

# SmartLoad<sup>®</sup> BATCH CONTROLLER

SmartLoad<sup>®</sup> is a batch controller used for liquid product distribution at truck, rail, marine, aviation and pipeline loading and unloading facility. It precisely delivers preset quantity of product blends from tank storage or pipeline into vehicle, rail wagons, aviation or vessels.

## Salient Features

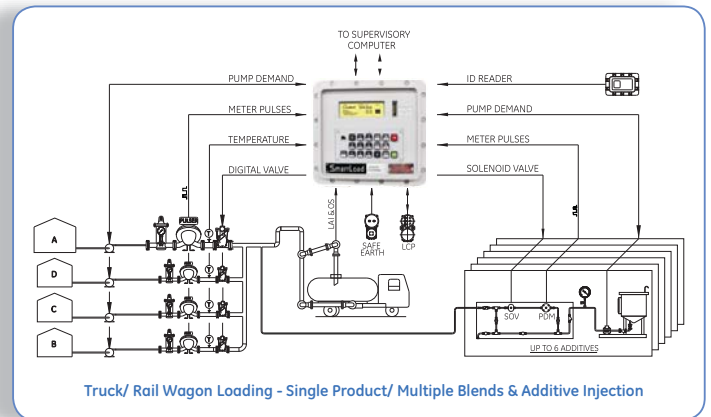
- Incorporates modern technology in a cost-effective, self-contained enclosure providing accuracy and reliability
- Suitable for petroleum, petrochemicals, LNG / LPG, asphalt and specialty chemical applications
- Capable of loading Net LPG quantity deducting vapor quantity
- Single arm or Dual arm applications
- Controls loading of base or blended product (up to 4 components) with or without additives & dyes (up to 6 additives). Blending can be configured for sequential, in-line proportional or non-proportional mode along with additive injection using various (up to 10) recipes
- User configurable transaction and batch archiving of selected parameters for storage and ticket printing (up to 2000 transactions).
- Configurable data logging / printing options for batch and transaction summary, alarm, meter proving, program mode change, power failure, weights & measures switch status etc.
- User configurable alarm text and alarm actions
- Optional secondary keypad and LCD display available for additional two-side loading or remote control application
- Temperature / Pressure compensation per API IP or linear methods
- Operates as a standalone unit or integrated with any Terminal Automation System
- User-friendly menu driven configuration facility
- Low installation and wiring cost

## Accuracy

- Pulse security to IP252/76, Part 13, Section 1, Level B and API Chapter 5, Section 5, Level B security
- 6 points meter factor linearization for increased accuracy

## Technology

- Big hall-effect keys with user-friendly and cellular phone like alpha-numeric keypad for easy operation
- Large easy to read text/graphical display with automatic backlight and contrast adjustment
- Display of preset and loaded quantity with engineering units
- Dynamic, simultaneous display over 200 data items for providing real-time display of flow rate, temperature, blend percentage, additive volumes, pressure, density etc.
- Directly interfaces with proximity or touch-key card readers



- Directly interfaces with flow meters, digital control valves, additive injector panels, safety interlocks and Remote Interaction Terminal (RIT)

## Host Communication

### (Option-1: Serial Ports)

- One RS485 and the other port either with RS232 or RS485 for communication with TAS / other smart devices
- Interface with the host system using secure proprietary Extended Modbus or Open Modicon Modbus RTU (contact AST for required option)

### (Option-2: Ethernet Interface)

- Two 10/100 Mbps RJ-45 auto MXI/MDIX Ethernet interface eliminating need for Terminal Server
- Interface with the host system using secure proprietary Extended Modbus or Open Modicon Modbus RTU over TCP/IP (contact AST for required option)
- 1.5 kV built-in Magnetic Isolation Protection
- Supports DHCP, BootP, Static IP, and ARP/RARP protocols

