

ACC PROCESS PANEL METER

STANDARD FEATURES

- Σ High accuracy analog input $\pm 0.005\%$
- Σ Selectable full screen process display
- Σ Easy English menu navigation
- Σ No cryptic codes, Easy value adjustment
- Σ 5 Digit process display
- Σ Microprocessor Based
- Σ 85-305 VAC or 24 VDC Input*Standard*
- Σ 5 Function keys
- Σ Isolated 24VDC Sensor Power
- Σ 2AI 4/20MA, Input $\pm 0.005\%$
- Σ Modbus® RS485*Standard*
- Σ 2 Analog Output (4-20) *Standard*
- Σ High speed DC digital input*Standard*
- Σ 4 Programmable relays, Form C, Form A*Standard*
- Σ Integral Display Filter, User programmable
- Σ 122 X 32 LCD Graphical display (Backlit)
- Σ 1, 2 or 4 Lines of text and graphics



THE ACC PANEL METER PROVIDES CONTINUOUS LEVEL MONITORING FROM ANALOG INPUTS

- Σ Displays process in numeric as a percentage
- Σ Completely user programmable
- Σ Toggleable manual control
- Σ Offers Up to 4 Relay alarm or control outputs with setpoint and deadband adjustment
- Σ 100MA of 24VDC sensor power 'On-Board'
- Σ Scalable 4/20MA or 0-10V analog output
- Σ Backlit graphical LCD display
- Σ Panel mount 1/8 DIN
- Σ Opto Isolated Rate input

Based on the Sigma EZ-C, the Sigma ACC puts even more power into the same compact package. The additional analog input allows for an external control signal along with a feedback signal input for display purposes. The extra analog output allows for easy retransmission of the feedback signal.

The unit can swap between manual and automatic control right on the main screen. The mode toggle and manual level setting are controlled by the function keys.

Graphical and numerical process displays are standard.

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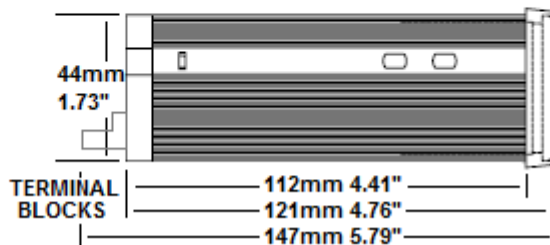
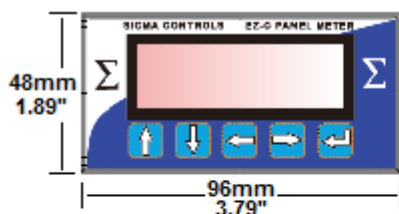
ACC PROCESS PANEL METER

SPECIFICATIONS

Inputs (1 ea.)	Analog, 4/20MA, 0-5V, 1-5V, 0-10VDC, isolated, $\pm 0.005\%$ accuracy.
Inputs (1 ea.)	Analog, 4/20MA, $\pm 0.005\%$ accuracy.
Inputs (1 ea.)	Highspeed Digital 1-24VDC (May require external resistor)
Outputs (1 ea.)	Analog, 4-20MA/0-20MA, 0-10V
Outputs (1 ea.)	Analog, 4-20MA/0-20MA
Outputs (4 ea.)	Relays 5A max. 2) Form A, 2) Form C
Display	LCD, 122 X 32 bitmapped graphical display
Loop Power	24VDC regulated output, 100MA max.
5 User Keys	Up, Down, Left, Right, Enter
Accuracy	0.005% of calibrated span
Lockout	User password
Input Impedance	Voltage 100K current 100 OHMS
Power	85-277VAC 50-60Hz, .12A, 24VDC, .15A
Environmental	Operating 0-65°C, Storage -40° - 80°C, R.H., 0-90% non condensing
Enclosure	1/4 DIN, ABS plastic 48 X 96 X 150mm
Front Panel	Nema 1 (Nema 4 option)
Access	Dip switches & contrast adjust
Terminal Strip	(28) 'Pluggable' for ease of wiring 20 – 16AWG
Programming	Menu based, all parameters and setpoints are user configurable via menu prompt and the user keys using the preconfigured screens and 'pull down' sub menus with English prompts assures rapid setup and commissioning.
Warranty	1 Year Warranty
Data	Modbus® RTU RS 485 Slave

