GUIDANT

Smith Meter® AccuLoad® III

Bulletin SS06036 Issue/Rev. 1.2 (7/17)

ELECTRONIC PRESET DELIVERY SYSTEM

The Smith Meter® AccuLoad® III is a multiple microprocessor based instrument that can be configured to fit the application. It is capable of controlling one to six loading arms either as a blending or straight product instrument. The device has the flexibility of handling multiple blending applications, straight ratio blending, side stream ratio blending and sequential blending. The AccuLoad III has flash memory allowing for easy firmware upgrades and large storage capability.

AccuLoad III-S Hardware

AccuLoad III-Q Hardware

FEATURES

- Up to three single or dual pulse product meter inputs (S)
- Up to six single or dual pulse product meter inputs (Q)
- Up to six products for ratio or sequential blending
- Up to 24 additive meter inputs
- Auto-detection of hardware installed
- Up to six-arm operation (Q); 2-arm operation (S)
- Each arm programmable for straight product, sequential blending, ratio blending, or side stream blending
- Up to 50 recipes
- User-configurable inputs and outputs
- Block valve control and feedback (sequential blending)
- Additive control (metered, pulse out or communications)
- Four communication ports plus Ethernet port
- Meter factor calculation
- Programmable language/messages
- Flash based memory
- Network printing
- Ethernet connectivity features (see page 4)
- Card Reader Interface and 1,000 card database
- Smith Meter/Sening® Blue Tooth® Connectivity
- Turbine meter diagnostics
- Boolean/Algebraic processing
- Event logging/Audit trail
- Stand-alone operation
- Configurable load ticket/BOL emulation printing
- Continuous monitoring of critical functions
- Two-way data communications; built-in communication analyzer
- Automatic temperature and pressure compensation and density correction
- API tables from LPG to crude oil
- Brazilian temperature tables
- GPA Tables TP-15 and TP-27
- Five levels of security
- Automatic flow control with recovery
- Explosion-proof
- Programmable valve control
- Transaction Data Archive (optional) also known as ComFlash Mass Storage Expansion Board

APPLICATIONS

Applications include batch loading of alcohols, gasolines, antifreeze, lube oils, fuel oils, solvents, fertilizers, LPG, LNG and chemicals. The system is ideal for truck, barge, or rail car loading at loading racks, bulk plants, shipping docks, processing installations and tank farms where straight products, as well as blended products, must be loaded.

STANDARD FEATURES

The AccuLoad loading arm functions are individually programmable providing flexibility for how each arm can be configured. The following charts and descriptions define the types of loading including straight product and various styles of blending. The AccuLoad III-S hardware has three product meters that can be used among two load arms while the AccuLoad III-Q hardware has six product meters available to be used among six load arms.

AccuLoad-Q Hardware

Arm 1	Arm 2	Arm 3	Arm 4	Arm 5	Arm 6
STR/SEQ	STR/SEQ	STR/SEQ	STR/SEQ	STR/SEQ	STR/SEQ
2 Prod RAT	STR/SEQ	STR/SEQ	STR/SEQ	STR/SEQ	N/A
2 Prod RAT	2 Prod RAT	STR/SEQ	STR/SEQ	N/A	N/A
2 Prod RAT	2 Prod RAT	2 Prod RAT	N/A	N/A	N/A
3 Prod RAT	STR/SEQ	STR/SEQ	STR/SEQ	N/A	N/A
3 Prod RAT	2 Prod RAT	STR/SEQ	N/A	N/A	N/A
3 Prod RAT	3 Prod RAT	N/A	N/A	N/A	N/A
4 Prod RAT	STR/SEQ	STR/SEQ	N/A	N/A	N/A
4 Prod RAT	2 Prod RAT	N/A	N/A	N/A	N/A
5 Prod RAT	STR/SEQ	N/A	N/A	N/A	N/A
6 Prod RAT	N/A	N/A	N/A	N/A	N/A

AccuLoad III-S Hardware

Arm 1	Arm 2
STR/SEQ	STR/SEQ
2 Prod Rat	STR/SEQ
3 Prod Rat	N/A

Prod = Products; **SEQ** = Sequential; **STR** = Straight; **RAT** = Ratio

Note: Two product ratio can be either two product ratio or two product side stream blending.

Straight Product

The AccuLoad III is designed to handle loading of straight products. All products can be loaded simultaneously.

Sequential Blending

The AccuLoad III is designed to sequentially control the loading of up to six petroleum or chemical products through each loading arm. All loading arms can be loaded simultaneously.

Ratio Blending

The AccuLoad III-Q is designed to control the blending of up to six petroleum products and the AccuLoad III-S up to three products through a single loading arm. All products flow through a metering system, are co-mingled downstream of the metering system, and flow through a single loading arm into a transport or into storage.

Side Stream Blending

The AccuLoad III is designed to control the blending of a minor product and a major product. The minor product is metered and controlled by a valve and the main product is free flowing. A second meter and control valve is located down stream of the blending point and measures/controls the flow of the blended product.

