GUIDANT

Electronic Preset Delivery System

Smith Meter® AccuLoad® III-SA

Operator Reference Manual

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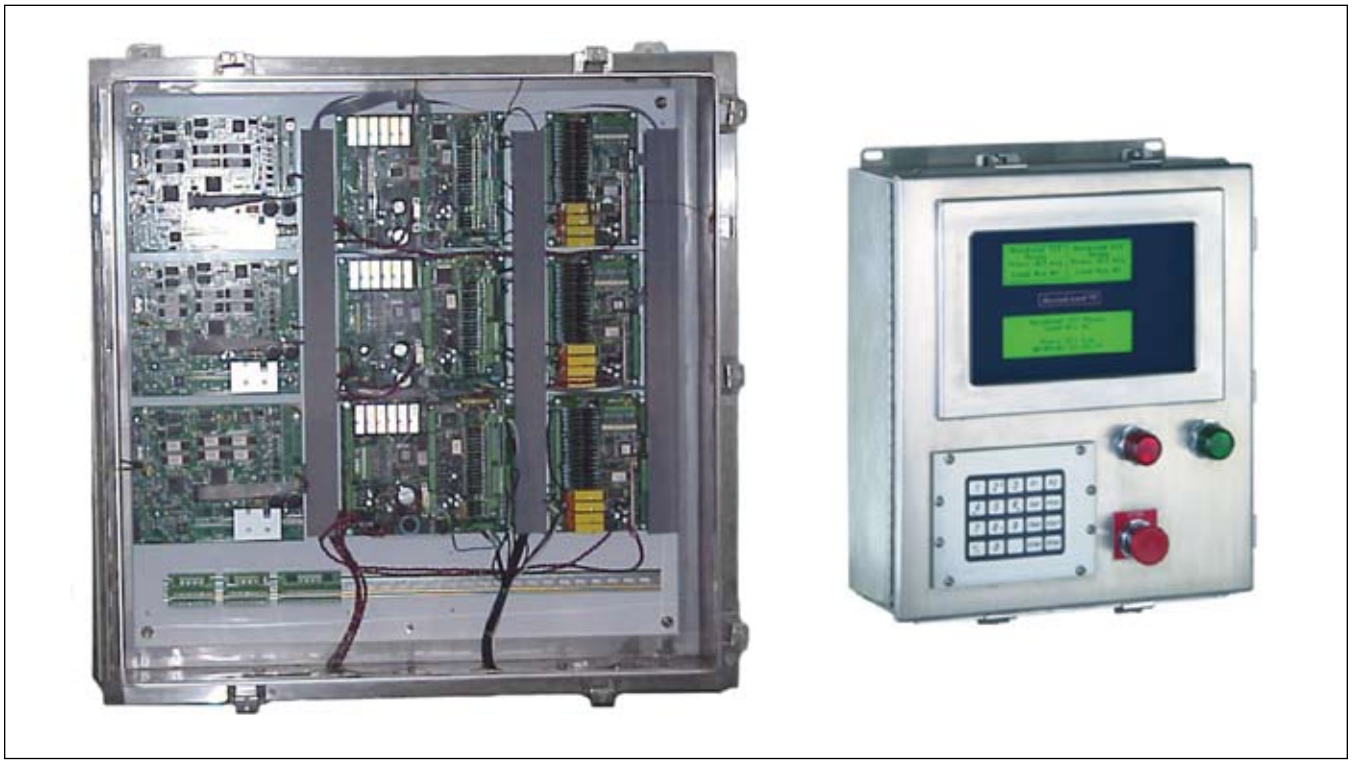

Note: *This manual is to be used in conjunction with MN06129, Smith Meter® AccuLoad III Operator Reference Manual. Refer to MN06129 for program parameters not specific to Split Architecture applications.*

Caution

The default or operating values used in this manual and in the program of the Smith Meter® AccuLoad® III are for factory testing only and should not be construed as default or operating values for your metering system. Each metering system is unique and each program parameter must be reviewed and programmed for that specific metering system application.

Disclaimer

Guidant hereby disclaims any and all responsibility for damages, including but not limited to consequential damages, arising out of or related to the inputting of incorrect or improper program or default values entered in connection with the AccuLoad III.

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Product Description

The Smith Meter® AccuLoad III Split Architecture System is a multiple arm, multiple meter control and measurement system used to control a lane of loading arms. Up to 18 loading arms and 24 meters can be controlled and monitored by the system, which includes the Man Machine Interface (MMI) and the Flow Control Module (FCM). The MMI provides the display and keypad for the system, while the FCM houses the control and I/O for the loading arms. These loading arms can be controlled either as blended or straight product arms. The system has the flexibility of handling multiple blending applications, straight ratio blending, side stream blending, and up to six-product sequential blending.

The MMI includes a remote display and keypad, and interfaces with up to 18 load arms using multiple AccuLoad III KDC boards. The KDCs are housed in the FCM, which has no keypad or display. The MMI acts as the common display and keypad for each of the KDCs. Actual control of the load arm, volume accumulation, and storage of batch data is accomplished by the KDCs.

Each of the KDCs may be connected to an EAAI, BSE, and two AICB boards. Each KDC may be programmed for a maximum of six load arms, with a maximum of 18 load arms connected to the MMI by communication port. Straight product, sequential blending, ratio blending, and side-stream blending are all available; the only limitation is that only six of the 18 arms may be in use at any time on a single MMI. (Twelve products can be loaded simultaneously with dual MMI.) If ratio or sequential blending is selected, the operator enters the number of products to be associated with the load arm. Straight product arms must be programmed for one product. Side-stream product arms must be programmed for two products. If multiple arm operation is selected, the process is repeated for each load arm defined.

Side-stream blending is a two-product ratio blender where the minor of two products is metered and is controlled by a valve. The main product is free flowing. Another meter and its corresponding control valve are located downstream from where the two products merge.

Two to six meters may be used to create a ratio blend. The AccuLoad III-SA allows any combination of ratio blending arms to be supported with the available meter inputs. For purposes of determining valid arm combinations, a side-stream blending arm can be considered a two-product ratio blending arm, as both require the same resources.

For applications with straight product delivery and blending, each load arm may be configured independently for blending activity and product number.

Optimum measurement accuracy is attained through continuous linearization of the meter factor with changes in flow rates. The AccuLoad III-SA is also capable of maintaining back pressure on the measurement system using either automatic flow optimization or a pressure transmitter. Volumetric correction is calculated directly from published API equations providing precise volumetric measurement results. Precise temperature, pressure compensation, and density correction are available in the instrument.

The dynamic real-time display of the current actual operating conditions of the system provides the operator with valuable system information while the system is operating.

The AccuLoad III-SA provides several loading system control functions: Additive injection, pump control, alarm control, set stop, valve control, back pressure control, and automatic adjustment of final trip point. Other significant features are as follows:

- Up to 24 single or dual pulse product meter inputs
- Up to 56 additive meter inputs with local I/O
- Up to 96 additive meter inputs with remote I/O
- Up to 18-arm operation
- Up to 50 recipes per board set
- Up to four board sets per system
- An emergency stop button on the MMI functions independently of the processor, and immediately halts flow on all arms regardless of prior programming.
- The AccuLoad III-SA interfaces with Add-Pak smart additive injector systems. Each Add-Pak system incorporates up to ten metered injectors along with digital outputs to energize additive pumps and injector solenoids. The AccuLoad III-SA controls the Add-Pak injectors via 232 or 485 communications, and can interface with a maximum of six Add-Pak systems.
- The AccuLoad III-SA monitors and totalizes the volume of additive injected by piston-type additive injectors or smart injectors.
- The AccuLoad III-SA, if so programmed, automatically calculates and adjusts the additive pulse output to be stopped at the first trip point of the product with the same number of pulses. This will have the same effect as if the additive output was stopped at the end of the batch.