MECHANICAL

SCREEN SAMPLES



STROKE
7.7%
AUTO 7.7%

STROKE
90.2%
MANUAL 90.2%

SELECT FUNCTION
USE UP, DN, OR EN
SETUP OUTPUTS

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Sigma Controls, Inc.

PROCESS CONTROLS AND INSTRUMENTATION



ACC PROCESS PANEL METER

Version 1.0

1/8 DIN 48 X 96MM Housing
THE ACC PANEL METER PROVIDES CONTINUOUS
LEVEL MONITORING FROM ANALOG INPUTS

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SPECIFICATIONS

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Inputs (1 ea.)	High-speed Digital 1-24VDC (May require external resistor)
Outputs (1 ea.)	Analog, 0-20MA, 0-10V
Outputs (1 ea.)	Analog, 0-20MA
Outputs (4 ea.)	Relays 5A max. 2) Form A, 2) Form C
Display	LCD, 122 X 32 bitmapped graphical display
Loop Power	24VDC regulated output, 40MA max. Ex. Bussman S500-40-R
5 User Keys	Up, Down, Left, Right, Enter
Accuracy	0.005% of calibrated span
Lockout	User password
Input Impedance	Voltage 100K current 100 OHMS
Power	85-277VAC 50-60Hz. Fuse 1 AMP Slow Blow. Ex.AGC-1-R, 24VDC, .15A
Environmental	Operating 0-65°C, Storage -40° - 80°C, R.H., 0-90% non condensing
Enclosure	1/8 DIN, ABS plastic 48 X 96 X 150mm
Front Panel	Nema 1 (Nema 4 option)
Access	Dip switches & contrast adjust
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PRODUCT OVERVIEW