Hybrid Blending

The AccuLoad III supports hybrid blending which is defined as a combination of sequential blending and ratio blending. A typical hybrid blending arm configuration may be three sequential products and one or two ratio products. The sequential products flow one at a time and in most cases one of the ratio products would flow simultaneously with each of the sequential products. The ratio products(s) can be plumbed either upstream or down stream of the sequential product meter. On a hybrid arm there must be at least one sequential product configured.

Wild Stream Blending
The AccuLoad also supports Wild Stream Blending, which allows for continuous (no preset entered) ratio blending of products. One of the products can be uncontrolled (wild stream). This option is available with the hybrid arm configuration. Wild Stream Blending supports “on the fly” blend percent changes and also for changing meters to accommodate varying flow rates.

Temperature Compensation
The temperature compensation option provides the customer with the capability of compensating for the variance in temperature from a reference temperature. This option is used with an RTD input or a temperature transducer and, excluding the accuracy of the fluid temperature measurement, will exactly match the proper volume correction factor of ASTM-D-1250-04 and API MPMS CH 11.1-2004 over the fluid temperature range of -58°F to 302°F (-50°C to 150°C). The following API tables can be programmed in the AccuLoad II: 5A, 5B, 5D, 6A, 6B, 6C, 6D, 23A, 23B, 23D, 24, 24A, 24B, 24D, 53A, 53B, 53D, 53E, 54, 54A, 54B, 54C, 54D, 54E, 59A, 59B, 59D, 59E, 60A, 60B, 60D, 60E, BR1A, BR1P, and BR2P.

Pressure Compensation
The pressure compensation option provides the customer with the capability of compensating the volume of product delivered at varying pressures per API Tables 11.1, 11.2.1 and 11.2.2, using a 4-20 mA pressure transducer input per preset position. This option also contains real-time control functions for maintaining system pressures at the meter to a minimally-acceptable, user-definable level (pressure transducer not included). This option is particularly useful for light products, such as LPG, where the compressibility factor varies a great deal with different pressures.

Density Correction
The density correction option provides the customer with the capability of correcting the volume of product delivered at varying densities. This can be either a frequency input or a 4-20 mA input.

Metered Injectors, Piston Injectors and Smart Additives
The AccuLoad III has been designed to provide maximum flexibility when it comes to additive control. The unit is capable of handling metered injectors, piston injectors and smart additives simultaneously.

The AccuLoad is capable of controlling four additive injector metered systems. (See Hardware Options for additional injector systems, Page 10.) The AccuLoad controls the additive solenoids to precisely inject the additive into the main product. It monitors the pulses of the additive meter and controls the amount of the additive, based on the incoming pulses from the additive meter and the main product meter.

Additive monitoring and smart additives provide the capability for the AccuLoad to monitor the feedback from the piston injectors of the additive products. The AccuLoad monitors the injector feedback switches for a change of state and counts the errors and alarms if no change is detected within the cycle or a period of time, depending on how the unit is programmed. The AccuLoad will totalize the additive volume based on confirmation signals and a programmable volume per cycle. The totalized volume will print on the emulated load ticket printed on the shared printer output.

For Smart additives, the firmware has also been designed with a Master/Slave type of communications, with the AccuLoad being the master and the Additive Injector System being the slave. The AccuLoad constantly interrogates the Additive Injector System for a change in status. The AccuLoad can be operated with communications control over the Smart Additive Injector System or with communication/pulse control. When the AccuLoad has communication control over the Additive System, it will constantly monitor the Additive System for its status, poll the additive totals, and signal the system when to inject the additive all through the communications line.

The AccuLoad communications package has also been designed with a pass-through communications mode. In this mode of operation the supervisory computer can talk to the Additive Injector System through the communication lines that have been run to the AccuLoad and from the AccuLoad to the Additive Injector System(s).

Dual Pulse Security
This option provides continuous monitoring, error indication alarm, and correction of the pulse transmission for each preset position per API Petroleum Measurement Standard, Chapter 5.5, Level A, and Institute of Petroleum Standard, IP 252/76, Part XIII, Section 1, Level A (PPS High-Security Pulse Transmitter is not included). The PPS High-Security Transmitter provides four signals: “A,” “A inverted,” “B,” and “B inverted.” The “A” and “B” signals are 90 electrical degrees out-of-phase and used for dual-pulse security. The “A” and “A inverted,” and “B” and “B inverted” signals are 180 electrical degrees out-of-phase and are used for transmitter power sensing. If power sensing is not required, only “A” and “B” are used for dual-pulse security.

Automated Proving Mode

The AccuLoad III firmware provides an automated proving mode of operation. When the automated proving mode is activated the AccuLoad will calculate the meter factor for a proving run based on information that is obtained during the prove. The operator can select the flow rate and meter factor that is being proved through the keypad of the AccuLoad. After the prove is complete the operator enters the prover volume and prover temperature and the AccuLoad will calculate the new meter factor and the operator has the choice of downloading it to the program or to ignore it. The AccuLoad also has the capability of providing an average meter factor over a maximum of six proves. This feature allows the operator to prove the meter on all four products, and four meter factors and associated flow rates for each product without having to enter the program mode for each product and meter factor.

