GUIDANT

miniBlend.net

Caution

The default or operating values used in this manual and in the program of the Smith Meter® miniBlend.net™ 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.

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Product Description

The Smith Meter® miniBlend.net™ is a micro-processor based instrument that supports up to 12 recipes. The main application is to provide blending control for continuous in-line blending.

Optimum measurement accuracy is attained through continuous linearization of the meter factor with changes in flow rates. The miniBlend.net is also capable of maintaining back pressure on the measurement system using automatic flow optimization. Volumetric correction is calculated directly from published API equations providing precise volumetric measurement results. Precise temperature, pressure compensation (using programmed maintenance pressure), and density correction are options that 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 miniBlend.net provides several loading system control functions: blend control, pump control, alarm control, set stop, valve control, back pressure control, and automatic adjustment of final trip point. Other significant features are as follows:

- Ethernet Connectivity
- Three Multi-drop Serial Communications Ports
- Event Logging / Audit Trail
- User Configurable I/O
- Three Security Levels
- Optional Battery Backed Display per OIML
- Programmable Language/Messages
- Automated Proving
- API Tables from LPG to Crude Oil

How To Use This Manual

This manual is to be used as a reference guide to the program codes available in the miniBlend.net. The directories and subdirectories which contain the program codes are listed above each set of parameters.

The program code explanations frequently list "fatal" or "critical" warnings, or indicate that in some circumstances, the code is "no entry." A fatal warning is triggered by a selection that the miniBlend.net cannot accept and will not allow to be entered. Possible causes include an entry that falls outside an allowable range, or an entry that seriously conflicts with a previous entry. A critical warning signals that a selection is incompatible with a previously configured program code. The miniBlend.net will accept the new entry, but the selection will undoubtedly cause a problem in operation and should be changed. "No entry" indicates that a program code is unavailable and will not appear on the menu, because previous selections make it irrelevant. For example, pulse output codes will not appear unless pulse output has been enabled.

The main system directories are as follows:

Configuration Directories

        100 – Pulse Outputs
        200 – Digital Inputs
        300 – Digital Outputs
        400 – Analog Inputs

General Purpose Directories

        10X – Date and Time
        11X – Units
        12X – Display
        13X – Timeouts
        14X – Control
        16X – Temperature/Density
        17X – Pressure
        18X – Alarm Limits
        19X – Security

Blend Control Directories

        20X – Blend Control
        22X – Alarm Limits
        23X – Delays/Timers

Blend Stream Meter Directories

        10X – General Purpose
        2XX – Flow Control
        3XX – Volume Accuracy
        40X – Temperature/Density
        5XX – Pressure

Wild Stream Meter Directories

        10X – General Purpose
        2XX – Flow Control
        3XX – Volume Accuracy
        40X – Temperature/Density
        5XX – Pressure

Alarm Directories

        601 – Driver Clearable
        602 – Powerfail Alarm
        603 – Alarm 1 Polarity
        604 – Alarm 2 Polarity
        61X...69X – Configure Alarms

Communications Directories

        70X...71X – Comm Port Configuration
        72X – Host Interface
        73X – Reports

Recipe Directories

        00X – Enter Recipe #
        00X – Select Recipe

Diagnostic Directories

        Analog Input Test
        Digital Input Test
        Digital Output Test
        Pulse Input Test
        Pulse Output Test
        Communications Test
        Keypad Test
        Display Pixel Test
        Boolean/Algebraic
        Reset Totals
        Erase Event Log
        Erase Transaction Log
        Erase Web Pages
        Upgrade Firmware
        Factory Initialize
        Factory Diagnostics

Getting Started

The program codes may be reviewed or altered using both the keypad and display on the face of the miniBlend.net or by using BlendMate software through one of the communications ports. The following provides instructions on use of the keypad and display for program code operations. Before starting, refer to the Operations Manual, MNMB003, Section II for miniBlend.net keypad functions.

The Program Mode Menu is used for program code manipulation. From the "Ready" screen the user first goes to the "Main Menu" screen by depressing the ENTER key.

```
 miniBlend.net Ready                      Main Menu
    XXXXXXXX
                                      Active Alarms
                                      Dynamic Displays
 MM/DD/YY H:MM:SS PM                   Print Menu
                                      Program Mode Menu
                                      Diagnostics Menu
```
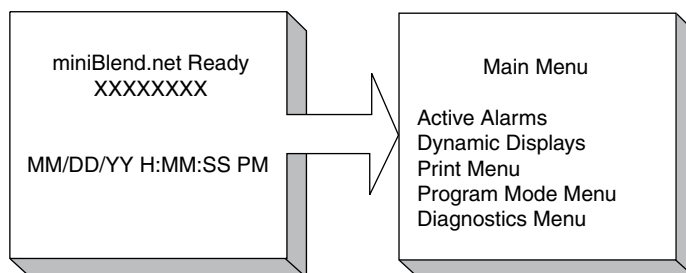
Select "Program Mode Menu" and depress the ENTER key. The miniBlend.net will then request the passcode to allow entry into Program Mode Menu. The default passcode for a new miniBlend.net is "0000". After entering the proper passcode the Program Mode Menu screens will be accessible.

```
                        Program Mode Menu              Program Mode Menu

                        Configuration Dir              Communications Dir
  Enter Passcode        Gen Purpose Dir                Recipe Dir
                        Blend Control Dir              Diagnostics
 >_____                Blend Stream Mtr               Exit without saving
                        Wild Stream Mtr
                        Alarm Dir
                                                                     more...
                                        more...
```
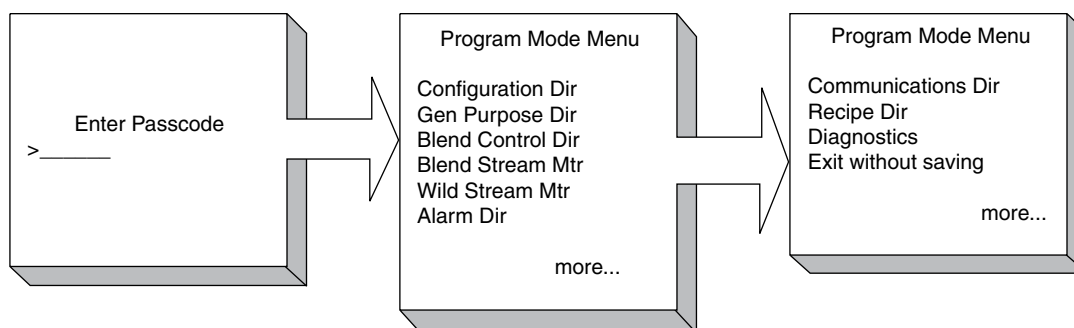
There are four (4) Configuration Subdirectories in the miniBlend.net.

```
Configuration Dir

Pulse Outputs
Digital Inputs
Digital Outputs
Analog Inputs
```
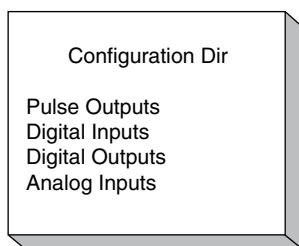
Pulse Output Subdirectory

If Pulse Output is not enabled, parameters Configuration 102 thru 104 will not be available for entry.

Configuration 101 – Pulse Output Enable
This program code allows a pulse output to be activated for the miniBlend.net. Selections are as follows:
*   No
*   Yes

Steps to ENABLE Pulse Outputs:
*   At first Pulse Output screen press ENTER
*   On "101 Out Enable" screen select "Yes"
*   Press ENTER
*   Pulse Output Directory opens for editing

```
Pulse Outputs          101 Out Enable          Pulse Outputs                       105 Pulse Out Prd
                                                                                        xxxx
Out Enable    NO                               Out Enable        YES
                       No          NO          Pulses/Amt        x.xx              Combined
                       Yes                     Pulse Units       xxx               Blend Stream
                                               Max Freq          xxxx              Wild Stream
                                               Pulse Out Prd Com ...
                                                                                  PRINT = Help
```
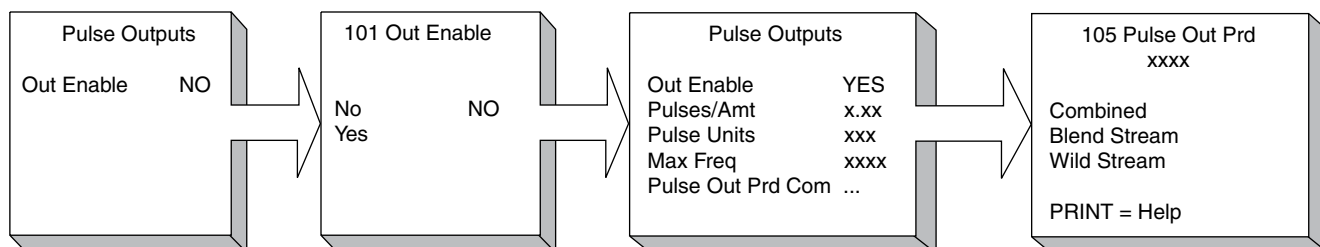
Configuration 102 – Pulse Output Pulses/Amount
This five-digit parameter defines the pulse output resolution, the number of pulses per unit of volume to be generated (e.g., 0.1 will output 1 pulse for every 10 units of volume). The range of this parameter is 0.00 through 999.99.
Note: No entry if Pulse Output Enable = No.
Help: "Enter output pulses per unit of volume or mass for the blend stream."