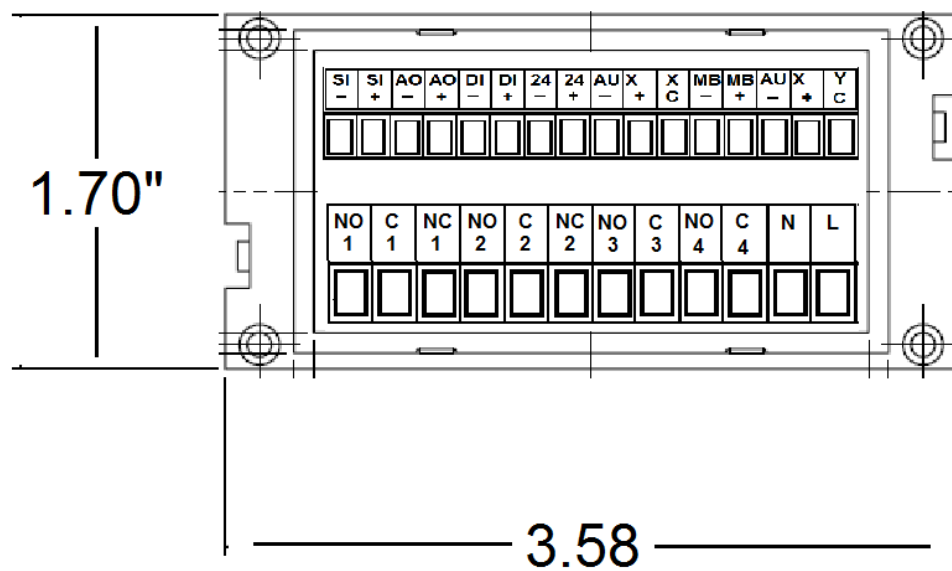
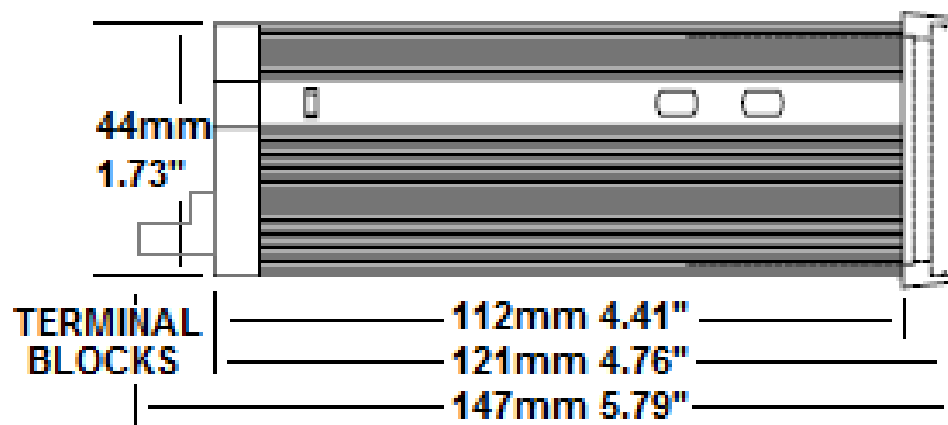
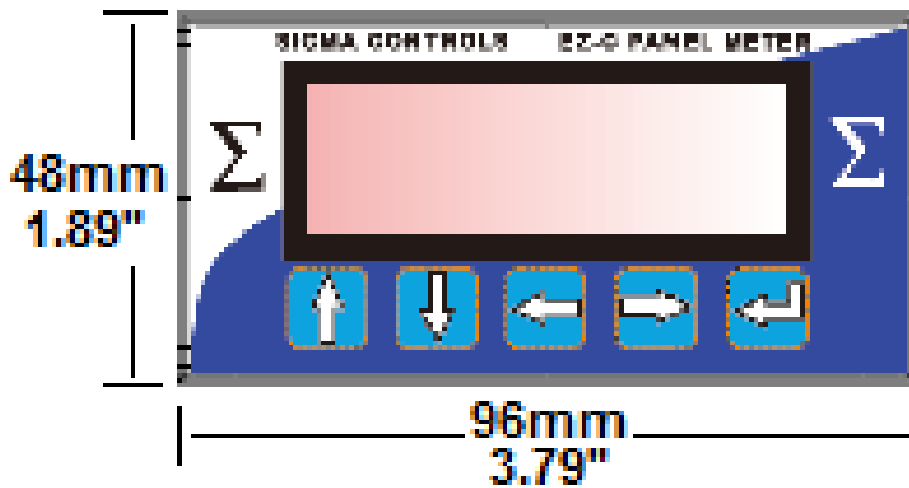
The ACC process panel meter is the same high-accuracy hardware used in our EZ-C now being used to monitor your control system. Simply monitor your automatic control input and feedback values or even take manual control all from the main screen.

It is easy to understand too. Much like our controllers and level meters, all of the menus