Boolean and Algebraic Processing

The AccuLoad III provides the customer the flexibility to set-up inputs and outputs for tasks that are not standard in the unit. Through Boolean processing, relays can be turned on and off through equations and events set-up by the customer. For example, a relay is required to close at the first trip point of the load. This can be set-up using Boolean processing and does not require special software from Smith Meter.

Algebraic processing is also an area that the customer can use to do simple mathematical calculations that are not in the unit. These calculations can then be used on the configurable reports for the current batch being run by the unit.

Unloading

When using Firmware Revision 10.01 and above, the AccuLoad III allows a truck compartment to be unloaded without entering a preset volume. Implementing this feature requires that a load arm be identified as “unloading”; up to six load arms can be so configured.

HARDWARE OPTIONS

AccuLoad Interface Control Board

The AccuLoad Interface Control Board provides additional flexibility to the AccuLoad’s standard features. The optional AICB Board provides either ten additional metered additive injector systems or twenty additional programmable outputs. With the optional AICB Board, the AccuLoad III with firmware has the capability of handling up to fourteen metered injectors, fourteen meter inputs, fourteen solenoid valve outputs, and fourteen additive pump outputs. Adding two AICB Boards provides the capability of this unit to handle up to twenty-four additive injector systems (meters, additive pumps, and solenoid valves) or an additional forty programmable AC outputs. The optional AICB Board(s) are designed to either be mounted in the AccuLoad III housing or in a stand-alone enclosure. One of the four communication ports is required to communicate with the AICB Board.

ComFlash Mass Storage Expansion Board

This optional hardware module provides additional non-volatile memory to store transaction data. The module comes with a 512 M SD card that has the capability of storing thousands of additional transactions. The module is only available on COM 4 and uses RS232 communications. The A3X also provides alarms for the expansion board to ensure proper operation. The Smith Meter Proximity Card Reader can also operate on COM 4 in conjunction with the ComFlash board.

Card Reader Interface

When using Firmware Revision 10.01 and above, the AccuLoad III can obtain proximity card data through a proprietary interface board. The AccuLoad can also pass card data and status to a host computer. The card reader interface is activated by choosing the card reader option in the serial communications function program code. This new interface offers the potential for enhanced functionality and security ranging from simple transaction-stamping with driver card data to a mini automation system with validation and authorization.

ETHERNET CONNECTIVITY FEATURES

- ARP/RARP and DHCP support
- PING echo diagnostics
- SLIP
- FTP file transfer
- Smith Meter protocol and Modbus protocol support over TCP/IP
- Limited HTTP server functionality
- Dynamic name server lookups (DNS client)
- Simple Mail Transport Protocol (SMTP)
- Post Office Protocol V3 (POP3)
- A collection of HTML and XML pages and CGI scripts
- Web server – command line argument passing
- Support for network printers (LPR client)
- The addition of a Remote Display/TCP daemon to the AccuLoad III
- Compliance with TCP/IP standards

SPECIFICATIONS (ACCULOAD III)

Accuracy

Calculated Accuracy: The gross at standard temperature to gross volume ratio, excluding the accuracy of fluid temperature measurement, will exactly match the proper volume correction factor of ASTM-D-1250-04 over the fluid temperature range of -58°F to 302°F (-50°C to 150°C).

Temperature Measurement Accuracy: Fluid temperature is measured to within ±0.72°F (±0.4°C) over the fluid temperature range of -328°F to 572°F (-200°C to 300°C). Fluid temperature is measured to within ±0.45°F (±0.25°C) over the fluid temperature range of 32°F to 572°F (0°C to 300°C).

Stability: 0.1°F (0.06°C)/year.

Flow Totalizing: Within one pulse of input frequency.

Electrical Inputs

AC Instrument Power:
Universal input 100 to 240 VAC, 58W maximum, 48 to 63 Hz. The AC circuitry is fuse-protected.

Surge Current: 28A maximum for less than 0.1 seconds.

Power Interruption Tolerance: Interruption of power greater than .05 seconds (typical) will cause an orderly shut-down of the AccuLoad and the control valve will be immediately signaled to close.

Note: A constant voltage transformer (CVT) is recommended if the available AC power is suspected not to comply with these specifications.

Pulse Input: Type: High-speed, edge-triggered, optically isolated pulse transmitter input. The input pulse must rise above V (high min.) for a period of time and then fall below V (low) to be recognized as a pulse by AccuLoad II.

V (High): 5 VDC minimum to 28 VDC maximum.

V (Low): 1 VDC maximum.

Input Impedance: 1.8 KΩ.

Pulse Resolution: 1 pulse/unit minimum, 9,999 pulses unit maximum.

Frequency Range: 0 to 10.0 kHz.

Response: Within one pulse to a step change in flow rate.

Mode: Single, dual, dual with power sensing, density.

Duty Cycle: 35/65 to 65/35 (on/off).