Configuration 103 – Pulse Output Units
This parameter defines the volume type used to pace the pulse output. Selections are as follows:
*   IV [Indicated Volume or Raw]
*   GV [Gross]
*   GST [Gross Standard Temperature]
*   GSV [Gross at Standard Temperature and Pressure]
*   Mass
Critical: Selected units not available.
Note: No entry if Pulse Output Enable = No.
Help: "Select volume type for pulse output to be based on."

Configuration 104 – Pulse Output Maximum Frequency

This four-digit entry limits the pulse output frequency for Pulse Output #1 to a fixed range (0 to 3500 Hz) to avoid over-speeding the device attached to the pulse output. All of the intended pulses will eventually be transmitted; the total period will be increased if required to ensure the correct number of pulses is output. A 0 entry disables this feature.

Fatal: Entry is out of specified range.

Note: *No entry if Pulse Output Enable = No.*
Help: "Enter frequency output should be limited to (0 to 3500 Hz)."

Configuration 105 – Pulse Output Product

This parameter defines the type of pulse output. Selections are as follows:

- Combined
- Blend Stream
- Wild Stream

Note: *No entry if Pulse Output Enable = No.*
Help: "Select product(s) for pulse output."

Digital Input Subdirectory

The miniBlend.net has provisions for three (3) digital (ON/OFF) inputs.

```
        Digital Inputs

   1 DC              xxx
   2 DC              xxx
   3 DC              xxx
```

Configuration 201, 202, 203 – Digital Input Functions

These program codes define the function of each digital input. Except for general purpose inputs, duplicate assignments are not allowed. Must be at highest level of security to program or deprogram security input. Injector I/O assignment must match Injector type and digital output assigned for the injector. All Digital Inputs are DC type. Selections are as follows:

- NA
- Trans Permissive*
- Security
- Recipe Select 1*
- Recipe Select 2*
- Recipe Select 3*
- Remote Start
- Remote Stop
- Alarm Reset
- General Purpose Input

Reference Operations Manual (MNMB003) for details.

```
        201 1 DC

                        NA
NA
Trans Permissive
Security
Recipe Select 1
Recipe Select 2
Recipe Select 3
Remote Start
Remote Stop
Alarm Reset
General Purpose Input

PRINT=Help        more...
```

```
        202 2 DC

                        NA
NA
Trans Permissive
Security
Recipe Select 1
Recipe Select 2
Recipe Select 3
Remote Start
Remote Stop
Alarm Reset
General Purpose Input

PRINT=Help        more...
```

```
        203 3 DC

                        NA
NA
Trans Permissive
Security
Recipe Select 1
Recipe Select 2
Recipe Select 3
Remote Start
Remote Stop
Alarm Reset
General Purpose Input

PRINT=Help        more...
```

Digital Output Subdirectory

The miniBlend.net has provisions for six (6) digital (ON/OFF) outputs. Digital Outputs 1 and 2 are DC type. Digital Outputs 3 through 6 are AC type.

```
         Digital Outputs

    1 DC              xxx
    2 DC              xxx
    3 AC              xxx
    4 AC              xxx
    5 AC              xxx
    6 AC              xxx
```

Configuration 301-306 – Digital Output Functions

This program code defines the function of a digital output. If a valve is being configured, both upstream and downstream solenoids must be assigned. Except for general purpose outputs, duplicate assignments are not allowed. Metered Injector Solenoid is not available with Dual Channel.

Selections are as follows:
- NA
- Pump
- Upstream Solenoid
- Downstream Solenoid
- Alarm Relay #1
- Alarm Relay #2
- General Purpose Output
- Stop Relay
- Transaction Enabled

Critical: Output assignments must be unique [except for general purpose function].

Critical: Both upstream and downstream solenoids required.

Help: "CN5 11, 12 (Output #1); CN5 13, 14 (Output #2); CN7 6, 1 (Output #3); CN7 5,1 (Output #4); CN7 4, 1 (Output #5); CN7 3,1 (Output #6)."

```
┌─────────────────────────┐      ┌─────────────────────────┐
│      301 1 DC           │      │      302 2 DC           │
│                         │      │                         │
│                    NA   │      │                    NA   │
│ NA                      │      │ NA                      │
│ Pump                    │      │ Pump                    │
│ Upstream Solenoid       │      │ Upstream Solenoid       │
│ Downstream Solenoid     │      │ Downstream Solenoid     │
│ Alarm Relay 1           │      │ Alarm Relay 1           │
│ Alarm Relay 2           │      │ Alarm Relay 2           │
│ Gen Purpose Out         │      │ Gen Purpose Out         │
│ Stop Relay              │      │ Stop Relay              │
│ Transaction Enabled     │      │ Transaction Enabled     │
│                         │      │                         │
│ PRINT=Help    more...   │      │ PRINT=Help    more...   │
└─────────────────────────┘      └─────────────────────────┘
```

```
┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐  ┌──────────────────┐
│    303 3 AC      │  │    304 4 AC      │  │    305 5 AC      │  │    306 6 AC      │
│             NA   │  │             NA   │  │             NA   │  │             NA   │
│ NA               │  │ NA               │  │ NA               │  │ NA               │
│ Pump             │  │ Pump             │  │ Pump             │  │ Pump             │
│ Upstream Solenoid│  │ Upstream Solenoid│  │ Upstream Solenoid│  │ Upstream Solenoid│
│ Downstream Soleno│  │ Downstream Soleno│  │ Downstream Soleno│  │ Downstream Soleno│
│ Alarm Relay 1    │  │ Alarm Relay 1    │  │ Alarm Relay 1    │  │ Alarm Relay 1    │
│ Alarm Relay 2    │  │ Alarm Relay 2    │  │ Alarm Relay 2    │  │ Alarm Relay 2    │
│ Gen Purpose Out  │  │ Gen Purpose Out  │  │ Gen Purpose Out  │  │ Gen Purpose Out  │
│ Stop Relay       │  │ Stop Relay       │  │ Stop Relay       │  │ Stop Relay       │
│ Transaction Enabl│  │ Transaction Enabl│  │ Transaction Enabl│  │ Transaction Enabl│
│                  │  │                  │  │                  │  │                  │
│ PRINT=Help more..│  │ PRINT=Help more..│  │ PRINT=Help more..│  │ PRINT=Help more..│
└──────────────────┘  └──────────────────┘  └──────────────────┘  └──────────────────┘
```

Analog Input Subdirectory

The miniBlend.net includes two (2) analog inputs. Analog Input #1 is dedicated to a 100 ohm RTD temperature type sensor. Analog Input #2 is a 4-20mA current loop type. This input may represent temperature, density, or pressure.

```
┌─────────────────────────┐
│      Analog Inputs      │
│                         │
│ Analog #1 (RTD)         │
│ Analog #2 (4-20ma)      │
│                         │
│                         │
└─────────────────────────┘
```
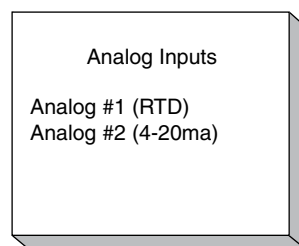
Configuration 401 – Analog Input #1 (RTD) Function

These program codes define the function of the Analog Input #1. Selections are as follows:

- NA
- Temperature Input – Blend Stream
- Temperature Input – Wild Stream

Critical: I/O assignment must be unique.

Help: "Select function for this analog input."

Configuration 402 – RTD Offset

This parameter is used to correct the reading of the RTD input by a fixed amount. The range of this program code is –9.9 to +9.9.

Note: *No-entry if Analog Input #1 = NA.*

Help: "Offset zeroes out RTD probe error."