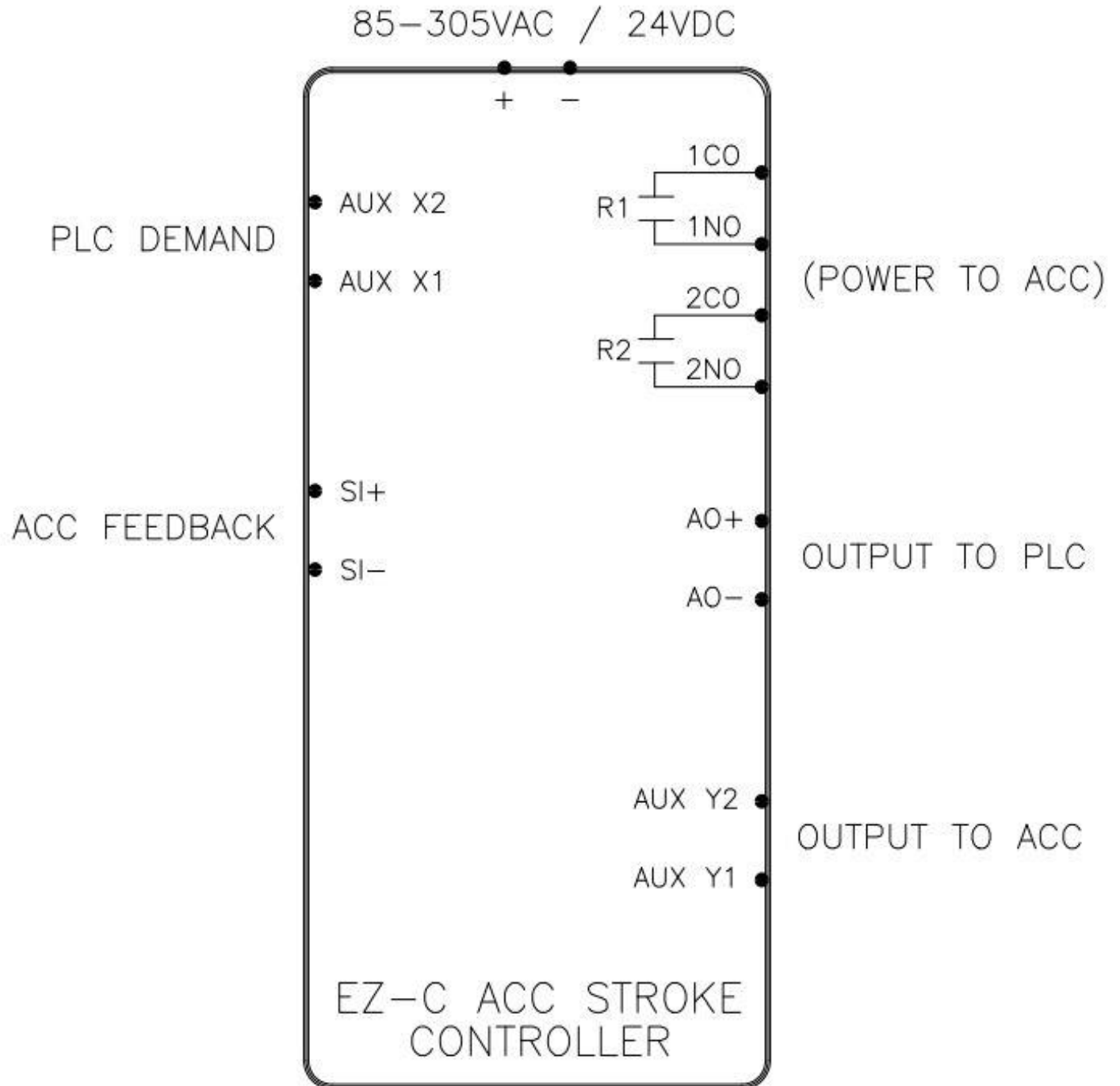
are in plain English. Unlike other process meters, setup is frustration free. In fact, an experienced controls person may not need this manual at all.