- A contact is available to start and stop a pump or other electrically operated equipment as well as a program code that will set the time delay of that start or stop.
- Two programmable alarm contacts are available. They operate independently and can be configured to close on a Valve Fault, on any alarm, or not at all.
- The AccuLoad III-SA can control a Smith Model 210 or 215 Digital Control Valve, or an analog valve, that will provide low flow start and multi-stage shutdown.
- The AccuLoad III-SA can automatically reduce the flow of product and ensure the flow is within the pumping capabilities of the system. Once the flow is able to continue at the programmed high flow rate, the AccuLoad III-SA will increase the flow to programmed values.
- The AccuLoad III-SA, if so programmed, will automatically adjust the final trip point of the batch (Preset).

Critical functions such as minimum flow rate, excess flow rate, temperature detection, preset volume overrun, and memory retention, are monitored by internal circuits. Any failure will signal closure of the valve. Should the valve fail to close within a programmable period after having been signaled, a contact is closed. This can be wired through external relays to shut off the pump and/or kill power circuits.

Environmental fluctuations within specified limits have virtually no effect on the operation of this control system. AccuLoad III is available in an explosion-proof housing for hazardous locations. (See Bulletin SS06039 for Specifications.)

Product Blending with AccuLoad III-SA

Sequential Blending

Sequential blending is the act of loading multiple products, one at a time, into a vessel (e.g., a tanker truck). This is most commonly done with products that mix very easily.

The AccuLoad III accomplishes sequential blending of multiple products in the following manner. The ratio of varying products is designated in the recipe as a percentage of the total preset. These percentages must total 100%. When the operator enters the preset, the AccuLoad automatically calculates the actual volumes of each product to be delivered. Each of these is delivered as a type of “mini-batch,” complete with individual high flow rates, first trip volumes, and so on. The order of product delivery must be included in the recipe definition.

If an incorrect product volume is delivered, the volumes of the remaining products are adjusted accordingly. If this adjustment creates a blend intolerance alarm, the operator will be prompted to stop or continue the batch. An exception to this rule is when another delivery of the same product is specified in the recipe. In this case, the volume of that product's next delivery only is adjusted to maintain the correct blend ratio and preset amount.

Ratio Blending

Ratio blending is the process of mixing multiple products simultaneously during delivery to a vessel (e.g., a tanker truck). Ratio blending is used primarily when loading speed is an issue, or when the component products do not easily mix.

The AccuLoad III accomplishes ratio blending of multiple products in the following manner. All products required for the recipe are delivered simultaneously through their own meters (and their own corresponding pumps and control valves). Two-stage valves are not used for ratio blending; only digital or analog valves are acceptable. The ratio of the component products is designated in the recipe as a percentage of the total preset. These percentages must total 100%.

When the operator enters the preset, the AccuLoad III automatically calculates the actual volumes of each product to be delivered. As stated above, products are delivered simultaneously, each through its own meter. Flow rates are adjusted for optimal blend accuracy while conforming to the programmed system flow profile using Smith’s exclusive control algorithm. Should flow rate variations occur, the profile is dynamically adjusted to attain the best possible mix.

Side-Stream Blending

The AccuLoad III supports side-stream blending, which is defined as two-product ratio blending where the minor of the two products is metered and is controlled by a valve, and the main product is free-flowing. Another meter and its corresponding control valve are located downstream of where the two products merge. The AccuLoad III also supports side-stream blender arm proving.

Hybrid Blending

When using firmware Revision 10.10 and above, 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 product(s) can be plumbed either upstream or down stream of the sequential product meter.

Unloading

When using Firmware Revision 10.10 and above, the AccuLoad III allows a truck compartment to be uploaded without entering a preset volume. For more information on unloading, refer to Application Bulletin AB06055.

Internet Connectivity Features

Each of the KDCs may be connected to the internet. The following features are available. These features are available with KDC firmware 11.01 and above.

- **ARP/RARP and DHCP support**
- **PING echo diagnostics**
- **SLIP** (serial line internet protocol)
  used for access to Internet functionality for computers without Ethernet interface
- **FTP file transfer**
  used for large object transfer and flash image transfer
- **Smith protocol and Modbus Protocol support over TCP/IP**
  no address or framing characters required, ex. send “EQ”, receive “01810030” response; routing and security of transmission provided by TCP layer.
- **Limited HTTP server functionality**
  delivers run data as web pages to a browser.
- **Dynamic Name Server lookups**
  allows use of host names instead of IP addresses for remote computers such as mail servers, etc.
- **Simple Mail Transport Protocol (SMTP)**
  alarm notification to any email address.
- **Post Office Protocol V3 (POP3)**
  handle email replies (remote alarm clearing).
- **A collection of HTML pages**
  used for diagnostics and status monitoring via any Web browser
- **A collection of XML pages and CGI scripts**
  used for dynamic monitoring of run data.
- **The Web server**
  allows for command line argument passing (for enhanced CGI scripting support)
- **Support for network printers (LPR client)**
  prints reports directly to the network printer.
- **Modifications to the Remote Display application to support TCP/IP connections**
- **The addition of the Remote Display daemon to the AccuLoad III.net**
  allows user interaction with the Remote Display software over TCP/IP.
- **Is Compliant with the FTP Standard**

Card Reader Interface

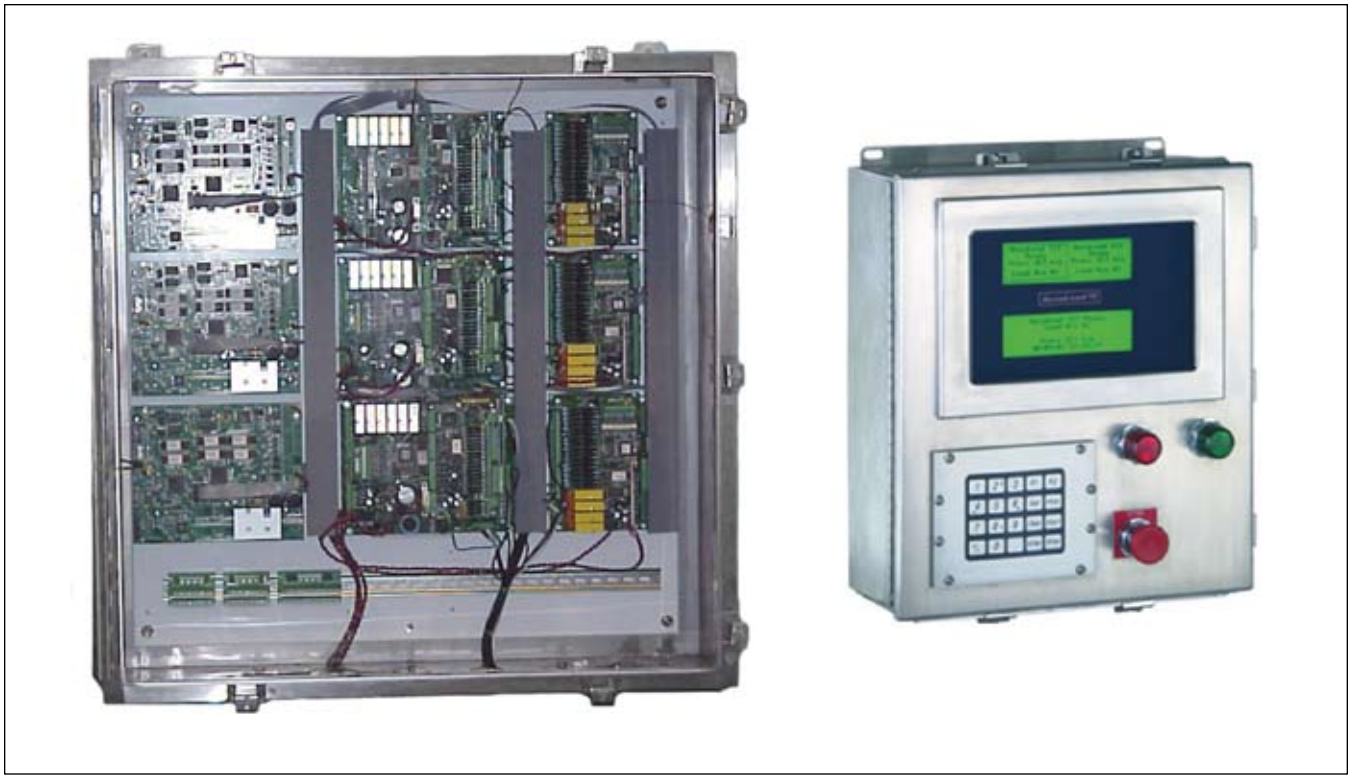
When using Firmware Revision 10.10 and above, the AccuLoad III-SA can interface directly with a Smith Card Reader. This interface offers the potential for enhanced functionality and security ranging from simple transaction-stamping of driver card data to a mini automation system with validation and authorization. Card data may also be passed to a host computer for validation. The card reader is attached to a serial communications port on the MMI.