Steps for enabling RTD input and Offset:

- From Analog Inputs subdirectory select "Analog #1 (RTD)"
- Select "Temp In", press ENTER
- Select "RTD Offset", press ENTER
- Enter Offset value, press ENTER

Analog #1 (RTD)
 	
Ana #1 Func   NA
	401 Analog #1 Func
	                          NA
	NA
	Temp In – Blend Str
	Temp In – Wild Str
	
	PRINT=Help
		Analog #1 (RTD)
		
		Ana #1 Func Temp In
		RTD Offset 0.00
			402 RTD Offset
			          >0.00
			
			Offset zeroes out RTD
			probe error.
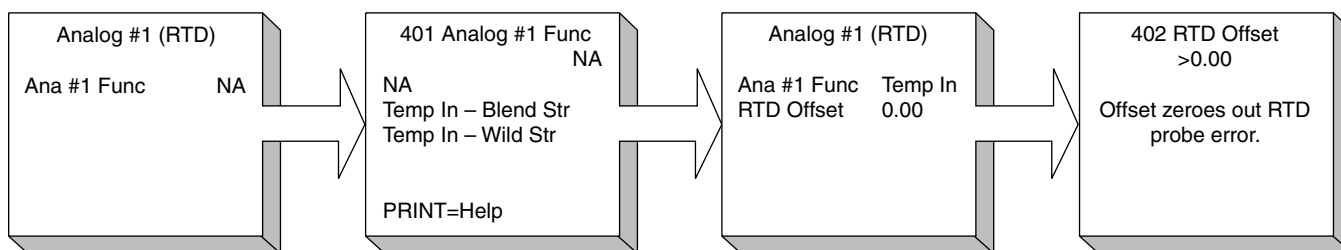
Configuration 411 – Analog Input #2 Function (4-20 mA)

These program codes define the function of the Analog Input #2. Selections are as follows:

- NA
- Temperature Input – Blend Stream
- Temperature Input – Wild Stream
- Density – Blend Stream
- Density – Wild Stream
- Pressure – Blend Stream
- Pressure – Wild Stream

Critical: I/O assignments must be unique.

Note: *No entry if analog Input #2 = NA.*

Help: "Select function for this analog input."

Configuration 412 – Analog Input #2 Low Value

This parameter is used to scale Analog Input #2 by providing the value proportional to 4 mA. The range of this program code is -999.99 to +9999.99.

Note: *No-entry if Analog Input #2 = NA.*

Help: "Enter value @ 4 mA."

Configuration 413 – Analog Input #2 High Value

This parameter is used to scale Analog Input #2 by providing the value proportional to 20 mA. The range of this program code is -999.99 to +9999.99.

Critical: Low value must be less than the High Value.

Note: No-entry if Analog Input #2 = NA.

Help: "Enter value @ 20mA."

The flowchart below shows the process of enabling and scaling Analog Input #2. This example assumes a 4-20 mA temperature signal as the input.

```
┌──────────────────────┐   ┌──────────────────────┐   ┌──────────────────────┐   ┌──────────────────────┐
│ Analog #2 (4-20ma)   │   │ 411 Ana #2 Func      │   │ Pressure – Blend Str │   │ Analog #2 (4-20ma)   │
│                      │   │                NA    │   │ Pressure – Wild Str  │   │                      │
│ Ana #2 Func      NA  │   │ NA                   │   │                      │   │ Ana #2 Func   Temp In│
│                      │   │ Temp In – Blend Str  │   │ PRINT = Help   more...│  │ Low Value       0.00 │
│                      │   │ Temp In – Wild Str   │   │                      │   │ High Value      0.00 │
│                      │   │ Density – Blend Str  │   │                      │   │                      │
│                      │   │ Density – Wild Str   │   │                      │   │                      │
│                      │   │ Pressure – Blend Str │   │                      │   │                      │
│                      │   │ Pressure – Wild Str  │   │                      │   │                      │
│                      │   │                      │   │                      │   │                      │
│                      │   │ PRINT = Help   more...│  │                      │   │                      │
└──────────────────────┘   └──────────────────────┘   └──────────────────────┘   └──────────────────────┘
```

```
┌──────────────────┐   ┌──────────────────┐
│ 412 Low Value    │   │ 413 High Value   │
│                  │   │                  │
│ >0000.00         │   │ >0000.00         │
│                  │   │                  │
│ Enter Value @    │   │ Enter Value      │
│ 4ma              │   │ @ 20ma           │
└──────────────────┘   └──────────────────┘
```
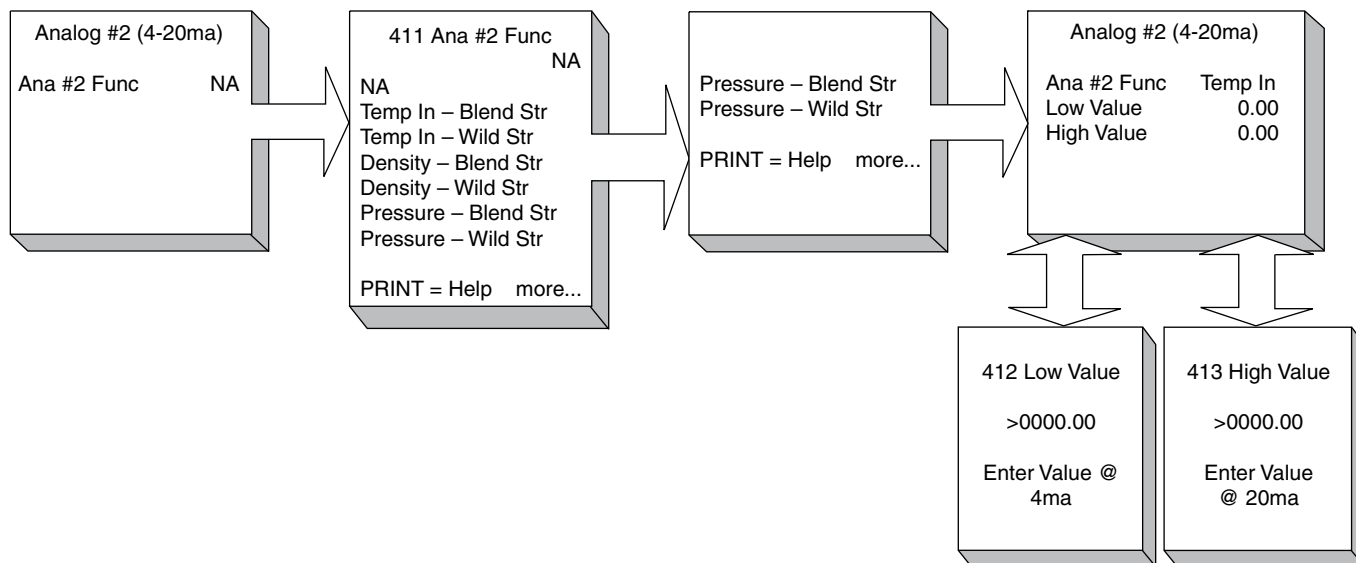
There are nine (9) General Purpose subdirectories.

```
┌─────────────────────┐        ┌─────────────────────┐
│  Gen Purpose Dir    │        │  Gen Purpose Dir    │
│                     │        │                     │
│  Date and Time      │        │  Pressure           │
│  Units              │        │  Alarm Limits       │
│  Display            │        │  Security           │
│  Timeouts           │        │                     │
│  Control            │        │                     │
│  Temp/Dens          │        │            more...  │
│            more...  │        │                     │
└─────────────────────┘        └─────────────────────┘
```
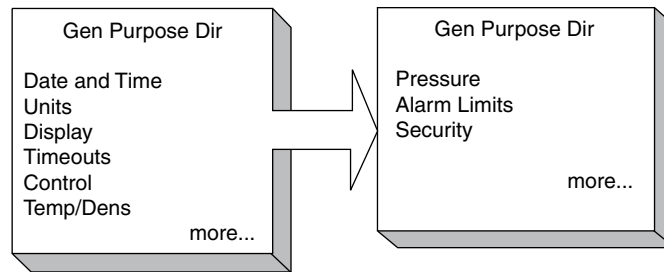
Date and Time Subdirectory

```
┌─────────────────────┐
│   Date and Time     │
│                     │
│  101 Date   xx/xx/xx│
│  102 Time   xx:xx:xx│
│                     │
│                     │
│                     │
└─────────────────────┘
```

General Purpose 101 – Date

This entry allows the operator to set the date on the miniBlend.net. 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.

Steps to changing miniBlend.net Date:

- Select "Month", press ENTER
- Enter value for month (1-12), press ENTER
- Select "Day", press ENTER
- Enter value for day of the month (1-31), press ENTER
- Select "Year", press ENTER
- Enter value for year (4 digit), press ENTER
- Select "Accept New Date", press ENTER

```
┌─────────────────────┐
│  101 Date   xx/xx/xx │
│                      │
│  Month        xx     │
│  Day          xx     │
│  Year         xxxx   │
│  Accept New Date     │
│                      │
└─────────────────────┘
```

General Purpose 102 – Time

A correction or change to the time can be made through this entry. The Time parameter allows for either an AM/PM format or the military (24 hour) format. 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
- Time Type
- Accept New Time

Fatal: Invalid time.

Steps to changing miniBlend.net Time:

- Select "Hours", press ENTER
- Enter value for hour (0-24), press ENTER
- Select "Min", press ENTER
- Enter value for minute (0-59), press ENTER
- Select "Time Type", press ENTER
- Select time designation (MIL, AM, PM), press ENTER
- Select "Accept New Time", press ENTER

102 Time	xx:xx:xx
Hours	xx
Min	xx
Time Type	xxxx
Accept New Time	

Time Type	xx
MIL	
AM	
PM	

Units Subdirectory

The parameters in this subdirectory establish the units of measure used by the miniBlend.net.