Private labeling is available. Optional expansion PCBs and capabilities will be rolled out over time. Check in with us for updates or sign up for our newsletter from our website's front page at sigmacontrols.com

MECHANICAL

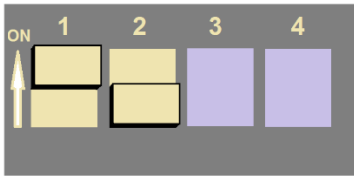


SIGMA DRAWING

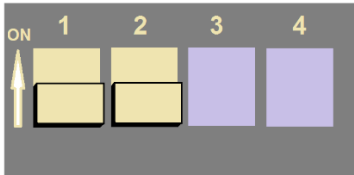


DIP SWITCHES

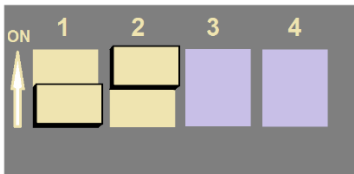
NOTE: DIP Switches only change the input type of the ACC input (SI) and output type of the PLC output (AO)



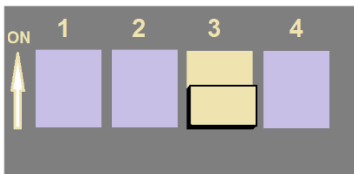
4-20mA input (Default)



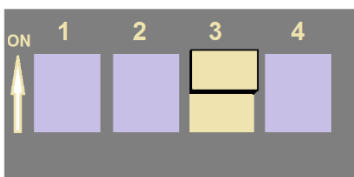
0-5 volt input



0-10 volt input



4-20mA output (Default)



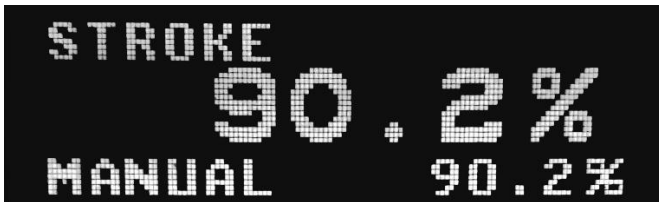
0-10 volt output.

Dip Switch 4 is for future use.

MAIN SCREEN AND NAVIGATION



This is the screen that is displayed at the end of the power up sequence. The large numerals represent the stroke value returned by the ACC. In the bottom left corner of the screen is the mode indicator. This indicator will either read "AUTO" for PLC control mode, "MANUAL" for Local control mode, and "OFF" for cutting power to the ACC controller. When in PCL control mode, the value in the bottom right corner of the screen will represent the PLC demand signal which is ultimately retransmitted to the ACC stroke actuator.



When in Local control mode, the value in the bottom right corner will represent a manually adjustable value which is transmitted to the ACC stroke actuator. The left and right keys are used to increase or decrease this value. The up and down keys are used to switch between control modes. You can think of the control modes like the "Hand/Off/Auto" switch on a typical control panel.

Pressing the enter key from the main screen brings you to the password screen.

Password Screen



The default password is zero. Usually, one would push enter at this point to go to the menu screen.

Main menu



Select a function using the up and down keys. The current selected function is listed on the bottom line of the display. Pushing enter will navigate you to your selection.

Setup

This branch of the menu tree allows you to scale the analog values and assign a decimal point position for display. This is also the branch which allows the user password to be set. Settings are saved when you exit this menu branch.

Calibrate

This branch of the menu tree allows for the field calibration of the analog input and output values.

NOTE: Calibration requires specialized equipment.

Diagnostic

Various inputs and outputs are displayed to aid in troubleshooting. It is often helpful to confirm that an input is being read by the processor to troubleshoot a connection problem.

Exit

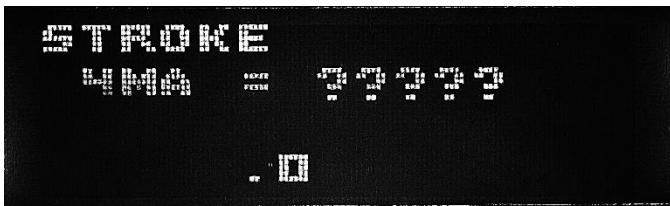
Returns you to the main screen.

SETUP

Apon selecting "SETUP" from the main menu you will begin the meter setup sequence.