When 2 MMIs are connected to a single FCM, separate card readers my be connected to each MMI. This allows for having a dedicated card reader for each loading position. When driver cards-in at a particular MMI, only the arms swung to that MMI will be authorized for use.

For more information refer to Card Reader Interface Application Bulletin AB06052 and the Proximity Card Reader Installation / Operation Manual MN06144.

AccuLoad Interface Control Board

The AccuLoad Interface Control Board provides additional flexibility to the AccuLoad’s standard features. The AccuLoad III-SA supports the use of up to eight optional AICB boards. This results in a total of up to 56 additive meter inputs with local I/O, and up to 96 additive meter inputs with remote I/O.



The AccuLoad III-SA consists of a cabinet housing up to four board sets, and a remote Man Machine Interface (MMI). The MMI is the device from which the board sets are configured and controlled. The cabinet and boards are shown above on the left, and the MMI is shown on the right. The MMI controls up to 18 load arms, with a maximum of six transactions in progress at any given time. Any load arm configuration currently supported by AccuLoad III-X firmware is available using this system.

Keypad Functions

The push-buttons on the Man Machine Interface (MMI) keypad, shown above on the right, perform the following preset functions in the Run Mode:

0 - 9 Used for presetting the quantity to be delivered

CLEAR Used to clear incorrect entries and to exit from the dynamic displays

ENTER Used for dynamic displays and selecting the recipe to be loaded

PRINT Signals completion of transaction when "Print Key" option is selected in the Systems Directory

SET Used to initiate the preset sequence and paging through recipes

START Used to start the delivery (providing all external permissive senses are satisfied)

STOP Used to stop delivery at any time (not intended as emergency stop)

+/- Toggles between negative and positive values

F1 Cycles the MMI display focus to the next available arm and exhibits its data on the top display

F2 Accesses the MMI's program mode when all arms are idle

←↑→↓ Used to move from one menu selection to another

Basic MMI Operation

The MMI display and keypad allow the driver to control the 18 available load arms. The MMI uses the "system status display" format (i.e., arm in focus on the top display, single line for each remaining arm on the bottom display) regardless of the number of arms configured.

If no arms are currently in use (i.e., if no transaction is in progress), the MMI displays the first six load arms, as shown below. Arm #1 is displayed on the top screen and a status line for each of the other arms is displayed on the bottom screen.

```
AccuLoad III Ready
1 Fuel Oil
Press SET key
11/13/00  12:02:22 PM
```

```
2 UNLEADED 87
3 UNLEADED 89
10 UNLEADED 91
11 UNLEADED 93
12 DIESEL
```

Note that the arm's communication address is used to identify the arm. The communications address is a unique identifier for each arm. In the example shown above, the communications addresses for the arms have been set to 1, 2, and 3 and 10, 11, and 12.

Pressing the F1 key changes the focus to the next available arm and displays its data on the top display. Continuing to press the F1 key cycles through all available arms, up to a maximum of 18.

The MMI's keypad controls the four slave KDCs, using the address for the arm currently in focus. The KDC recognizing that address will process the key and respond with the data to be displayed.

The driver presets batches by pressing the F1 key until the desired arm is in focus on the top screen, and then pressing the SET key.

The MMI continuously polls each of the arms configured with a status request. The KDC responds with a status byte indicating its current operating condition (e.g., transaction in progress, at main menu, etc.). If the arm is currently in focus, the KDC also responds with the full display for the top display. If the arm is not in focus, the KDC responds with its current status text string for the bottom display.

Maximum Six Load Arms in Use

The slave KDC indicates a transaction in progress by sending the appropriate bit in its response to the MMI's status request. If the MMI detects that transactions are in progress on more than six load arms, the MMI sends a "max arms in use exceeded" message to all arms on all KDCs.

When a slave KDC receives the "max arms in use exceeded" message from the MMI, it sets an alarm and all active arms on that KDC will be stopped.

If an automation command is sent to a KDC to start a transaction and the maximum allowable load arms are already in use, that KDC responds with the following error code: "NO33: Maximum allowed arms already in use." In addition, if the maximum allowable load arms are already in use, the KDC will ignore a digital remote start input.

If not using automation control and transactions have been started on six arms, no other arms are accessible via the display.

Loss of Communications

If a KDC has not been polled by the MMI within the communications timeout period programmed on the KDC for the MMI control port, the KDC will set an "MC: MMI Comm Failure" alarm and any active arms on that KDC will be stopped. This alarm is also set if a CRC error occurs with a message from the MMI. The automation system is blocked from starting new transactions on the KDC until communications between the MMI and the KDC have been resumed.

If the MMI doesn't receive a response from a particular load arm within the communications timeout period programmed on the MMI for the MMI control port, the MMI displays an "MC: Arm Comm Failure" alarm in place of the last data received from that load arm. The alarm is also displayed if a CRC error accompanies a message from the load arm. Once communications are resumed, this alarm message is automatically cleared and removed.

In case the KDC is able to receive data from the MMI, but the MMI is not receiving the response from the KDC, the MMI will send an "MMI Comm Failure" command to the KDC. The KDC will then set an alarm and all active arms will be stopped.

Example Operation

Assume that three KDCs are connected to the MMI and each KDC is configured for three load arms. The communications address and load arm identification numbers are programmed as shown in the table below.

Load Arm	KDC #1	KDC #2	KDC #3
#1	10 (Fuel Oil)	20 (Unleaded 91)	30 (Unleaded 87)
#2	11 (Unleaded 87)	21 (Unleaded 93)	31 (Unleaded 91)
#3	12 (Unleaded 89)	22 (Diesel)	32 (Unleaded 93)

Because nine arms are configured, and only six arms can be displayed at one time, the MMI cannot display all configured arms at once. If no arms have transactions in progress, the first six arms will be displayed as shown below.

```
AccuLoad III Ready
10 Fuel Oil
Press SET key
11/13/02  12:02:22 PM
```

```
11 UNLEADED 87
12 UNLEADED 89
20 UNLEADED 91
21 UNLEADED 93
22 DIESEL
```

Pressing the F1 key displays arms two through seven, as shown below.

```
AccuLoad III Ready
11 Unleaded 87
Press SET key
11/13/02  12:02:22 PM
```

```
12 UNLEADED 89
20 UNLEADED 91
21 UNLEADED 93
22 DIESEL
30 UNLEADED 87
```

Pressing the F1 key will continue to scroll through all nine of the configured arms. To start a batch on a particular arm, press the F1 key until the appropriate arm is in focus on the top display, then press the SET key.