Temperature Probe:
Type: four-wire, 100 Ω Platinum Resistance Temperature Detector (PRTD).

Temperature Coefficient: @ 32°F: 0.00214 Ω/Ω/°F (0.00385 Ω/Ω/°C).

Temperature Range: -148°F to 572°F (-100°C to 300°C).

Offset: Temperature probe offset is program-adjustable through the AccuLoad keypad in ±0.1 degree increments in the unit of temperature measurement used.

Self Calibrating: Lead length compensation that requires no resistance balancing of leads.

Analog (4-20 mA):

Type: Two-wire, 4-20 mA current loop receiver, isolated from ground, programmable as to function.

Span Adjustment: Program-adjustable through the AccuLoad keypad or communication in tenths of the unit used.

Input Burden: 50 Ω.

Accuracy: ±0.025% of range.

Resolution: One part in 65,536.

Voltage Drop: 2 Volts maximum.

Sampling Rate: One sample/300 mSec minimum.

Analog (1-5 Vdc):

Type: Two-wire, 1-5 VDC voltage loop receiver, isolated from ground, programmable as to function.

Span Adjustment: Program-adjustable through the AccuLoad keypad or communications in tenths of the unit used.

Input Burden: 1 m Ω

Accuracy: ±0.025% of range

Resolution: One part in 65,536.

Sampling Rate: One sample/300 mSec minimum.

AC Inputs:
Type: Optically-isolated, solid-state voltage sensor.

Input Voltage Range: 90 to 280 VAC.

Pickup Voltage: 90 VAC minimum.

Drop-out Voltage: 30 VAC maximum.

Current at Maximum Voltage: 20 mA maximum.

Input Resistance: 44,000 Ω typical.

DC Inputs:
Type: Optically-isolated solid state voltage sensors

Input Voltage Range: 5 to 28 VDC.

Pickup Voltage: 5 VDC minimum.

Drop-out Voltage: Less than 1 volt.

Current at Maximum Voltage: 20 mA maximum.

Input Level Duration: 120 mSec minimum.

Keypad:
Type: Metal encapsulated, one-piece, sealed, no moving parts, piezoelectric design. Protected against the environment.

Display:

The Graphics Display is a 240 by 64 pixel graphic Liquid Crystal Display (LCD) modules with LED backlighting.

Electrical Outputs

DC Power:
24 Vdc ±10%, 1 A maximum, short circuit protected.

AC Outputs:
Type: Optically-isolated, AC, solid-state relays. User-programmable as to function.

Load Voltage Range: 90 to 280 VAC (rms), 48 to 63 Hz.

Steady-State Load Current Range: 0.05A (rms) minimum to 1.0A (rms) maximum into an inductive load.

Leakage Current at Maximum Voltage Rating: 5.2 mA (rms) maximum @ 240 VAC.

On-State Voltage Drop: 2 Vac at maximum load.

DC Outputs:
Type: Optically-isolated solid state output. User-programmable as to function.

Polarity: Programmable (normally open or normally closed).*

Switch Blocking Voltage: 30 VDC maximum.

Load Current: 150 mA maximum with 0.6 volt drop.

Note: *Power-down normally open.

Analog (4-20 mA):
Type: Two-wire, 4-20 mA current loop transmitter, isolated from ground, programmable as to function.

Span Adjustment: Program adjustable through the AccuLoad keypad or through communications.

Accuracy: ±0.025% of range.

Resolution: One part in 65,536.

Voltage Burden: 4 volts maximum.

Analog (1-5 Vdc):
Type: Two-wire, 1-5 VDC voltage loop transmitter, isolated from ground, programmable as to function.

Span Adjustment: Program adjustable through the AccuLoad keypad or through communications.

Accuracy: ±0.025% of range.

Resolution: One part in 65,536.

Pulse Output 1 & 2:
Type: Optically-isolated solid state output. Pulser output units are program-selectable through the AccuLoad key-pad or communications.

Polarity: Programmable (normally open or normally closed).

Switch Blocking Voltage (Switch Off): 30 VDC maximum.

Load Current (Switch On): 10 mA with 0.6 volts drop.

Frequency Range: 0 to 3000 Hz.

Duty Cycle: 50/50 (on/off).

Pulse Output 3, 4 & 5:

Type: Solid state relay digital output switch

Load Current: 110 mA max.

Frequency Range: 0-125 Hz

Duty Cycle: 50/50 (on/off)

Programmable maximum frequency output. All intended pulses will be eventually transmitted, the total period may increase to ensure all pulses are output.

Note: When used, these outputs use the DC output points on the KDC (DC output 1-3 respectively and also the 3 digital inputs 1-3 respectively).

Environment

Ambient Operating Temperature
-40°F to 140°F (-40°C to 60°C).

Humidity:
5 to 95% with condensation.

Enclosure:
Explosion-proof (NEMA 7, Class I, Groups C and D) and watertight (NEMA 4X), IP65.

Approvals

UL/CUL
Class I, Division 1, Groups C & D; Class II, Groups E, F & G, UNL-UL Enclosure 4X, CNL-CSA Enclosure 4.