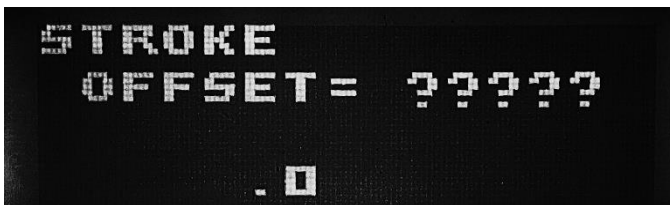
The first screen in the setup sequence is the decimal point value for the stroke value display. This value can be set between 0 and 2, the number representing how many decimal places there is for display. The up and down keys are used to increase or decrease this value. Press enter to move on to the next screen.



The second screen in the setup sequence is the 4mA value for the stroke value display. This determines the display value when the 4-20 mA input signal is 4mA. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.



The third screen in the setup sequence is the 20mA value for the stroke value display. This determines the display value when the 4-20 mA input signal is 20mA. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.

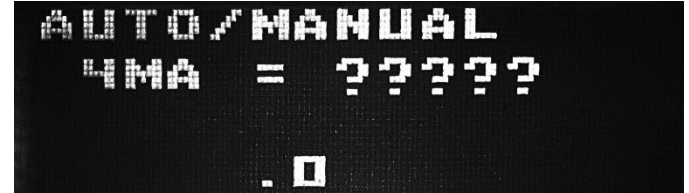


The fourth screen in the setup sequence is the linear offset for the stroke value display. This allows you to adjust the display value linearly in to make sure it's right on target. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.

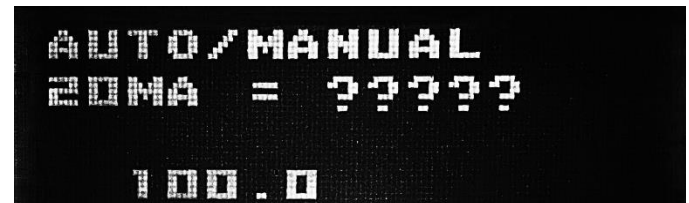


The fifth screen in the setup sequence is the decimal point value for the Auto/Manual value display. This value can be set between 0 and 2, the

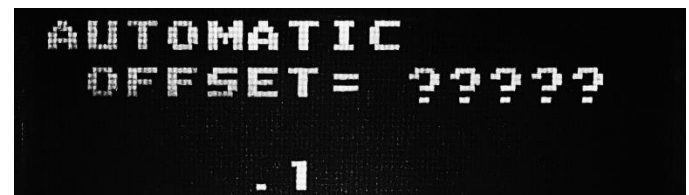
number representing how many decimal places there is for display. The up and down keys are used to increase or decrease this value. Press enter to move on to the next screen.



The sixth screen in the setup sequence is the 4mA value for the Auto/Manual value display. This determines the display value when the 4-20 mA input signal is 4mA. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.



The seventh screen in the setup sequence is the 20mA value for the Auto/Manual display. This determines the display value when the 4-20 mA input signal is 20mA. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.



The eighth screen in the setup sequence is the linear offset for the stroke value display. This allows you to adjust the display value linearly in to make sure it's right on target. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to move on to the next screen.

SET PASSWORD
THEN PRESS ENT

0

The final screen in the setup sequence is the password setup screen. This screen allows you to set your user password. The up and down keys are used to increase or decrease this value. The left and right keys are used to increase or decrease this value by 10. Press enter to complete the setup sequence.

A message will display to indicate the setup has been saved. Press enter to return to the main screen.

CALIBRATE

Apon selecting "CALIBRATE" from the main menu you will begin the meter calibration sequence. Ensure that you a 4-20mA simulator and reader as you will need both to complete calibration.

NOTE: Once you begin calibration you must complete a full calibration of the analog inputs and outputs.