Units	
Flow Time	per xxx
Flow Descrip	xxx
Volume Units	xxx
Volume Descrip	xxx
Mass Units	xxx
Mass Descrip	xxx

General Purpose 111 – Flow Rate Time

This parameter is used to define the time units used to compute the flow rate. Selections are as follows:

- Per minute
- Per hour

Help: "Enter the time base for flow rate calculation and display."
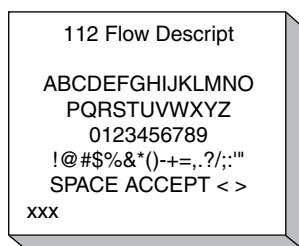
General Purpose 112 – Flow Rate Descriptor

This parameter allows a (3) three-character alphanumeric message to serve as the flow rate unit identifier (for example, GPM, LPM, BPH). The available characters are as follows:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
112 Flow Descript

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxx
```

General Purpose 113 – Volume Units

This parameter selects the volume units used to measure product delivery. The factory default is "Gallons." Selections are as follows:

- Gallons
- Barrels
- Dekaliters
- Liters
- Cubic Meters
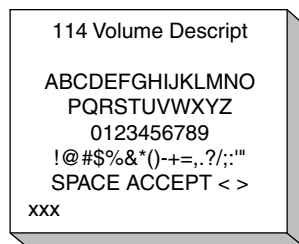
Help: "Select volume units. These are used to select proper conversion factors for calculations."

General Purpose 114 – Volume Descriptor

This parameter allows a (4) four-character alphanumeric message to serve as the volume unit identifier. The available characters are as follows:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
114 Volume Descript

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxx
```

General Purpose 115 – Mass Units

This parameter defines the mass units used for product measurement. The factory default is "Pounds." Selections are as follows:

- Lbs
- Kilograms
- US Tons
- Metric Tons
- Long Tons

Help: "Select mass units. These are used to select proper conversion factors for calculations."

General Purpose 116 – Mass Descriptor

This parameter allows a (4) four-character alphanumeric message to serve as the volume unit identifier. The available characters are as follows:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
116 Mass Descript

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxx
```
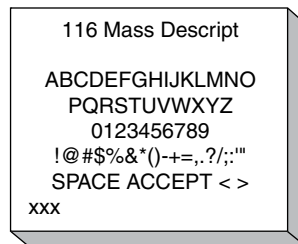
Display Subdirectory

This subdirectory sets the customizable attributes of the miniBlend.net display.

```
Display

Position ID Field...
Ready Msg          xxxxx
Run Screen         xxxxx
Resolution         xxxxx
Dec/Comma Select  x
Literals           xxxxx
```
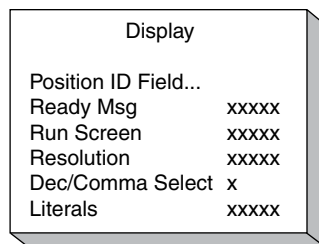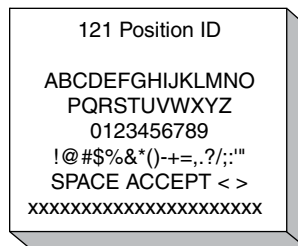
General Purpose 121 – Position ID

This parameter allows a (21) twenty one-character alphanumeric message to serve as the load position identifier. The available characters are as follows:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
121 Position ID

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxxxxxxxxxxxxxxxxxxxx
```
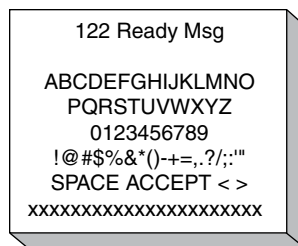
General Purpose 122 – Ready Message

This parameter allows a (21) twenty one-character alphanumeric message displayed on the Ready Screen for this load position. The available characters are as follows:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
122 Ready Msg

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxxxxxxxxxxxxxxxxxxxx
```

General Purpose 123 – Run Display Options

This parameter allows the selection of the format for information to be shown on the Delivery Screen. Selections are as follows:

- Default
- Configurable (configured using BlendMate)

Help: "Select Delivery Screen option (Default Display or user configurable display)."

General Purpose 124 – Display Resolution

This parameter selects the resolution for data shown on the Delivery Screen. Selections are as follows:

- Whole Units
- 10th
- 100th

Help: "Select resolution of volume to be displayed."

General Purpose 125 – Decimal/Comma

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 locations. The selected delimiter is used in the program mode and on run screens and dynamic displays local to miniBlend.net, in host communications, and on delivery reports. Selections are as follows:

- Decimal
- Comma

Help: "Select delimiter between whole and fractional numbers."

General Purpose 126 – Default/Translated Literals

This parameter allows the user to initialize all the displays used in the miniBlend.net to either the default (factory literals) or the translated literals. Translated literals are only available if the translation has been completed in the BlendMate and downloaded to the miniBlend.net. Selections are as follows:

- Default literals
- Translated literals

Note: If a translation has been entered on BlendMate and downloaded to the miniBlend.net, the new translation will not appear on the display until "translated literals" is selected here.

Help: "Select factory-programmed default literals or literals translated via BlendMate."

Timeouts Subdirectory

The Timeouts Subdirectory contains settings which control when the miniBlend.net automatically switches back to the Run or Ready Screens.

```
         Timeouts

Dynamic Display    xx
```
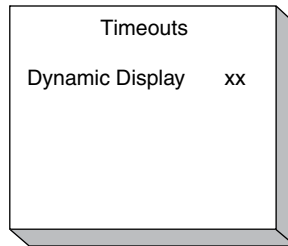
General Purpose 131 – Dynamic Display Timeout

This program code defines the amount of time, in seconds, that Dynamic Displays will remain before the miniBlend. net returns to the Run or Ready Screen. A "0" entry for this program code disables the Dynamic Displays. A "99" entry for this program code will cause the Dynamic Display to remain indefinitely, until the operator presses CLEAR. The range of this parameter is 0 to 99 seconds.

Help: "Time in seconds before exiting displays. "0" disables displays and "99" allows them to remain indefinitely."

Control Subdirectory

```
         Control                          Control

Recipes/Tran Multi...            Trans Reset Time...
Start Key Disable...             Trans Reset Hour     xxx
Stop Key Disable    xxx          Pulse In Type Vol...
Trans Start Comm...
Trans Term Comm...
Auto Preset     xxxxxx                           more...

                 more...
```
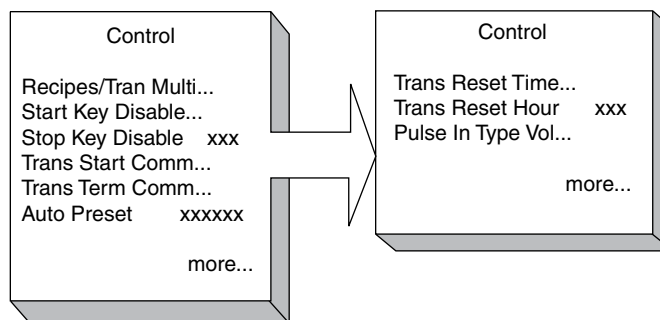
General Purpose 141 – Recipes per Transaction

This parameter allows the user to select between single and multiple recipe usage per transaction. Selections are as follows:

- • Single Recipe per Transaction
- • Multiple Recipes per Transaction

Help: "Select single or multiple recipes per transaction."

General Purpose 142 – Start Key Disabled

This program code enables/disables the local START key and remote start input. When the local START key is disabled, it will not function at the miniBlend.net. The only method for restarting a batch will be through the communication remote start command. Selections are as follows:

- • No (Enabled)
- • Yes (Disabled)

Note: *If the local START key is disabled at the miniBlend.net and communications is in "poll and program", the miniBlend.net will not be able to restart a transaction until the parameters are properly set.*
Note: *The "START Key Enabled" selection will not prohibit starting the batch via communications.*
Help: "If START key is disabled, and no communications control is defined, transactions cannot be started."

General Purpose 143 – Stop Key Disable

This program code enables/disables the local STOP key and remote stop input. When the local "STOP" key is disabled, it will not function at the miniBlend.net. The only method for stopping a batch will be through the communication remote stop command. Selections are as follows:

- No (Enabled)
- Yes (Disabled)

Note: If the local STOP key is disabled at the miniBlend.net and communications is in "poll and program", the miniBlend.net will not be able to stop a transaction until the parameters are properly set.
Note: The "STOP Key Enabled" selection will not prohibit starting via batch communications.

Critical: START key must be enabled.

Help: "Select if STOP key is used to stop flow on blend stream regardless of flow on wild stream."

General Purpose 144 – Transaction Start

This program code defines the primary method used to start a transaction.

- Communications or Trans Permissive
- Communications and Transaction Permissive

Critical: No comm port selected for communications control

Critical: No transaction permissive input configured

Help: "Select how a transaction will be started."

General Purpose 145 – Transaction Termination

This program code defines the primary method used to terminate a transaction. Communications can always be used to terminate a transaction if the miniBlend.net is programmed for Host Control operations.

- Communications or Trans Permissive
- Communications and Transaction Permissive

Critical: No comm port selected for communications control

Critical: No transaction permissive input configured

Help: "Select how a transaction will be terminated."

General Purpose 146 – Auto Preset

If a predetermined batch size is to be delivered, enter the batch amount to be loaded here (enter the total desired amount of both products). A value of zero indicates an unlimited preset quantity.

Range of this program code is 0 to 999999 units.

Help: "Enter the amount to be loaded during a transaction. Value or zero indicates unlimited preset."

General Purpose 147 – Transaction Reset Time

Enter the time interval in hours between automatically resetting the batch (end current batch/start new batch). A value of zero disables the timed batch reset feature.

This feature is only available with the auto-preset feature set for an unlimited preset quantity (i.e. program code General Purpose 146 – Auto Preset must be programmed to zero). This program code has a valid range from 0 to 999 hours.

Note: No-entry if Auto Preset = Greater than Zero.

Help: "Enter time interval in hours to automatically end and start a new transaction. Zero disables."

General Purpose 148 – Transaction Reset Start Hour

This program code determines at which hour the next Transaction Reset Time will occur.

If the Transaction Reset Time is programmed for a value other than a multiple of 24, reset events in the future (after the initial reset) may not correspond with the time entered here. This program code has a valid range from 0 to 23 (0 represents 12:00 AM, 23 represents 11:00 PM).

Help: "Enter hour of day in military time to start automatically ending and starting new transactions."

General Purpose 149 – Pulse In Type

This program code determines whether the pulse input represents a volume or a mass.

- Volume
- Mass

Help: "Select whether uncompensated meter pulse inputs represent volume or mass."

Note: If the wild stream pulse input is uncompensated it's assumed to be the same pulse in type as programmed above. If wild stream is pulse input type compensated then the wild stream pulse input represents the same as Blend Delivery Type.

Temperature/Density Subdirectory

This subdirectory contains temperature and density related parameters.