Class I, Zone 1, Group IIB, IP65.

Class I, Zone 1, AEx d IIB T6, IP65.

UL/CUL File E23545 (N).

ATEX / IEC Ex
DEMKO 02 ATEX 130951X
IEC Ex UL 11.0018X
Ex d IIB T6 Gb IP 65 Tamb = -40°C to +60°C.

InMetro
No. 0025

Notes: The Standard AccuLoad III does not contain intrinsically-safe circuitry; therefore, all peripheral equipment must be suitable for the area in which it is installed.

AccuLoad III-S Weight: 50 lb (22.7 kg).
AccuLoad III-Q Weight: 125 lb (57.5 kg).

ELECTROMAGNETIC COMPATIBILITY

Meets the requirements of EMC directive 2004/108/EC.

Electromagnetic Emissions:
IEC/EN 61000-6-3: Generic Standards - Emission standard for residential, commercial, and light-industrial environments

IEC/EN 55022: ITE - Radio Disturbance Characteristics - Limits and Methods of Measurement

Electromagnetic Immunity:

IEC/EN 61000-6-2: Generic Immunity Standards Industry Environments.

IEC/EN 61000-3-2: Limits for Harmonic Current Emissions.

IEC/EN 61000-3-3: Limits of Voltage Fluctuations and Flicker in L-V Supply Systems.

IEC/EN 61000-4-2: Electrostatic Discharge (Severity Level 4).

IEC/EN 61000-4-3: Radiated, RF, Electromagnetic Field Immunity (Severity Level 3).

IEC/EN 61000-4-4: Electrical Fast Transient/Burst Immunity Test (Severity Level 4).

IEC/EN 61000-4-5: Surge Immunity Test (Class 3).

IEC/EN 61000-4-6: Immunity to Conducted Disturbances Induced by RF Fields.

IEC/EN 61000-4-8: Power Frequency Magnetic Field Immunity Test.

IEC/EN 61000-4-11: Voltage Disp, Short Interruptions and Voltage Variations Immunity Tests.

COMMUNICATIONS

General

Number of Ports: Four, plus Ethernet port.

Configuration: Multi-drop network. Up to 32 AccuLoad IIIs can be connected onto the same transmit and receive data lines, via serial communications. Standard IT practices should be followed when connecting multiple AccuLoad IIIs via an Ethernet hub, router, or switch.

Data Rate: Keypad-selectable to asynchronous data rates of 1,200, 2,400, 3,600, 4,800, 7,200, 9,600, 19,200, or 38,400 bps (serial comm).

Data Format: Programmable one start bit, programmable seven or eight data bits – even, odd, or no parity, one stop bit.

Line Protocol: Half-duplex, full-duplex, no character echo.

Data Structure: ASCII character-oriented, modeled after ISO Standard 1155.

Protocol: Smith Meter ASCII LRC, Smith Meter ASCII CR, Smith Meter ASCII binary, Modicon Modbus (PI-MBUS-300 Rev. D). Smith Meter and Modbus protocol over TCP/IP.

AccuLoad II Style: Terminal Mode, Minicomputer Mode.

Ethernet: 10/100 Base TRJ-45

8 or 10 pin UTP (unshielded twisted pair) connector.

EIA-232 (1 dedicated, 2 programmable)

Type: Interfaceable with EIA-232 data communication standards. Data transmitters are tri-state design.

Typical Applications: Product receipt ticket printing (used with a stand-alone ASCII printer or as a backup in the standby mode with automation for BOL emulation) or communications with Product Management Automation Systems. Up to 16 AccuLoads can be connected onto the same transmit and receive data lines.

EIA-485 (1 dedicated, 2 programmable)

Type: Interfaceable with EIA-485 data communication standards.

Typical Application: Communications with Product Management Automation Systems, additive injection systems.

Number of Units per Communication Line: Up to 32 AccuLoads can be connected onto the same transmit and receive data lines.

SPECIFICATIONS (AICB BOARD – OPTIONAL)

Electrical Inputs

DC Instrument Power:
24 VDC ±10%, 1 watt maximum

Pulse Input:
Type: High-speed, edge-triggered, optically isolated, compatible with contact closure, open collector or voltage sink/source pulse transmitter input. The input pulse must rise above V (high min.) for a period of time and then fall below V (low) to be recognized as a pulse.

V (High): 10 VDC minimum to 24 Vdc maximum.

V (Low): 8 VDC maximum.

Pulse Resolution: 1 pulse/unit minimum, 9,999 pulses/unit maximum.

Frequency Range: 0 to 5 kHz.

Response: Within one pulse to a step change in flow rate.

Minimum Pulse Width: 50 µS.

Electrical Outputs

AC Outputs:
Type: Optically-isolated, AC, solid-state relays.
User-programmable by the host as to function.

Load Voltage Range: 90 to 275 VAC (rms), 48 to 63 Hz.

Steady-State Load Current Range: 0.05A (rms) minimum to 0.5A (rms) maximum into an inductive load.