If a batch is to be started on Arm 2 on KDC #1 (Unleaded 87), press the SET key while the arm is in focus. The top display will show the preset prompts described in the AccuLoad III Operator Reference Manual.

```
                Select Recipe          11
->              Recipe 1
                Recipe 2
                Recipe 3
```

Note that the load arm's communication address is added to the preset screen so the operator can determine which arm is being displayed. The communications address also appears on the following screens:

- Select recipe prompt
- Select injectors prompt
- Preset prompt
- Valve opening
- Restart in x seconds
- Connect permissive
- Alarm screen

```
              Meter #1 Alarm           11
TP: Temp Probe
        Press ENTER to clear alarm or
        press PRINT to end load
```

Once an arm has a transaction in progress, this arm will always be shown on either the top or bottom display, and won't be scrolled off the edge of the screen.

Returning to the example, if it is now desired to start a batch on KDC #2, arm #1, press the F1 key twice to bring this arm in focus. Note that because a transaction is in progress on KDC #1, arm #2, it continues to be shown on the bottom display.

AccuLoad III Ready
20 Unleaded 91
Press SET key
11/13/02 12:02:22 PM

21 UNLEADED 93		
22 DIESEL		
30 UNL 87 SP		
31 UNL 91 SP		
11 RECIPE 1	200	300

Note that the current recipe is identified at the bottom of the lower display.

A transaction may now be started on the “Unleaded 91” arm. When transactions are in progress on all six arms, the remaining idle arms cannot be accessed by the F1 key. Pressing the F1 key will scroll through the six active arms only until at least one transaction has ended.

Assuming transactions have been started on the second arm of KDC #1, the first and third arms of KDC #2, and all three arms on KDC #3, the MMI will display these arms as shown below:

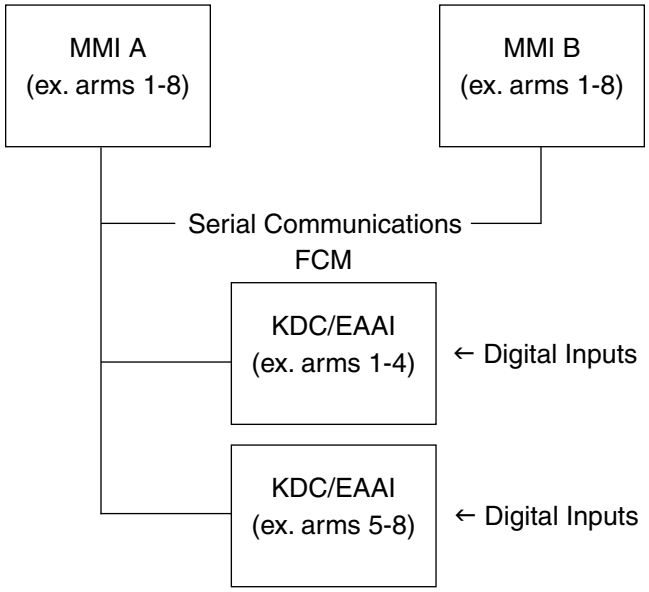
500 IV GAL	Recipe 1 Batch 1
0 IV GAL	
11 Unleaded 87	

20 RECIPE 1	200	300
22 RECIPE 4	150	250
30 RECIPE 1	50	450
31 RECIPE 2	300	200
32 RECIPE 3	400	100

Swing Arm Operations

When using Revision 9 and above firmware, the Accu-Load III-SA allows a load arm to be positioned in one of two loading positions; therefore, a single load arm may be in position for one of two MMIs. When the load arm is in position for MMI “A”, the other MMI (MMI “B”) will not display that load arm. Each MMI allows up to 18 arms to be configured and up to six arms to be active (alarm state or transaction in progress) at a time.

The example shown below assumes there are eight load arms, with four arms connected to each KDC/EAAI board set. All eight arms may be swung to either loading position. Each MMI is configured for all eight load arms.



Digital inputs on each KDC/EAAI board set are used to identify the current position of the load arm. The two MMIs are connected to the same communications port on each KDC, and take turns polling for an arm that is positioned for it. MMI Configuration Parameter 002 is used to indicate whether an MMI is a standalone unit, or if the MMI should be labeled “A” or “B”.

KDC Digital Input Function

Two new digital functions have been added to the digital input function parameters on the KDC board (Configuration Parameters 301, 305, 309 … 465). These are Swing Arm Side A and Swing Arm Side B.

The KDC/EAAI monitors these inputs to determine the position of the load arm. The position information is used to set the "arm available bit" in the status response sent to the MMI. The MMI then uses this information to determine if the arm should be displayed.

If two detect switch inputs are used, the current location of the swing arm is determined as shown in the chart below.

Swing Arm State	Swing Arm Side B	Swing Arm Side A
In Transit	0	0
MMI A	0	1
MMI B	1	0
In Transit	1	1

A swing arm in transit is displayed on the last MMI on which the arm was located, so an arm is always displayed on one of the MMIs. An arm in transit is not allowed to start a new transaction. If a driver presses the SET key while the arm is in transit, the following message is displayed: "Swing Arm not in position." If the host sends a preset command (AP or SB) while an arm is in transit, the AccuLoad rejects the command and returns the following response: "NO35 – Swing Arm out of position."

If the swing arm is in transit, the KDC/EAAI modifies the status text response if the arm is not in focus or modifies the ready screen if the arm is in focus. For example, if Swing Arms #1 and #4 are in transit and Swing Arm #1 is in focus, the displays appear as shown below:

```
AccuLoad III Ready
1 Fuel Oil
Swing Arm In Transit
8/13/02  10:58:51 am
```

```
2 Unleaded 87
4 Unleaded 91 … - In Transit
6 Diesel
```

Note that on the status display, the load arm ID is truncated, if necessary, to display the "in transit" message. If an alarm exists on the arm in transit, the alarm message is displayed on the MMI instead of the "Swing Arm in Transit" message.

If only one detect switch input is used, the current location of the swing arm is determined as follows:

Swing Arm State	Swing Arm Side B only	Swing Arm Side A only
MMI A	1	0
MMI B	0	1

If no "swing arm detect" digital input is configured for a particular arm, the arm is considered to be always available to an MMI that polls for its data; therefore, only one of the MMIs should have this arm's communication address set in its program mode.

The KDC/EAAI monitors a particular arm's input only while the arm is in the ready (not presetting or transaction in progress) state. Once the arm is in use, any changes in the detect switch input are ignored.

If no arms are available on the MMI, the following message appears on the top display: "No Arms Available." If no arms are available, the bottom display is blank.

Stop Key

If the MMI is programmed to stop all arms when the STOP key is pressed, all arms are stopped regardless of the arm's current position. If the MMI is programmed to prompt for the arm to stop, only the selected arm is stopped.

If the MMI is programmed to stop arms on this MMI only, then only the arms swung to this MMI are stopped.

MMI Program Mode

The MMI has its own local program mode. The parameters defined for the MMI are saved into flash memory when exiting program mode, and on power-up, are restored from flash.