To calibrate the first input/output pair you will need to wire the 4-20 mA simulator to the ACC feedback (SI+ and SI-) and the 4-20 mA reader to the output to PLC (AO+ and AO-).

APPLY 4MA ACCI
AND PRESS ENTER

3494

The first calibration point is the 4 mA point for the ACC feedback signal. The value at the bottom of the screen represents the raw count of the signal. If all connections are wired correctly, the raw count should change automatically as you adjust the mA value of the 4-20 mA simulator. Set the mA value of the 4-20 mA simulator to 4 mA then press enter.

APPLY 20MA ACCI
AND PRESS ENTER

17786

The next calibration point is the 20 mA point for the ACC feedback signal. The value at the bottom of the screen represents the raw count of the input signal. Set the mA value of the 4-20 mA simulator to 20 mA then press enter.

4 MA 2PLC ADJ
ENTER = DONE

2915

The next calibration point is the 4 mA point for the output signal to the PLC. The value at the bottom of the screen represents the raw count of the output signal. You can manually adjust this value using the up and down keys. If everything is wired correctly, the reading on the 4-20 mA reader should change as you adjust the raw count. Adjust the raw count until the 4-20 mA simulator reads 4 mA then press enter.

20 MA 2PLC ADJ
ENTER = DONE

14536

The next calibration point is the 20 mA point for the output signal to the PLC. The value at the bottom of the screen represents the raw count of the output signal. You can manually adjust this value using the up and down keys. Adjust the raw count until the 4-20 mA simulator reads 20 mA then press enter.

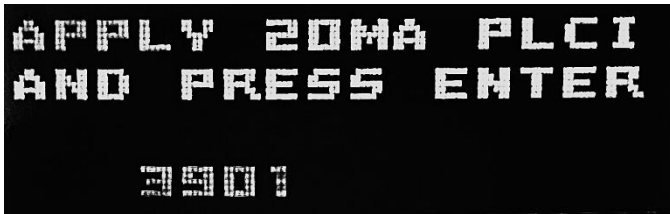
To calibrate the second input/output pair you will need to wire the 4-20 mA simulator to the PLC input (Aux X2 and Aux X1) and the 4-20 mA reader to the output to ACC (Aux Y2 and Aux Y1).

APPLY 4MA PLCI
AND PRESS ENTER

779

The next calibration point is the 4 mA point for the PLC demand signal. The value at the bottom of the screen represents the raw count of the input signal. If all connections are wired correctly, the raw count should change as you adjust the mA value of the 4-

20 mA simulator. Set the mA value of the 4-20 mA simulator to 4 mA then press enter.



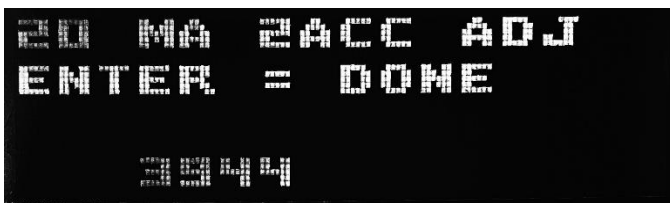
APPLY 20MA PLCI
AND PRESS ENTER
3501

The next calibration point is the 20 mA point for the PLC demand signal. The value at the bottom of the screen represents the raw count of the input signal. Set the mA value of the 4-20 mA simulator to 20 mA then press enter.



4 MA 2ACC ADJ
ENTER = DONE
797

The next calibration point is the 4 mA point for the output signal to the ACC. The value at the bottom of the screen represents the raw count of the output signal. You can manually adjust this value using the up and down keys. If everything is wired correctly, the reading on the 4-20 mA reader should change automatically as you adjust the raw count. Adjust the raw count until the 4-20 mA simulator reads 4 mA then press enter.



20 MA 2ACC ADJ
ENTER = DONE
3544

The next calibration point is the 20 mA point for the output signal to the ACC. The value at the bottom of the screen represents the raw count of the output signal. You can manually adjust this value using the up and down keys. Adjust the raw count until the 4-20 mA simulator reads 20 mA then press enter.