```
                    Temp/Dens

         Temp Units          xx
         Ref Temp            xxx
         Dens Units          xxx
```

General Purpose 161 – Temperature Units

This program code selects the temperature scale used by miniBlend.net. There are a number of features that are not available if no temperature units are selected, including temperature compensation (API Table), meter factor variation, and the calculation of vapor pressure. Selections are as follows:

- NA
- °F
- °C

Help: "Select temperature units."

General Purpose 162 – Reference Temperature

This parameter defines the reference temperature from which temperature corrections are made. This entry is in the temperature units defined elsewhere. Typical values for this entry are 60.0°F and 15.0°C. This program code has a valid range from 0.0 to 999.9.

Note: No-entry if Temperature Units = Not Used.

Help: "Used as a base for correction of liquid volume."

General Purpose 163 – Density Units

This parameter defines the density scale used for live density input and for volume to mass conversions. Selections are as follows:

- NA
- API
- Lb/ft^3
- kg/m^3

Help: "Select Density Units. These are used for a live density input and for mass calculation."

Pressure Subdirectory

General Purpose 171 – Pressure Units

This parameter defines the pressure units used by the miniBlend.net. Selections are as follows:

- NA
- psi
- Bar
- Kg/cm^3
- kPa

Help: "Select Units of pressure."

Alarm Limits Subdirectory

This subdirectory contains the leak and overrun alarm limit parameters.

General Purpose 181 – Leak Alarm Limit

Enter leakage amount allowed between transactions before an alarm will occur. This program code has a valid range from 0.0 to 999.9.

Note: Zero disables this feature.
Help: "Enter Leakage (volume or mass) based on pulse input type allowed between transactions."

General Purpose 182 – Overrun Alarm Limit

This program code determines the amount in excess of the preset quantity that can be delivered before generating an Overrun Alarm. If the miniBlend.net is configured for unlimited preset, this entry has no effect. This program code has a valid range from 0 to 999 units.

Note: No-entry if Auto Preset = 0.
Help: Enter number of units delivered over preset amount before alarm occurs.

Security Subdirectory

This subdirectory contains the security parameters for the miniBlend.net.

```
              Security

Lev 1 Access Code  xxxx
Lev 2 Access Code  xxxx
Lev 3 Access Code  xxxx
Diagnostic Sec Lev    x
Param Sec Lev         x
```

General Purpose 191 – Level 1 Access Code

4 digit numeric entry, range: 0 – 9999

Note: *No-entry if NOT at Highest Security Level.*
Help: "Enter access code for this security level. Level 3 is the highest level."

General Purpose 192 – Level 2 Access Code

4 digit numeric entry, range: 0 – 9999

Note: *No-entry if NOT at Highest Security Level.*
Help: "Enter access code for this security level. Level 3 is the highest level."

General Purpose 193 – Level 3 Access Code

4 digit numeric entry, range: 0 – 9999

Note: *No-entry if NOT at Highest Security Level.*
Help: "Enter access code for this security level. Level 3 is the highest level."

General Purpose 194 – Security Input Access Level

This parameter is used to associate a digital input assigned a security function with a defined level of security. This program code has a valid range from 0 to 3.

Critical: Access level not valid.

Note: *No-entry if no digital input is programmed.*
Note: *No-entry if NOT at Highest Security Level.*
Help: "Select security level (1-3) to be associated with this security input."

General Purpose 195 – Diagnostic Security Level

This parameter associates a security level with the Program Mode diagnostics. To access these diagnostics, Program Mode must be access with at least the level indicated in this parameter. This program code has a valid range from 1 to 3.

Note: *No-entry if NOT at Highest Security Level.*
Help: "Select security level (1-3) required to enter Diagnostics Directory."

General Purpose 196 – Parameter Security Level

This program code is used to select the security level to assign to all parameters. This program code has a valid range from 1 to 3.

Help: "Select security level to assign to ALL parameters."

Blend Control Subdirectory

This subdirectory contains the blending parameters to be set.

```
                          Blend Control

                    Blend Tol Pet      x.x
                    Blend Tol Amt      x.x
                    Blend Cor Amt      xx.x
                    Blend Cor Time     xxx
                    Blend Err Rst      xxxx
                    Blend Amt Type     xx
                    Clean Line Amt     x