## Safety and Security

- Supports storage up to 500 proximity cards / Touch keys that will be validated during manual mode of operation
- Possible to seal weights & measures switch to restrict the change of meter factors/ k-factor
- Audit logs for change in weights & measures parameters, if weights & measures switch is not locked
- Four levels of passwords:
  - L1: Super User (Can change all the parameters except W&M parameters if locked)
  - L2: Can change program codes (except W&M attributed program codes and W&M parameters if locked)
  - L3: L4 + Can change operating mode
  - L4: Operator (Only acknowledge the alarms)

## General Specifications

- Power requirements: 115 V / 230 V AC +/- 10%, 28 VA or 24V DC, +/- 10%, 30 Watts
- Six cable entries - bottom entries, forward & rear
- Operating temperatures : -13°F to 140°F (-25°C to 60°C)
- Storage temperatures : -13°F to 158°F (-25°C to 70°C)
- Relative humidity : 5 to 95% non-condensing

## Enclosure Specifications

- (H) 325mm x (W) 350mm x (D) 350mm (+/- 5 mm)
- Weight approximately 25Kg

## Certifications / Approvals

- Legal Metrology: Approved as per OIML R117-1 (2007) wide Certificate # R117/2007-A-NL1-20.02 issued by NMi Certin B.V., The Netherlands

## Certifications / Approvals (Contd.)

- Area Classifications: Ex II 2 GD Ex d IIB T6 Gb. Ex tb IIIB T6 Db IP65
- Approvals: ATEX/IECEx Approved and CE-mark (For Global market), CIMFR & PESO Approved (For India)
  - ATEX approved batch controller: EN 60079-0:2012, EN 60079-1:2007, EN 60079-31:2009 & EN 60529:2001
  - IECEx approved batch controller: IEC 60079-0:2011, IEC 60079-1:2007, IEC 60079-31:2008 & IEC 60529:2001
  - PESO approved batch controller: IS/IEC 60079-0:2011, IS/IEC 60079-1:2007, IS/IEC 60079-31: 2008 & IS/IEC 60529:2001
- Weights & measures approval: Approved as per OIML R117 by Department of Consumer Affairs, Government of India Mark # IND/09/11/548

# Model # SmartLoad

Ordering Code: X X X X X X X X X X X

Type	S Single Arm D Dual Arm	X
Power Supply Options	0 None 1 115 V AC 2 230 V AC 3 24 V DC	X
Meter Pulse Board Options	0 None 1 One 4 CH Meter Board 2 Two 4 CH Meter Boards	X
AC I/O Board Options	0 None 6 One Enhanced Board 3 Lo-, 3 Hi-Speed inputs 7 One Enhanced Board 6 Hi-Speed inputs 8 Two Enhanced Boards, 6 Lo-Speed inputs, and 6 Hi-Speed inputs 9 Two Enhanced Boards, 6 Hi-Speed inputs ea. A Two Enhanced Boards (I) 6 Lo-Speed (I)3ea. Hi-Lo Speed B Two Enhanced Boards (I) 6 Hi-Speed (I)3ea. Hi-Lo Speed E One Enhanced Board 6 Lo-Speed inputs G Two Enhanced Boards, 6 Lo-Speed inputs ea. I User defined Boards specific to the Project (Specify if not listed above)	X
DC I/O Board Options	0 None 1 6 inputs & 4 outputs	X
RTD/ Analog Board Options	0 None 1 2-CH A/D (-40 to +110 deg C) 2 8-CH A/D (-40 to +110 deg C) 3 8-CH Analog (4-20 mA)	X
Communication Board Options	0 None 1 Duart Board (I) RS-232, (I) RS-485 2 Duart Board (2) RS-485 3 Ethernet, Two 10/100BaseT(x) with RJ45 connector (For PESO approved SmartLoad only)	X
MPMC	0 None	X
User Identity	0 None 1 Touchkey 2 Proximity	X
Interface Options	0 None 2 Interface card for 2nd Display and External Start/Stop Assembly	X
Agency Approvals/ Enclosure Options	0 None 1 PESO (CCOE) Approved Standard Enclosure 2 ATEX/IECEx/CE Approved	X

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