keypad or Manual, the actuator will not respond to control signals. Auto is the default. Always SAVE the selection.

RELAY OUTPUT Use this display to set the type response you want from the discrete outputs. By default Relay 1 is set to indicate the ON (Open condition) and Relay 2 is set to indicate OFF (Closed condition) Always SAVE the selection

FACTORY SETTING Is always password protected regardless if PASSWORD is ON or OFF. Actuator will go back to original settings from factory. 0 0 0 0 is the factory default password. Always save the selection.

PLAST-O-MATIC

Plast-O-Matic Valves, Inc.

1384 Pompton Avenue
Cedar Grove, NJ 07009 USA

(973) 256.3000

Fax (973) 256.4745

PRINTED IN USA