All arms must be idle (that is, there can be no transactions in progress), for MMI to enter program mode. To enter the MMI program mode, press the F2 key. If the F2 key is pressed while a transaction is in progress, the following message will be displayed:

```
Local program mode not allowed
while transactions are in
progress.
Press <Clear> key
```

Assuming all arms are idle, a passcode prompt is displayed. A valid passcode must be entered before access to program mode is permitted.

```
Enter MMI Passcode
XXXX
```

Assuming an appropriate passcode is entered, the following menu will appear. Note that no transactions may be initiated until the operator leaves the MMI program mode.

```
MMI Program Mode
->  Configuration
    System Directories
    Exit Without Saving
    Diagnostics
```

The main menu and its sub-directories are shared for all arms on a particular KDC; therefore, only one MMI may be in these directories at a time. If the user is at the main menu via the keypad on either MMI, no operation is allowed on the other MMI. This includes changing the focus, entering the main menu, or presetting.

If the user presses any key at one MMI (except for the F2 key, used to enter the MMI's local program mode) while the other MMI is at the main menu, the MMI will display an error message as follows: "No action allowed while the other MMI is at main menu."

Arm Configuration Directory

001 – Number of Load Arms
002 – MMI Configuration

Configuration 001 – Number of Load Arms

This parameter defines the number of load arms associated with this MMI. Valid entries are 1 through 18.

Help: Enter the total number of load arms using this keypad/display

Configuration 002 – MMI Configuration

This parameter indicates whether a standalone MMI is in use, or if two MMIs are in use. Selections are as follows:

- Standalone
- MMI A
- MMI B

If “Standalone” is selected, the MMI assumes that all arms are always available on this loading position. If “MMI A” or “MMI B” is selected, the MMI assumes that the arms are being shared between two loading positions and that an arm may or may not be currently available to this loading position. Only available arms will appear on the MMI display.

The MMI identified as “MMI A” will start the polling sequence on power-up. Because both MMIs are connected to the same communications port on each KDC, both MMIs see all arm responses. On power-up, “MMI A” polls for one arm. When “MMI B” sees the arm response for “MMI A,” it then polls for one arm. This process continues with each MMI taking turns polling for one arm each time.

Note: *This parameter is only available when using Revision 9 and above firmware.*

Help: Select if this MMI is standalone or, if swing arms are in use, select if this is MMI #1 or #2

System 100 – General Purpose Directory

101 – Date
102 – Time
121 – Auto Reset Timer
131 – Decimal/Comma Select
132 – Power Fail Alarm
133 – Stop Key Action
134 – Idle Arm Alarm Action
151 – Level 1 Access Code

Date and Time

System 101 – Date

This entry allows the operator to set the date on the AccuLoad. To change the date, enter the correct month next to the cursor and press the ENTER key. Move to the next selection, enter the correct day next to the cursor, and press the ENTER key. Move to the next selection, enter the correct year next to the cursor, and press the ENTER key. When the month, day, and year have been entered, move to “Accept New Date” and press ENTER. The new date has been accepted.

- Month
- Day
- Year
- Accept New Date

Fatal: Invalid date

Note: *When the date and time are programmed on the MMI, the date and time on each board set are also automatically changed.*

System 102 – Time

A correction or change to the time can be made through this entry. Set the time by moving the cursor to the hour, pressing the ENTER key, entering the correct hour, and pressing ENTER again. This step is repeated for the minutes setting. Once the hour and minute have been set, the time type is selected. Pressing ENTER will display the following:

	Time Type	MIL
->	Mil	
	AM	
	PM	

Select the proper designation by moving the arrow and press the ENTER key. To accept the new time, move the cursor to Accept New Time and press “ENTER.” The time has been accepted and the screen reverts to the Date and Time display. Selections are as follows:

- Hours
- Min
- TimeType
- Accept New Time

Fatal: Entry out of range
Fatal: Invalid time

Display and Control

System 121 – Auto Reset Timer

This program code defines the amount of time, in minutes, before the MMI returns to the ready screen in the absence of key input by the operator. The auto reset feature will remove the MMI from the program mode when this parameter is set to a non-zero value. The clock starts after each keystroke. If another keystroke is not made in the time set in this code, the unit will revert to the Ready display. The range of this parameter is 0 to 99 minutes. An entry of 0 disables this feature.

This timer is used to automatically exit the MMI's program mode. Any program mode changes will be saved. The individual KDC's auto reset timer and dynamic display timers still apply to its own operation (i.e., if a transaction is in progress on a particular KDC, its own auto reset timer will be used to automatically end the transaction).

Help: *Enter time in minutes with no operator activity before MMI exits its local program mode*

System 131 – Decimal/Comma Select

This parameter specifies whether a decimal or a comma is to be used to separate the whole and fractional parts of numeric data. The comma is typically used in European markets. The selected delimiter is used in the program mode and on run screens and dynamic displays local to the MMI, in host communications, and on delivery reports. Selections are as follows:

- (0) Decimal
- (1) Comma

Help: Select delimiter between whole and fractional numbers.

System 132 – Powerfail Alarm

This program code provides the operator with the capability of either enabling or disabling the powerfail alarm. The factory default for this parameter is "enable." Selections are as follows:

- (0) Enable
- (1) Disable

If enabled, upon power-up the MMI will display an alarm message. This alarm must be cleared before any other operations are allowed. Clearing this alarm requires entry of a valid passcode.

Help: Select if an alarm indicating loss of power is desired.

System 133 – Stop Key Action

This program code allows the operator to determine whether pressing the stop key will shut down all currently loading arms, or prompt to stop one or more specific arms only. Selections are as follows:

- (0) Stop all arms immediately
- (1) Arms on MMI
- (2) Prompt for arm(s) to stop

Help: Select if STOP key stops all arms (both MMIs), all arms on this MMI only, or prompts for arms to stop.

System 134 – Idle Arm Alarm Action

This program code allows the operator to determine whether all arms should be stopped if an alarm occurs on an idle arm that cannot be displayed, because there are already six active arms. Selections are as follows:

- (0) Stop all arms
- (1) Don't stop arms

Help: If an alarm occurs on an idle arm that can't be displayed, should all arms be stopped?

Security

System 151 – Access Code

This four-digit number allows access to the MMI's program codes. The access code must be entered through the MMI keypad. The range of this entry is from 0 to 9999.

Help: Enter Access Code for this security level.

System 700 – Communications Directory

701 – Load Arm 1 Address
702 – Load Arm 2 Address
703 – Load Arm 3 Address
704 – Load Arm 4 Address
705 – Load Arm 5 Address
706 – Load Arm 6 Address
707 – Load Arm 7 Address
708 – Load Arm 8 Address
709 – Load Arm 9 Address
710 – Load Arm 10 Address
711 – Load Arm 11 Address
712 – Load Arm 12 Address
713 – Load Arm 13 Address
714 – Load Arm 14 Address
715 – Load Arm 15 Address
716 – Load Arm 16 Address
717 – Load Arm 17 Address
718 – Load Arm 18 Address
719 – MMI Comm Address
720 – Comm Port 1 Function
721 – Comm Port 1 Baud Rate
722 – Comm Port 1 Data/Parity
723 – Comm Port 1 Timeout
725 – Comm Port 2 Function
726 – Comm Port 2 Baud Rate
727 – Comm Port 2 Data/Parity
728 – Comm Port 2 Timeout
730 – Comm Port 3 Function
731 – Comm Port 3 Baud Rate
732 – Comm Port 3 Data/Parity
733 – Comm Port 3 Timeout
750 – Modbus Endian
771 – Card Database
772 – Card Reader Configuration

System 701 – Load Arm 1 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 702 – Load Arm 2 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 703 – Load Arm 3 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 704 – Load Arm 4 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 705 – Load Arm 5 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 706 – Load Arm 6 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 707 – Load Arm 7 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 708 – Load Arm 8 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 709 – Load Arm 9 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 710 – Load Arm 10 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 711 – Load Arm 11 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 712 – Load Arm 12 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 713 – Load Arm 13 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 714 – Load Arm 14 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 715 – Load Arm 15 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 716 – Load Arm 16 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 717 – Load Arm 17 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 718 – Load Arm 18 Address

This two-digit entry defines the communications address associated with this load arm. For multiple AccuLoads on a shared communications line, all addresses must be unique. The range of this entry is 01 to 99.