                                       more...
```

Blend Control 201 – Blend Tolerance Percentage

This program code defines the percentage of total preset to be used as the blend tolerance. An alarm will be generated if the blend percentage at the end of the batch deviates from the desired percentage more than this value.

This parameter should be set to zero if changing recipes on the fly or if the Blend Error Reset parameter is not programmed for Transaction Start. In these situations, the Blend Tolerance Amount should be used. Using the Blend Tolerance Percentage requires that the recipe blend percent stay constant throughout the batch. It also expects that the Blend Error is cleared at the start of a batch only. This program code has a valid range from 0.0 to 9.9.

Help: "Enter the percentage of total preset to be used as the blend tolerance."

Blend Control 202 – Blend Tolerance Amount

This program code determines the amount (mass or volume) which is used to maintain the limit for an out-of-tolerance blend. If this amount exceeds a Blend High or Blend Low, an alarm will be issued. This program code has a valid range from 0.0 to 99.9.

Help: "Enter the amount (mass or volume) based on Blend Amount Type to be used as the blend tolerance."

Blend Control 203 – Blend Correction Amount

This program code specifies the amount of error allowed before an adjustment is made to the blend stream flow rate. It provides a hysteresis band to avoid constantly adjusting the control valve for the blend stream. This program code has a valid range from 0 to 999.99.

Help: "Enter the amount of error in blend volume or mass units allowed before attempting blend correction."

Blend Control 204 – Blend Correction Time

This program code determines how aggressively the miniBlend attempts to get the blend back to the desired ratio once the error has exceeded the Blend Correct Amount. The new blend stream flow rate will be increased/decreased to recover from the amount of error within the time programmed here. This program code has a valid range from 0 to 999

Help: "Enter the amount of time in seconds to attempt to correct blend error within."

Blend Control 205 – Blend Error Reset

This program code determines if accumulated blend error gets reset to zero in specific circumstances. For example,

if the operation is continuous (i.e. not blending product batches into a tank) recovering from a period where the blend was short for some reason by over-blending may just result in more bad loads. In this case, it is probably more sensible to reset the error amount by clearing the alarm. Selections are as follows:

- Transaction Start
- Blend Alarm Clear
- Trans Start and Blend Alarm Clear
- Never Reset

Help: "Select when the current blend should be reset."

Blend Control 206 – Blend Amount Type

This program code selects which of the amounts calculated is used to determine the blend ratio. Selections are as follows:

- IV
- GV
- GST
- GSV
- Mass

Critical: Selected units not available.

Help: "Select volume type or mass required for blending."

Blend Control 207 – Clean Line Amount

This program code specifies the amount of wild stream product that is delivered free of blend stream product at the end of the delivery, with the result that the product left in the line downstream of the meter is all wild stream product. This value can only be non-zero if the Auto-Preset value is non-zero, and it must be less than the Auto-Preset amount. This program code has a valid range from 0 to 999.

Critical: Auto Preset amount must be greater than zero.

Critical: Amount entered must be less than Auto Preset.

Note: No-entry if Auto Preset = 0.

Help: "Enter the amount of wild stream product to remain blend free when the transaction ends."

Alarm Limits Subdirectory

Blend Control 221 – Blend Alarm Timer

This program code prevents nuisance blend tolerance alarms by requiring that the blend be out of tolerance for at least this period of time before blend alarms are triggered. This program code has a valid range from 0 to 999.

Help: "Enter time in seconds. A blend tolerance error can exist before setting alarm. Zero disables alarm."

Blend Control 222 – Blend Alarm Minimum Amount

This program code prevents nuisance blend tolerance alarms by requiring that at least this much product is delivered before blend alarms are triggered, hence allowing time for the system to react, open the valve, and adjust the rates so the blend is accurate. This program code has a valid range from 0 to 9999.

Help: "Enter the minimum amount to be delivered before blend tolerance alarm will be checked."

Blend Control 223 – Clean Line Alarm Limit

This program code specifies a tolerance for under-run of the clean line volume. The miniBlend.net will attempt to shut the blend product down so that the remaining product to be delivered to complete the batch is exactly the amount configured in the Clean Line Amount. This program code allows for some error before alarming. This program code has a valid range from 0 to 999 units.

Help: "Set tolerance allowed for under-run of clean line delivery."

Example Program Configuration

Below is an example of a possible miniBlend.net configuration. In this example parameter (General Purpose Dir 145) is programmed to zero indicating the miniBlend.net is in an unlimited delivery mode.

The miniBlend.net monitors the blend in process once a second. If the delivered amount of the blend product is off by more than 3 gallons (Blend Control Dir 203), the flow for the product will be adjusted to correct the blend within the next 10 seconds (Blend Control Dir 204).

The blend will also be monitored for alarm conditions. If the delivered amount of the blend product is off by more than 5 gallons (Blend Control Dir 202) for 15 seconds (Blend Control Dir 221), a blend low or a blend high alarm will be set. Blend alarms will be ignored for the first 200 gallons (Blend Control Dir 222) at the start of a transaction, after any re-start of a transaction or after any "on the fly" recipe changes.

When controlling the flow rate, the miniBlend.net will allow the flow rate to vary by 7.0% (Blend Stream Meter Dir 201) without making a valve adjustment. If a blend correction is made, a tighter flow tolerance of 4% (Blend Stream Meter Dir 203) will be used for 5 seconds (Blend Stream Meter Dir 204).

General Purpose Dir
145 Auto Preset = 0

Blend Control Dir
202 Blend Tolerance Amount = 5.0 gal
203 Blend Correction Amount = 3.0 gal
204 Blend Correction Time = 10 sec
221 Blend Alarm Timer = 15 sec
222 Blend Alarm Min Amt = 200 gal

Blend Stream Meter
201 Flow Tolerance = 7%
203 Flow Adj Tol = 4%
204 Flow Adjust Time = 5 sec
205 Min Flow Rate = set according to meter
209 High Flow Rate = set according to meter

Delays Subdirectory

```
        Delays

Valve Delay Open      x
StartStop Delay       x
Pump Delay            x
Pump Control
```

Blend Control 231 – Valve Delay to Open

This program code defines the amount of time, in seconds, before the valve will be commanded to open after the pump relay is closed. This allows the pump to pressurize the line, providing for better valve response. The range of this parameter is 0 to 99 seconds. The factory default is 0.

Help: "Enter time delay in seconds to open valve after start."

Blend Control 232 – Start After Stop Delay

This parameter defines the amount of time, in seconds, before miniBlend.net will allow flow to be restarted after flow was stopped during a batch. The range of this three-digit numeric entry is 0 to 999 seconds. The factory default is 0.

Help: "Enter time in seconds to delay a start after stop in mid-load."

Blend Control 233 – Pump Delay to Off

This two-digit entry allows the operator to select a pump relay delay to off time in seconds. At any time during a normal or operator-requested stop, the pump relay will be delayed by the programmed value in seconds before turning off. This delay will be overridden in an alarm condition (i.e., no delay to off). The range of this entry will be 0 to 99 seconds delay to off.

Note: *No entry if no digital output configured as pump.*

Help: "Enter delay time in seconds to open the pump relay contact after stop."

Blend Control 234 – Pump Start

This parameter is used to determine how the Pump Start can be controlled. If the "Pump Start" is programmed for "Transaction Enabled" the pump for the blend stream will turn on as soon as the transaction is enabled regardless of the wildstream flow rate.

If the parameter is set to "Transaction Enabled and Wild Stream flow" the pump turns on when the transaction is enabled and when the wild stream flow rate is greater than 50% of the minimum flow rate programmed for the blend stream product (205 minimum flow rate).

The options for this parameter are:

- Transaction Enabled
- Transaction Enabled and Wild Stream flow

Help: "Define when the blend stream pump should turn on."

Prove Control Subdirectory

```
      Prove Control

Lo Flow St Rate     ...
Lo Flow St Amt      x.x
Auto Prove          xxxx
```

Blend Control 251 – Low Flow Start Rate

This program code defines the starting rate for the low flow. This program code has a valid range from 0 to 9999.9 units.

Help: "Enter the flow rate during low flow start operation, mass or volume based on pulse input type for proving."

Blend Control 252 – Low Flow Start Amount

This program code defines the amount of product to be delivered during low flow start. This program code has a valid range from 0 to 9999.9 units.

Help: "Enter amount for delivery during low flow start, mass or volume based on blend type for proving."

Blend Control 253 – Auto Prove

This program code defines the security level required for automatic proving. Selections are as follows:

- Disabled
- No Security
- Security In

Help: "Select security level required for auto proving or disable auto proving."

The Blend Stream Meter Directory has five subdirectories:

- General Purpose
- Flow Control
- Volume Accuracy
- Temperature/Density
- Pressure

General Purpose Subdirectory

```
        Gen Purpose

Product ID      xxxxx
HM Class 1      xxxxxx
HM Class 2      xxxxxx
HM Class 3      xxxxxx
HM Class 4      xxxxxx
```

Blend Stream 101 – Product ID

This program code specifies the name of the product, is used in miniBlend.net menus, and on batch reports.

```
         101 Product ID

    ABCEDFEFGHIJKLNOPQRS
     TUVWXYZ0123456789!@
        #$%&*( )-+=,.?/;:'"
       SPACE ACCEPT < >

     x x x x x
```
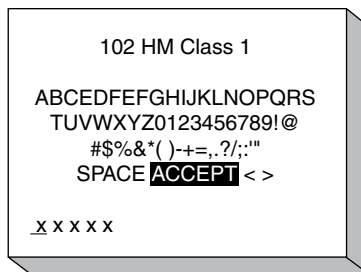
9 character alphanumeric entry

Help: "Enter an alphanumeric ID to describe the product."

Blend Stream 102 – Hazardous Material Classification Part 1

This program code forms an 80-character message that can be used on the batch report for the delivered recipe.

```
        102 HM Class 1

   ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
      #$%&*( )-+=,.?/;:'"
    SPACE  ACCEPT  < >

    x x x x x
```
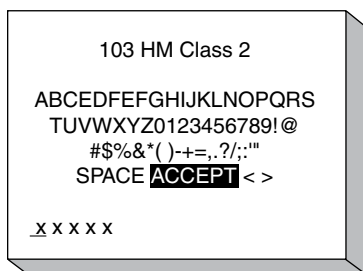
Help: "Enter characters 1-20 of the hazardous materials classification."

Blend Stream 103 – Hazardous Material Classification Part 2

This programmed code forms an 80-character message that can be used on the batch report for the delivered recipe.

```
        103 HM Class 2

   ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
      #$%&*( )-+=,.?/;:'"
    SPACE  ACCEPT  < >

    x x x x x
```
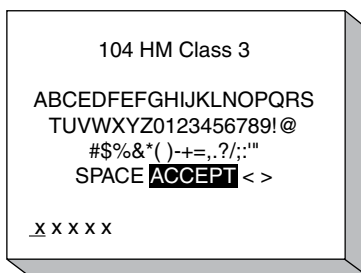
Help: "Enter characters 21-40 of the hazardous materials classification."

Blend Stream 104 – Hazardous Material Classification Part 3

This programmed code forms an 80-character message that can be used on the batch report for the delivered recipe.