A message will display to indicate the calibration has been saved. Press enter to return to the main screen.

DIAGNOSTIC

Apon selecting “DIAGNOSTIC” from the main menu you will be taken to the first of two diagnostic screens. There screens are useful when troubleshooting the system. Each screen shows the raw count for the analog input and output of its respective channel. The channel is designated in the top right corner of the screen as either “FDBK” or “CTRL”.



AI 17760 FDBK
AO 14513
RELAY 1E34
ACC 41.00

The “FDBK” screen displays the analog signals which correspond to the feedback from the ACC. This includes the analog input from the ACC (feedback input for display) and the analog output to the PLC (feedback retransmit). This screen also shows the state of the relay outputs. If a number is highlighted that indicates that the corresponding relay is on.



AI 3899 CTRL
AO 3941
RELAY 1E34
ACC 41.00

The “CTRL” screen displays the analog signals which correspond to the control of the ACC. This includes the analog input from the PLC (demand) and the analog output to the ACC (control output). This screen also shows the state of the relay outputs. If a number is highlighted that indicates that the corresponding relay is on.

REVISION HISTORY

V1.0 – (01/07/2026) Launch



WARRANTY

All Sigma Controls, Inc. products are warranted to be free from defective materials and workmanship for one (1) year from date of shipment. Sigma reserves the right to repair or replace at its option any product found to be defective. In no event shall Sigma Controls, Inc. be liable for any consequential, incidental, or special damages and the limit of its liability shall not exceed the purchase price of the supplied equipment.

*******IMPORTANT*******

SENSORS AND CABLE THAT HAVE BEEN USED IN WASTE WATER OR HAZARDOUS LIQUIDS MUST BE THOROUGHLY CLEANED BEFORE RETURNING. UNITS RETURNED UNCLEANED WILL BE CONSIDERED UNREPAIRABLE AND RETURNED TO SENDER OR DISCARDED. NOTE: DO NOT SUBMERGE UNITS FOR CLEANING WITH CABLE CUT OR REMOVED. THIS WILL ALLOW CLEANING FLUID TO ENTER HOUSING, DAMAGING ELECTRONICS AND VOIDING THE WARRANTY.

RETURN FOR REPAIR POLICY (WARRANTY/NON-WARRANTY REPAIR)

Return status can be determined upon factory inspection of returned equipment.

A completed Return Authorization form must accompany all items returned for repair.

Repairs will be evaluated as quickly as possible. Cost for non-warranty repairs will be provided before repairs are initiated and repairs will be completed only after approval by customer.

217 S. Fifth Street, Perkasio, PA 18944 PH: 215-257-3412 FAX: 215-257-3416

EZ-C ACC BILL OF MATERIALS

Sigma Part Number	Description	Qty
EZC-ACC	EZ-C Controller with ACC Software	1
ENC-N4X-12106	ENCLOSURE (FOR NEMA 4)	1
EZC-ACC-2601	RELAY	1
EZC-ACC-2602	RELAY SOCKET	1
EZC-ACC-2603	24VDC POWER SUPPLY	1
EZC-ACC-2604	FUSE HOLDER	3
EZC-ACC-2605	2A GLASS FAST ACTING FUSE	4
EZC-ACC-2606	TERMINAL BLOCK	14
EZC-ACC-2607	TERMINAL GROUND BLOCK	1
EZC-ACC-2608	TERMINAL END BARRIER	4
EZC-ACC-2609	TERMINAL END BLOCK	2
EZC-ACC-2610	22mm LED Light, white	1
EZC-ACC-2611	22mm Clear Lens	1
EZC-ACC-2612	22mm Pilot Light	1
EZC-ACC-2613	22mm Latch	1
SPT-420U-DIN	4/20MA TVSS	2