Critical: Address must not be zero.
Critical: Addresses must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this load arm.

System 719 – MMI Comm Address

This two-digit entry defines the communication address associated with this MMI. This address is used to allow communications between the MMI and a host computer or AccuMate. This is typically used by the AccuMate or host computer to download a driver card database to the MMI. The range of this entry is 01 to 99.

Critical: Address must be unique.
Fatal: Entry out of specified range.
Help: Enter a unique communication address for this MMI.

Note: *A host computer will connect to the individual KDC boards within the FCM for host control and batch data retrieval.*

System 720, 725, 730 – Comm Port Function

This program code defines the function of the communications port. The factory default is “Smith MMI” on comm port 2. Selections are as follows:

(0) Not used – This communications port is not selected for use.

(1) Smith MMI – This communications port allows communications between the MMI and all KDCs within a Flow Control Module on a single communications line.

(2) Smith Card Reader – Assigns a communications channel to the Smith Card Reader Interface board, allowing validation and authorization of card data.

(3) Terminal Host Communications – This communications port communicates with a terminal type device using a simplified communications protocol.

(4) Minicomputer Host Communications – This communications port communicates with a minicomputer type device using a sophisticated and secure communications protocol

(5) Modbus Host Communications.

Critical: A comm port is required to be configured for Smith MMI.
Critical: Only one comm port may be configured for Smith MMI.

System 721, 726, 731 – Baud Rate

This parameter sets the speed of the associated communications port. The factory default is “38400.” Selections are as follows:

(0) 1200 baud
(1) 2400 baud
(2) 4800 baud
(3) 9600 baud
(4) 19200 baud
(5) 38400 baud

Note: *No entry if corresponding function = Not Used.*
Help: Select the baud rate for this communications port

System 722, 727, 732 – Data/Parity

This parameter defines the number of data bits and parity used by the associated communications port. Unless indicated otherwise, one stop bit is used. The factory default is “8/None.” Selections are as follows:

(0) 7 bits No Parity
(1) 7 bits Odd Parity
(2) 7 bits Even Parity
(3) 8 bits No Parity
(4) 8 bits Odd Parity
(5) 8 bits Even Parity
(6) 8 bits No Parity, 2 Stop bits
Critical: Smith MMI & Modbus requires 8-bit data
Note: *No entry if corresponding function = Not Used.*
Help: Select the data format: number of bits per character and type of parity

System 723, 728, 733 – Timeout

These one-digit codes allow the operator to specify the amount of time, in seconds, before the "MC: Arm Comm Fail" message will be displayed. The range of this entry is from 1 to 9 seconds.

Note: *No entry if corresponding function = Not Used.*
Help: Enter elapsed time in seconds of comm fail before signaling an alarm

System 750 – Modbus Endian

This program code defines the byte order for floating point values returned by Modbus communications. AccuLoad III supports three variations of the Modbus protocol. The factory default is "Big". Selections are as follows:

(0) Big endian – bytes are ordered most significant first
(1) Little 8 endian – bytes are ordered least significant first
(2) Little 16 endian – words are ordered least significant first

Help: Select modbus data format: big endian, little 8 endian, or little 16 endian (affects floating point numbers).

System 771 – Card Database

This program code allows enabling a card database that has been downloaded to the MMI to be used for driver validation.

(0) Disable
(1) Enable

System 772 – Card Reader Configuration

This program code allows the AccuLoad to be configured for either the momentary or captive card reader mode of operation. If momentary mode is chosen, authorization is performed when a valid card is within the proximity of the card reader. The authorization remains in effect until all transactions have ended or until a timeout occurs if no transactions have been started.

If captive card mode is chosen, authorization continues until the card is removed and transactions may be started as long as the card remains in the reader. Captive card mode requires that the card remain captive at the reader for the duration of loading. Removal of the card when a batch is in process will result in a "Card Removal" alarm.

(0) Momentary (default)
(1) Captive Card mode

Note: *A new option has also been added to FCM system 315 – Transaction Termination to allow selection of card removal as a means of ending a transaction. This is to ensure that in Captive Card mode, the operator cannot leave his card behind, as the transaction cannot be ended until the card is removed. Versions of the Smith Card Reader available after the 10.07 release (approximately August 2004) can be configured to operate in either the proximity (momentary) or Captive mode.*

Help: Select 1) card is presented momentarily or 2) card remains in proximity of the card reader.

MMI Program Mode Diagnostics

The Program Mode Diagnostics are used to troubleshoot or to determine the current status of the MMI. Program Mode Diagnostics is selected by moving the cursor to "Diagnostics" on the MMI's Program Mode menu and pressing "ENTER." This will display the Diagnostics menu.

The available diagnostics in the order that they appear on the menu are as follows:

- Event Log
- Arm Status
- Communications Monitor
- Communications Test
- Keypad Test
- Display Pixel Test
- Erase Event Log
- Card Reader Database Update
- Factory Initialize

- Factory Diagnostics
  - Watchdog Reset Test
  - Space Integrity Test
  - Power-up Diagnostics
  - Flash Confidence Test
  - Keypad Buffer
  - Hex Memory Monitor
  - Flash Performance Statistics
  - System Task Monitor
- Software Version

These diagnostics are for the MMI and not for the KDCs attached to the MMI. The Event Log contains local MMI alarms and program mode changes only (not alarms and changes made to the individual KDCs). The individual KDCs have event logs of their own.

Event Log

The View Only Diagnostics menu provides the selection "Event Log" where past events can be viewed. With the arrow in front of "Event Log," pressing ENTER will

display the last event that occurred in the AccuLoad. The "Event Log" includes alarms and program mode parameter changes.

Event Log #322	
02/07/02	8:52:20
Alarm Cleared – A1:MC	
MC: Arm Comm Fail	

From the display, the operator can go back through the events using the up and down arrow keys. Pressing the CLEAR key will display the Diagnostics menu.

Arm Status

Selecting "Arm Status" and pressing ENTER will display a screen similar to that shown below. This diagnostic is for factory use only.

Active	N	At Main Menu	N
Alarm	Y	Req Focus	N
Status Req	42	Status Recd	43
CRC	0 List	ORX	0 Errors
Arm Addr	= 1	Up/Down	= Next Arm

Communications Monitor

The Diagnostics menu provides the selection "Comm Monitor" to review messages being sent and received across the communications lines. With the arrow in front of "Comm Monitor," pressing ENTER will display the following:

Comm Monitor Live View	
->	comm 1
	comm 2
	comm 3

This display allows the operator to choose the communication port to be viewed. Pressing the ENTER key when the arrow is in front of the desired communications port will display the data that is being received by the AccuLoad and the response of the AccuLoad.

Comm Monitor Live View
Rx 01PC_00_001_0.0
Tx .01NO01
Enter = Freeze, print = errors

This display indicates that AccuLoad address 01 received a PC command from the host and responded with a "no response," indicating that it is in Program mode. To freeze a command or response for further viewing, press "ENTER."