```
        104 HM Class 3

   ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
      #$%&*( )-+=,.?/;:'"
    SPACE  ACCEPT  < >

    x x x x x
```
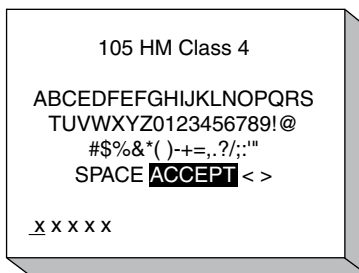
Help: "Enter characters 41-60 of the hazardous materials classification."

Blend Stream 105 – Hazardous Material Classification Part 4
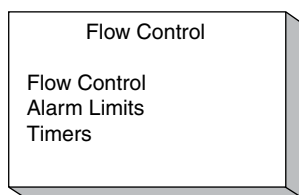
```
105 HM Class 4

ABCEDFEFGHIJKLNOPQRS
TUVWXYZ0123456789!@
#$%&*( )-+=,.?/;:'"
SPACE ACCEPT < >

 x x x x x
```

Help: "Enter characters 61-80 of the hazardous materials classification."
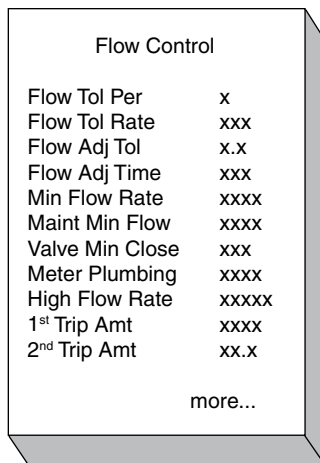
Flow Control Subdirectory

```
Flow Control

Flow Control
Alarm Limits
Timers
```

Flow Control (Blend Stream Only)

```
Flow Control

Flow Tol Per        x
Flow Tol Rate       xxx
Flow Adj Tol        x.x
Flow Adj Time       xxx
Min Flow Rate       xxxx
Maint Min Flow      xxxx
Valve Min Close     xxx
Meter Plumbing      xxxx
High Flow Rate      xxxxx
1st Trip Amt        xxxx
2nd Trip Amt        xx.x

                    more...
```

Blend Stream 201 – Flow Tolerance Percentage

This parameter designates the percentage of the currently requested flow rate may vary before the miniBlend.net issues a valve correction signal. This entry works in tandem with Blend Stream 202 to maintain flow within a desired range. This program code has a valid range from 0 to 9.

Help: "Enter desired flow rate tolerance as a percentage of the current flow rate."

Blend Stream 202 – Flow Tolerance Rate

This parameter defines the flow rate, in units per time measure, that the flow rate may vary from the currently requested flow rate before the miniBlend.net issues a valve correction signal. This entry works in tandem with Blend Stream 201 to maintain flow within a desired range. This program code has a valid range from 0 to 999.

Help: "Enter a desired flow rate tolerance in units per time (GPM, BPH, etc.), mass or volume based on pulse input type."

Note: *When both Blend Stream 201 and Blend Stream 202 are programmed, the larger of the two parameters will be used.*

Blend Stream 203 – Flow Adjust Tolerance

This program code specifies the tolerance used during the period when the miniBlend.net has determined a correction to the flow rate is required and is adjusting the rate. This is made available to assure the adjustment is accurate. This program code has a valid range from 0.0 to 9.9.

Help: "Enter the flow rate tolerance (percent) to be used when making flow rate adjustments."

Note: Once Blend Stream 204 expires, tolerance will revert to the parameter Blend Stream 201 or Blend Stream 202 until the next flow rate adjustment is required.

Blend Stream 204 – Flow Adjust Time

This program code determines how long the miniBlend.net uses the more stringent blend tolerance configured in Blend Stream 203 once a valve adjustment is initiated to correct for blend error. This program code has a valid range from 0 to 99.9 seconds.

Help: "Enter the time duration in seconds for the flow rate adjustment tolerance to be in effect."

Blend Stream 205 – Min Flow Rate

This program code defines the lowest flow rate for the product. This program code has a valid range from 0 to 9999 units per time measure.

Help: "Enter the minimum flow rate for flow control valve operation, mass or volume based on pulse input type."

Blend Stream 206 – Maintain Minimum Flow

This program code determines whether flow continues at the minimum flow rate when maintaining the blend percentage. This parameter requires the blend stream product rate be reduced below the rate configured in Blend Stream 205. The miniBlend.net will not permit flow below that minimum rate, but it will close the valve periodically to maintain the desired blend ratio if permitted to do so by the entry configured here. Selections are as follows:

- Maintain Min Rate
- Allow Valve to Close

Help: "Select whether blend stream may be closed during the transaction if required to maintain desired blend stream."

Blend Stream 207 – Valve Minimum Close Time

This program code defines the minimum time to keep the valve closed if the miniBlend.net has closed the valve to maintain the desired blend ratio. This program code has a valid range from 0 to 999 seconds.

Help: "If blend stream valve is closed to maintain blend, valve will be opened no sooner than the number of seconds entered."

Note: Valve Minimum Close Time is only available if Blend Stream 206 is programmed to allow the valve to close.

Blend Stream 208 – Meter Plumbing

This program code determines how the product totals are calculated. Select 'Ratio' if the meters are plumbed in parallel into a common header. Select 'Side Stream' if the blend stream product is plumbed upstream of the wild stream meter.

If 'Ratio' is selected, product totals match the individual meter totals, and the batch totals are the sum of the product totals. If 'Side Stream' is selected, the batch total matches the wild stream meter total, and the side stream product total matches the blend stream meter. The wild stream product total is the difference of the wild stream meter and the blend stream meter. Selections are as follows:

- Ratio
- Side Stream

Help: "Define blend stream plumbing as upstream (side stream) or downstream (ratio) of the wild stream meter."

Blend Stream 209 – High Flow Rate

This parameter defines the desired high flow rate to be used during normal operations. This program code has a valid range from 0 to 99999 units per time measure.

Help: "Enter the maximum flow rate for digital valve control operation. A zero entry will not allow the valve to open."

Blend Stream 210 – First Trip Amount

This parameter indicates the amount remaining to be delivered at which flow slow-down begins. This program code has a valid range from 0 to 9999 units.

Help: "Enter the preset amount remaining before ramp down begins."

Blend Stream 211 – Second Trip Amount

This parameter defines the amount at which staged ramp-down concludes and the valve is commanded to close. This program code has a valid range from 0.0 to 999.9 units.

Help: "Enter the preset amount remaining before valve closure occurs."

Alarm Limits Subdirectory

```
        Alarm Limits

Excess Hi Flow      ...
Low Flow Alarm      xxx
Overrun Limit       xxx
```

Blend Stream 221 – Excess High Flow Rate

This program code defines the highest flow rate at which miniBlend.net can operate while a transaction is in progress before a high flow alarm is generated. This program code has a valid range from 0 to 99999 units.

Note: Zero disables this feature.

Help: "Enter the highest flow rate allowed without alarming, mass or volume based on pulse input type while a transaction is in progress."

Blend Stream 222 – Low Flow Rate Alarm Limit

This program code defines the lowest rate at which the miniBlend.net can operate before a low flow alarm is generated. This program code has a valid range from 0 to 999 units.

Note: Zero disables this feature.

Help: "Enter the minimum flow rate allowed without a low flow alarm, mass or volume based on pulse input type while a transaction is in progress."

Blend Stream – 223 Overrun Alarm Limit

This program code determines the amount of product overrun beyond this desired batch for the specific product before an alarm is generated. This program code has a valid range from 0 to 999 units.

Note: No entry if Auto Preset - 0 .

Help: "Enter the number of units delivered over product amount before alarm occurs."

Timers Subdirectory

```
        Delay/Timers

Hi Flow Alrm Time        xx
Lo Flow Alrm Time        xx
Zero Flow Alrm Time      xx
Valve Fault Time         xx
```

Blend Stream 231 – High Flow Alarm Timeout

This program code determines how long the Excess High Flow Rate can be exceeded before an alarm is generated. This program code has a valid range from 0 to 99 seconds.

Help: "Enter time in seconds to allow flow rate to exceed value programmed in Excess High Flow."

Blend Stream 232 – Low Flow Alarm Timeout

This program code determines how long the flow rate must remain below the Low Flow Rate Alarm Limit before an alarm is generated. This program code has a valid range from 0 to 9 seconds.

Help: "Enter time in seconds to allow flow rate to be less than value programmed in Low Flow Rate Alarm."

Blend Stream 233 – Zero Flow Timer

This parameter defines the amount of time that the miniBlend.net will ignore a zero flow condition before commanding the valve to close. Once this occurs, the miniBlend.net will require a start command before the batch in progress can be continued. This program code has a valid range from 0 to 99 seconds.

Note: Zero disables this feature.

Help: "Enter time in seconds. Zero flow is ignored before valve closure while a transaction is in progress."

Blend Stream 234 – Valve Fault Timeout

This program code defines the time, in seconds, that the miniBlend.net will tolerate flow after a valve close command is issued. If flow persists beyond this time, a Valve Fault alarm occurs. This program code has a valid range from 0 to 99 seconds.

Note: Zero disables this feature.

Help: "Enter time in seconds to ignore flow when valve has been commanded to close. Zero disables this feature."

Volume/Accuracy Subdirectory
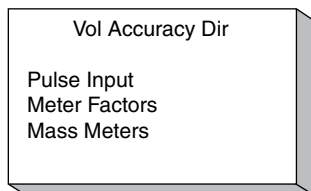
```
Vol Accuracy Dir

Pulse Input
Meter Factors
Mass Meters
```

Pulse Input Subdirectory

The Pulse Input Subdirectory contains program codes used in characterizing meter pulse inputs to the miniBlend.net.