Leakage Current at Maximum Voltage Rating: 0.1mA (rms) maximum at 240 VAC.

On-State Voltage Drop: 1.5 Vac at maximum load.

Environment

Ambient Operating Temperature
-40°F to 140°F (-40°C to 60°C).

Humidity:
5 to 95% with condensation.

Remote Enclosure:
Explosion-proof (NEMA 7, Class I, Groups C and D) and watertight (NEMA 4X), IP65

Approvals

UL/CUL:
Class I, Division 1, Groups C and D; Class II, Groups E, F and G, UNL-UL Enclosure 4X, CNL-CSA Enclosure 4.

Class I, Zone 1, AEx d IIB T6, IP65.

ATEX / IEC Ex:
DEMKO 11 ATEX 1103869X
IEC Ex UL 11.0029X
Ex d IIB T6 IP65 Tamb = -40°C to +60°C.

MODELING[1]

ALIII Q XP ALX1 A00000 0

Hardware Model Designation

ALIII - S
ALIII - Q

Housing

XP - UL/CUL, EEx d IIB, IP65
DEMKO A/S

Hardware Option

0	- None
A	- AICB Board
AA	- (2) AICB Boards*
M	- ComFlash Mass Storage Expansion Board[3]
AM	- AICB Board and ComFlash
AAM	- (2) AICB Boards and ComFlash*

Analog Modules[2]

DIGIT 1 - # of RTDs
DIGIT 2 - # of 4-20 mA inputs
DIGIT 3 - # of 4-20 mA outputs
DIGIT 4 - # of 1-5 VDC inputs
DIGIT 5 - # of 1-5 VDC outputs

Firmware

ALX1 - One-arm operation
ALX2 - Two-arm operation
ALX3 - Three-arm operation*
ALX4 - Four-arm operation*
ALX5 - Five-arm operation*
ALX6 - Six-arm operation*

PEMEX Non-resettable Volumes Option

ALP1 - One-arm operation
ALP2 - Two-arm operation
ALP3 - Three-arm operation*
ALP4 - Four-arm operation*
ALP5 - Five-arm operation*
ALP6 - Six-arm operation*

***Note:** Not available with ALIII-S Hardware

1 A complete model number is required when ordering the AccuLoad III.
2 Maximum of 6 Analog Modules.
3 ComFlash requires A3X manufacture date 2006 or higher and Firmware Rev. 10.13 and up. If manufacture date is older than 2006, the EAAI hardware will need to be updated.

AICB MODELING (REMOTELY MOUNTED)

Model Designation — **REM**

Housing — **XP**

XP - Explosion Proof

Hardware Option — **A**

A - AICB Board

AA - (2) AICB Boards

PROGRAMMABLE INPUTS/OUTPUTS[4]

AccuLoad III-S Hardware

Digital Inputs	AC	DC	Total
Standard	5	6	11
Optional AICB	5	16	21
Digital Outputs	**AC**	**DC**	**Total**
Standard	11	3	14
Optional	31	3	34
Analog Inputs/Outputs – Up to 6			

AccuLoad III-Q Hardware

Digital Inputs	AC	DC	Total
Standard	9	14[3]	11
Optional (One AICB)	9	24	33
Optional (Two AICB's)	9	34	43
Digital Outputs	**AC**	**DC**	**Total**
Standard	27	11[3]	38
Optional (One AICB)	47	11	58
Optional (Two AICB's)	67	11	78
Analog Inputs/Outputs – Up to 6			

4 Eight of the DC are individually programmable as either inputs or outputs, number indicated here is the maximum if all programmed as inputs or all programmed as outputs.