Comm Monitor Freeze View
RX 01PC_00_001_0.0
TX .01N001
Enter = Toggle ASCII/ hex << >>

On this display, the operator can toggle the message between the ASCII and hex characters. The decimal point key allows toggling between page scrolling ("<< >>") and character scrolling ("< >"). To return to the previous display, press CLEAR.

Pressing the PRINT key in the live view will display the following screen.

Comm Monitor Error Counts
Overruns: 00000
Parity: 00000
Framing: 00000

From this display, the overrun errors, parity errors, and framing errors can be viewed. Pressing CLEAR will return to the Live View display. When completed, press CLEAR until the Diagnostics menu is displayed.

Communications Test

Selecting "Communications Test" from the menu allows the operator to run a diagnostic on any of the communication ports on the MMI. Pressing ENTER with the cursor in front of selection one will activate a popup screen where the operator can select the communications port to be tested.

```
Select comm port to test.

->    Comm 1
      Comm 2
      Comm 3
```

For this test to be completed, the transmit and receive terminals on the comm port must be connected. Once the comm port has been selected for testing by moving the arrow to the required port, pressing ENTER will start the communications test.

```
                Comm Port 1 Test

Tx        S                overruns : 00000
Rx        S                  parity : 00000
Errs      00003            framing : 00000

            Press CLEAR to stop test
```

The test will display the characters that are being transmitted on the transmit line. It will also display the characters as they are received back into the instrument. Also displayed are the errors that have occurred during the test, the overruns, the parity, and the framing errors. Pressing CLEAR will end the test and return the unit to the Communications Test menu. The test is identical for the four ports. The only difference in the display will be the comm port number and the channel designation.

Keypad Test

Select “Keypad Test” from the menu to run a diagnostic test on the keypad of the MMI. Pressing ENTER will display the keypad test screen.

```
                Keypad Test
        Press any key and it will be dis-played.
            Press CLEAR twice to exit.
```

With this screen displayed, any key that is pressed will appear on the screen as the key that was pressed.

```
                Keypad Test

                   STOP

        Press any key and it will be displayed.
            Press CLEAR twice to exit.
```

To end the test, the CLEAR key must be pressed twice. The first time CLEAR will appear on the test screen. The second time, the unit will return to the Diagnostic Test menu.

Display Pixel Test

Selecting “Display Pixel Test” and pressing ENTER will initiate the pixel test on the display. All the pixels will be lit, allowing the operator to determine if any of the pixels on the display are not functioning. Pressing CLEAR will terminate the test and return the unit to the Diagnostic menu.

Erase Event Log

This diagnostic is used for erasing the event log. Pressing ENTER will display the following screen.

```
                Erase Event Log

                   WARNING
            The event log will be erased!
        Press ENTER to continue or CLEAR to exit.
```

Pressing CLEAR will return the unit to the Diagnostics Menu screen without erasing the event log. Pressing ENTER will erase the event log and return the unit to the Diagnostics Menu screen.

Card Reader Database Update

This diagnostic screen allows storing new cards into the driver database. Selecting Card Reader Database Update and pressing ENTER will display a screen that prompts the operator to card-in with the new card. Once the card data has been successfully read by the card reader, the diagnostic screen confirms that the card data has been added to the driver database. The ENTER key may now be pressed to add another card or the CLEAR key pressed to exit the diagnostic when done.

```
Please card-in new card to store in driver database.

                Press CLEAR to cancel.
```

Factory Initialize

Selecting “Factory Initialize” and pressing ENTER will display a screen that tells the operator that if ENTER is pressed, all the parameters in the unit will be reset to the default values as they were shipped from the factory. Caution: Running this diagnostic will change all parameters that have been programmed previously.

Factory Initialize
WARNING
All run data and parameters
will be erased!
Press ENTER to continue or CLEAR to exit.

This diagnostic should always be run when a new set of PROMs is installed.

Factory Initialize
WARNING
All run data and parameters
will be erased!
Press ENTER to continue or CLEAR to exit.

Factory Diagnostics

For factory use only.

Software Version

The Diagnostics menu provides the selection "Software Version," which allows the operator to view the version of software that is running in the AccuLoad. With the arrow in front of "Software Version," pressing ENTER will display the software version and the CRC of the proms.

Software Version	
Version	
CRC	0
	494F8231
Copyright 2001	
Smith Meter Inc.	

Pressing CLEAR will return to the Diagnostics menu.

Online Data Pages

When the AccuLoad III.net (firmware revision 11.01 and above) is linked to a PC through a network connection, the web browser (Internet Explorer, Netscape, or Firefox, etc) can be used to access a set of useful web pages that are stored in the AccuLoad. The data supplied on these web pages is real time data and can be used to monitor the AccuLoad from a remote location or to diagnose problems.

The most important part of being able to access these web pages is to first establish a successful connection to the AccuLoad. To determine if there is a connection to the AccuLoad, simply open AccuMate and connect to the AccuLoad over a TCP/IP connection. If AccuMate can establish an "Online" status, then there is connectivity to the AccuLoad over the network.

Once this connection has been verified, launch an internet browser, and enter the following URL address into the web address field:

http://XXX.XXX.XXX.XXX

Type in the IP address where the each X corresponds to each IP address digit which is specified in the AccuLoad System Parameter 735. This is the IP address of the AccuLoad.

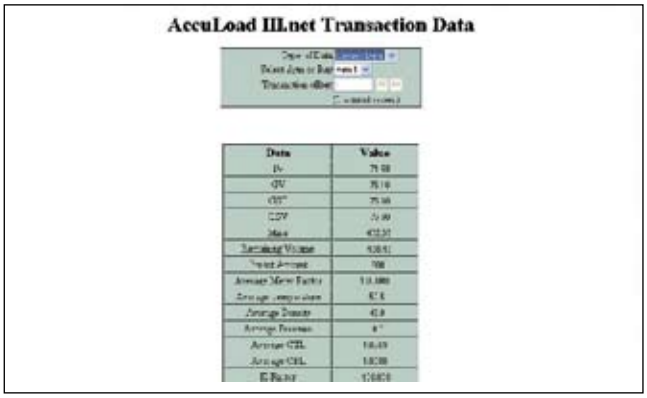
An example of a URL that might be used to access the main data page is: http://192.168.0.1.

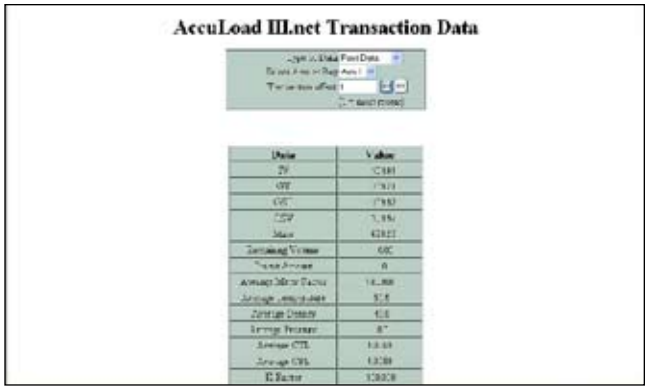
Press Enter after the appropriate URL address has been entered into the browser and the AccuLoadIII.net main menu data page will be displayed.

As shown above, the main page has a few options to choose from such as Transaction Data, Batch Data, Diagnostic Data, and a Flow Display. The Transaction Data page shows transaction totals, the Batch data page shows batch totals. The diagnostic data shows current hardware configuration or I/O status. The flow display can display a real time view of the current flow on any arm. This display resembles the actual AccuLoad display and is sometimes referred to as a remote flow display.