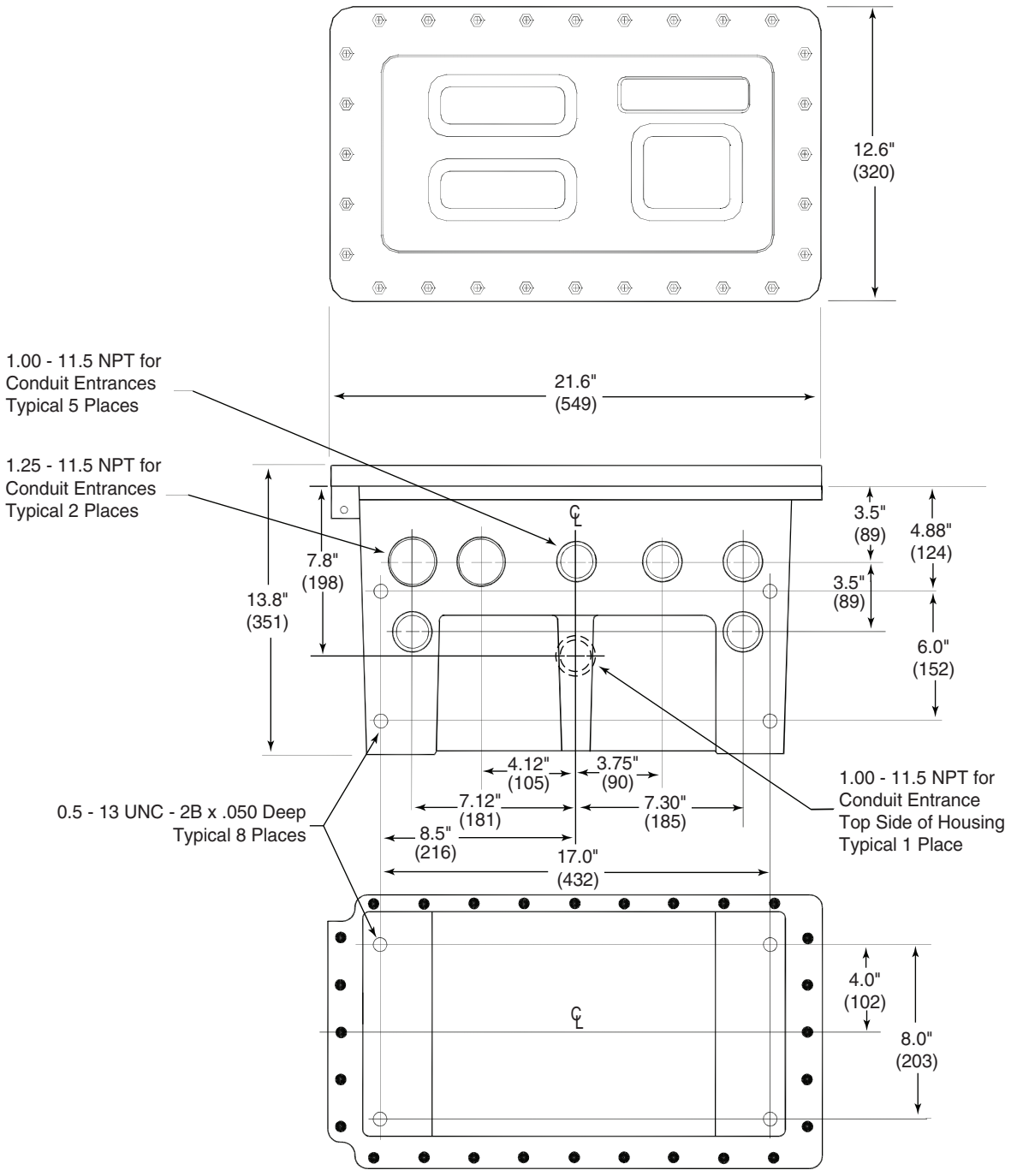


Figure 1 – Explosion-Proof Housing – ALIII-Q Hardware

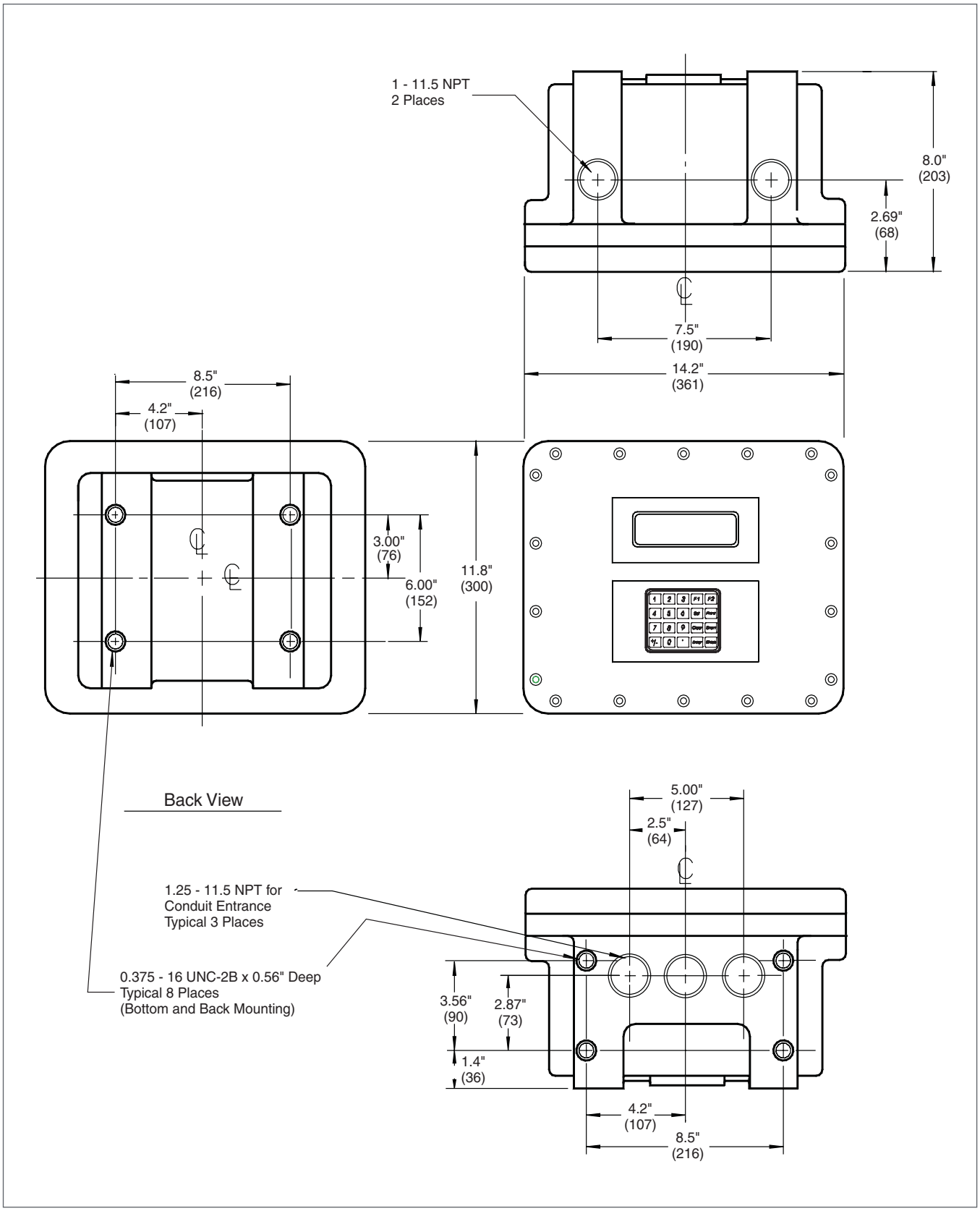
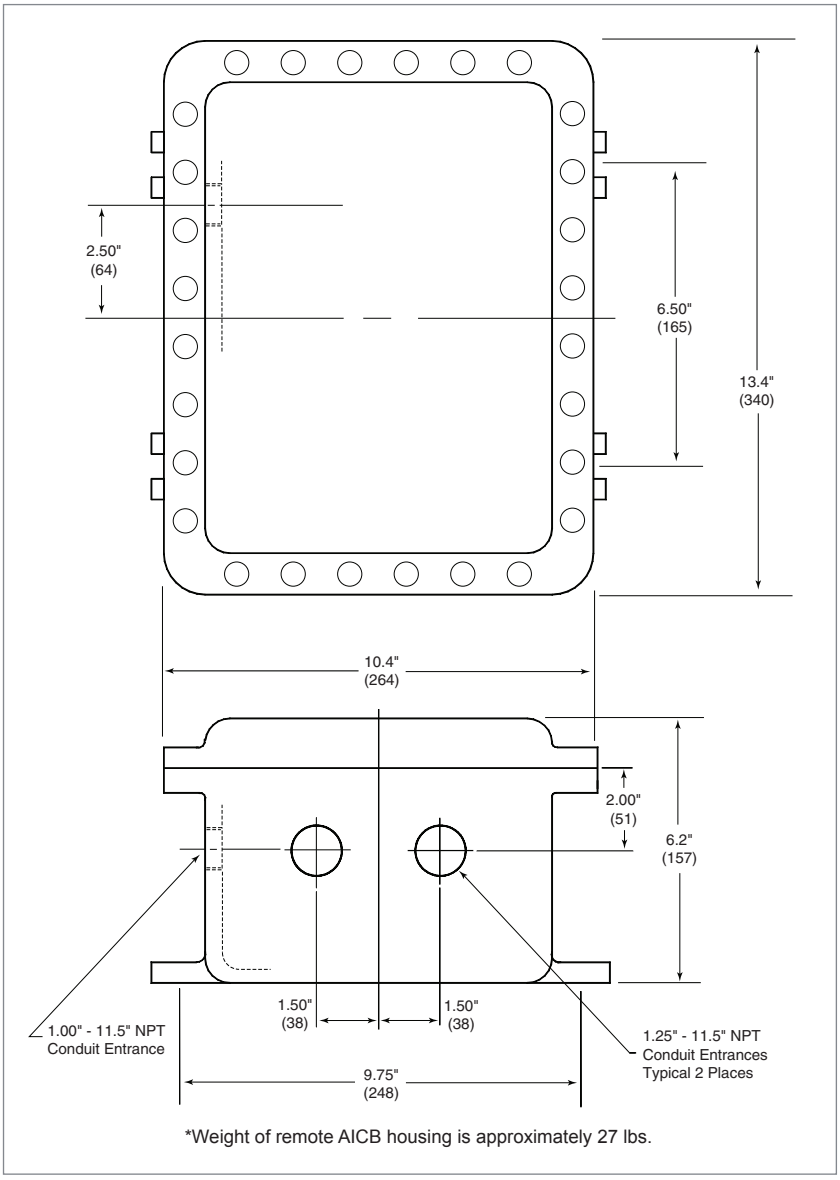


Figure 2 – Explosion-Proof Housing – ALIII-S Hardware



*Weight of remote AICB housing is approximately 27 lbs.

Figure 3 – Remote Housing (Optional AICB)

Revisions included in SS06036 Issue/Rev. 1.2 (7/17):
Hardware option "Blank" corrected to zero (0).

The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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