On the batch data page, data associated with batches in progress may be viewed as well as batch data stored in the historical log. When this page is used to view historical batch data, a specific transaction offset and a specific batch must be specified. By default, transaction offset 1 (most recent transaction) is used as well as batch 1. These controls offer the ability to view batch data stored in the transaction log.

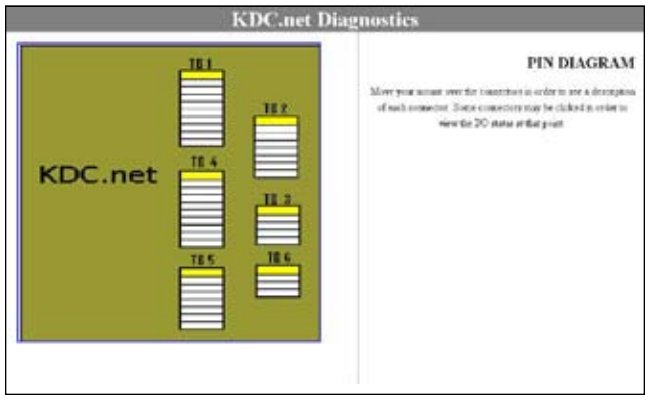
For transaction data currently in progress and historical logs of transactions, the information will be displayed as follows:



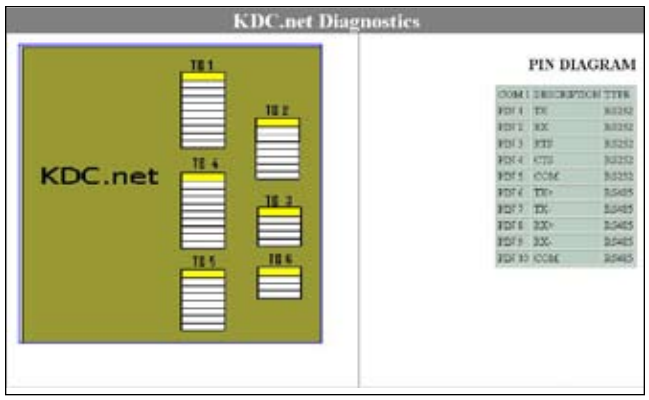


The Diagnostic Data will provide an option to view basic overhead diagrams of the AccuLoad circuit boards. These circuit boards are the KDC.net, the EAAI, and the BSE. One circuit board diagram may be displayed at a time and each diagram may be used to view data associated with a particular connector. After selecting any of the boards, a visual representation of the board will appear. By using the “mouse over” ability, these pages will display a pin diagram, descriptions, and in some cases the functionality of each connector.

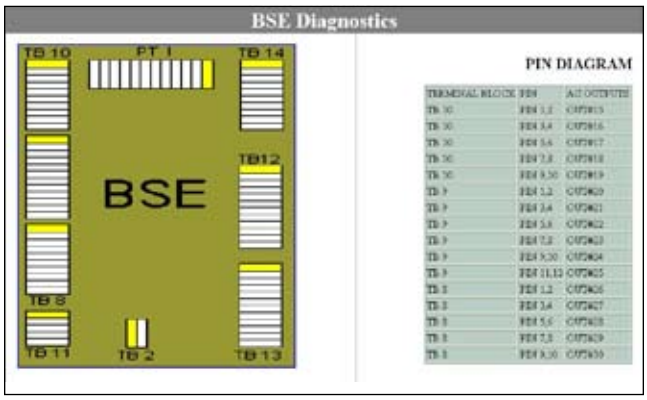
The KDC.net board is shown below:



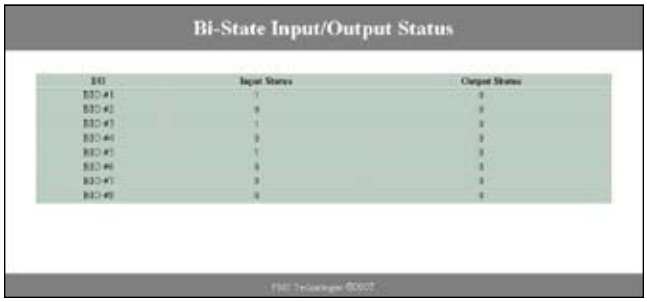
This shows the KDC.net board with an example of the mouse over function. The corresponding pin connection information is for the Com 1 connector (TB1).



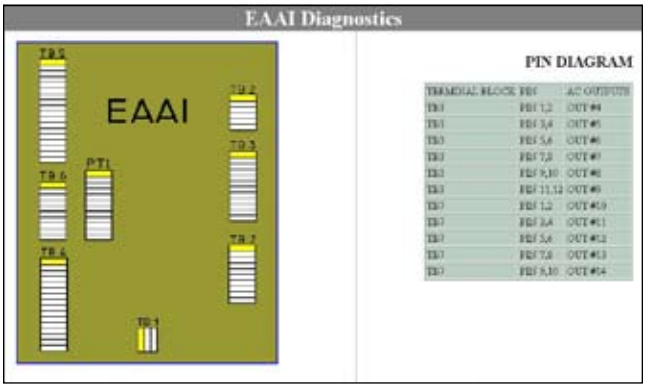
The BSE board will be displayed as shown:



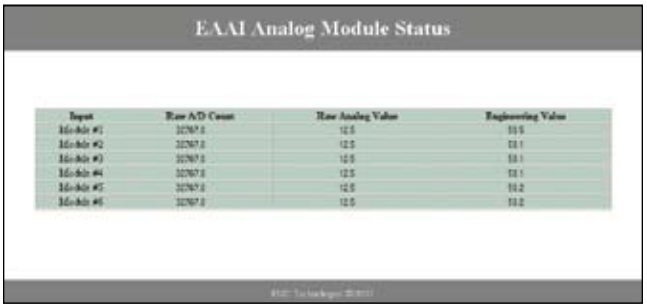
Some terminal blocks are actually a link to another page and may be clicked on. One indication that a terminal block is actually a link is when the “arrow” mouse cursor transforms into a “hand”. Clickable terminal blocks include those that have a status or configuration associated with them (such as COM1, digital outputs/inputs, bi-state inputs/outputs, etc). For instance if a digital I/O terminal block was clicked, the status of that particular I/O would be displayed along with the respective status. The bi-state inputs are shown below with the corresponding on/off state. All of this data is real time, and therefore any status changes or configuration changes will be seen immediately on the data pages.



The EAAI board will be displayed as shown:



The EAAI also has the ability to display its current status. In the below example, the Raw A/D Count, the Raw Analog Value, and the Engineering Value is shown. Any input or output has the ability to display its status, value, or state that it is currently in.



Specification.....Bulletin SS06040
Installation/Operation .....Bulletin MN06141

AccuLoad III-SA

Specification.....Bulletin SS06039
Installation/Operation .....Bulletin MN06140
Operator Reference.....Bulletin MN06139

AccuLoad III-X

Specification.....Bulletin SS06036
Installation/Operation .....Bulletin MN06135
Operator Reference.....Bulletin MN06129
Communications.....Bulletin MN06130L
Modbus Communications.....Bulletin MN06131L

CIVACON Microrack® Monitor System

Installation/Operation .....Bulletin MN06127

Revisions included in MN06139 Issue/Rev. 0.3 (4/08):

Page 3: – Subheads added under Header Product Blending with AccuLoad III-SA: Hybrid Blending and Unloading.
– Headers added: Connectivity Features and Card Reader Interface.
– Headers removed: Alarm Responses and Remote Display Functionality Over IP.

Page 12: – System 719, 750, 771, and 772 added to Communications Directory.

Page 17: – Subheader added: Card Reader Database Updated.

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