```
Pulse Input

K Factor          xxx.xxx
Pulse Samples   x
Pulse Multiplier  xxx
```
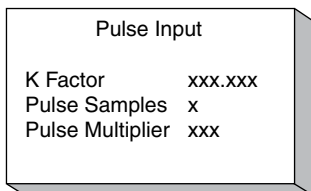
Blend Stream 301 – K Factor

This seven-digit numeric entry defines the nominal number of pulses comprising one unit of volume registration. The range of this entry is 0000.001 to 9999.999.

Critical: Security level for parameter must be at top 2 levels.

Fatal: Entry must not be zero.

Help: "Enter the number of pulses required for one unit of registration, mass or vol based on pulse input type."

Blend Stream 302 – Pulse Period Sample Count

This two-digit entry determines the length of time in 0.1 second increments over which the frequency of the meter pulses is averaged to provide flow rate smoothing. This parameter is intended for meters that produce a varying frequency pulse output when the flow is steady. The range of this two digit entry is 0-20.

Help: "Enter number of 1/10th second samples over which the pulse input periods are averaged."

Meter Factors Subdirectory

```
                     Meter Factors
            Mtr Factor            xxxxx
            Flow Rate 1           xxx
            Mtr Factor 2          xxxxx
            Flow Rate 2           xxx
            Mtr Factor 3          xxxxx
            Flow Rate 3           xxx
            Mtr Factor 4          xxxxx
            Flow Rate 4           xxx
            Master Mtr Fact       xxxxx
            Linear Factor Dev     xxxxx
```

Blend Stream 311 – Meter Factor 1
Blend Stream 313 – Meter Factor 2
Blend Stream 315 – Meter Factor 3
Blend Stream 317 – Meter Factor 4

These program codes and the associated flow rates below allow the entry of the meter factor curve. The miniBlend.net will perform linearization to calculate meter factors between the entered flow rates.

If only a single meter factor is used, it must be put into program code 311. The flow rate selected in program code 312 or 314 must be set to "0". Under these conditions any other meter factors programmed will be ignored. The range of these six-digit numeric entries is 0 to 9.99999.

Note: A zero entry in meter factor 1 will be considered an invalid entry. Zero entries in the remaining factors will result in that factor and subsequent factors that are not being used. (e.g., if a zero entry is made for factor 2, factors 3 and 4 will not be used.)

Fatal: Entry must not be zero [311 only].

Critical: Factor varies more than the Linearized Factor Deviation.

Critical: Meter factors must be within 2% of the master meter factor.

Help: "Meter factor = (actual volume x current factor x K factor)/input pulses."

Blend Stream 312 – Flow Rate 1
Blend Stream 314 – Flow Rate 2
Blend Stream 316 – Flow Rate 3
Blend Stream 318 – Flow Rate 4

These five-digit entries are the flow rates at which the meter factors (codes 311, 313, 315, 317) are defined beginning with the highest flow rate in program code 312 and descending to the lowest flow rate in program code 318. If only one meter factor is used, program code 312 or 314 must be set at "0". The range of these entries is 0 to 99999 flow units.

Critical: Flow rates must be entered in descending order.

Critical: Corresponding meter factor not programmed.

Help: "Enter the flow rate corresponding to the meter factor, mass or vol based on pulse input type."

Blend Stream 319 – Master Meter Factor

This program code allows the operator to set a master meter factor. This six-digit entry will be used to restrict meter factors one through four (codes 311, 313, 315 and 317), to plus or minus 2% of the master factor (i.e., the

value entered here). This range restriction applies only to meter factors which are programmed for use (i.e., meter factor one always and, if linearizing, all the factors used). Any attempt to enter a meter factor outside the 2% range, if installed, will cause a Critical Warning.

In addition, a master factor entry that causes the current meter factors installed to be out of range will cause those meter factors which are out of range to prompt a Critical Message. This critical condition must be corrected so that all used meter factors are within the 2% range of the master factor before normal Run Mode operations can occur. The range of this entry is 0 to 9.99999.

Critical: Meter factor must be within 2% of the master meter factor.

Note: *Zero disables this feature.*

Help: "Restricts programmed meter factors to + or –2% of this master factor."

Blend Stream 320 – Linearized Factor Deviation

This code allows the operator to set a maximum deviation between adjacent meter factors. This three-digit entry will be used to restrict deviation between the adjacent meter factors in use to plus or minus the entered percentage (i.e., the value entered here). Any attempt to enter a meter factor outside the entered range will cause a Critical Warning.

A linearized factor deviation entry that results in the current meter factors installed to be out of range will set a program code alarm. The meter factors that are out of range will be indicated by a DA alarm. The meter factors at fault must be corrected so they are within range of the deviation entry before normal Run Mode operations can occur. The value of the linearized factor deviation may range from 0 to 9.99%.

Critical: Meter factor varies more than the Linearized Factor Deviation.

Note: *Zero disables this feature.*

Help: "Set the maximum deviation in percent allowed between adjacent meter factors."

Mass Meter Subdirectory


```
              Mass Meter
Type                    xx
Sequence #              x
```

Blend Stream 331 – Mass Meter Type

This parameter allows the operator to select the mass meter used by the meter. The factory default is "NA." Selections are as follows:

- NA
- Promass

The mass meter is used to obtain meter status and density through communications. If a Promass meter is selected the Mass Meter Subdirectory is expanded to include mass meter data.

Help: "Select the type of mass meter."


```
              Mass Meter
Type                    xx
Sequence #              x
```

Blend Stream 332 – Mass Meter Sequence Number

This entry allows the operator to enter the specific address assigned to a mass meter connected to the miniBlend. net. The range of this entry is from 0 to 99999.

Help: "Enter the address of the E+H Promass Meter."

Temperature/Density Directory

```
Temp/Dens Dir

Temperature
Density
```

Temperature Subdirectory

```
Temperature

Maint Temp        xx.x
Hi Temp Alarm     xxx
Lo Temp Alarm     xxx
```
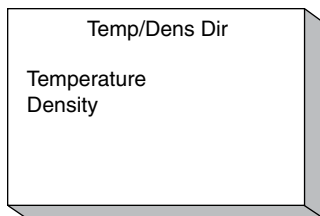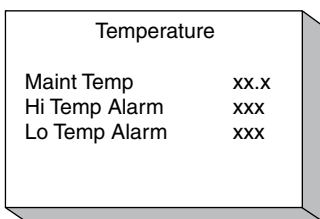
Blend Stream 401 – Maintenance Temperature

This parameter is a maintenance temperature value used when a temperature probe is not installed or not working but temperature related calculations are desired. If the maintenance temperature is set to anything EXCEPT –999.9, the maintenance temperature will override any other temperature from the RTD or from the mass meter. This program code has a valid range from –999.9 to +999.9.

Note: No entry if Temperature Units = Not Used.
Note: An entry of -999.9 disables this feature.
Help: "Select maintenance temperature if temperature probe is not installed or to override probe."

Blend Stream 402 – High Temperature Alarm Limit

This code allows the entry of a temperature reading that will cause a high temperature alarm to be generated. The temperature units will be dependent on the entry made in the Temperature Units Select code. This four-digit entry has a range of –999.9 to +999.9 degrees F or C.

Note: No entry if Temperature Units = Not Used.
Note: An entry of "+999" will disable the alarm.
Help: "Enter temperature that will cause an alarm for high temperature."

Blend Stream 403 – Low Temperature Alarm Limit

This code allows the entry of a temperature reading that will cause a low temperature alarm to be generated. The temperature units will be dependent on the entry made in the Temperature Units Select code. This four-digit entry has a range of –999.9 to +999.9 degrees F or C.

Note: No entry if Temperature Units = Not Used.
Note: An entry of "-999" will disable the alarm.
Help: "Enter temperature that will cause an alarm for low temperature."

Blend Stream 404 – Shared Temp In

This entry determines if it is desired to share the opposite meter's temperature probe. Options are:

• Not Shared
• Blend Stream
• Wild Stream

Density Subdirectory

```
                    Density

        API Table           xx
        API                 xx.x
        Hi Dens Alarm       xxxxx
        Lo Dens Alarm       xxxxx
        Ref Dens Temp       ..
```

Blend Stream 405 – API Table

This entry selects the API Table and product to be selected. Selections are as follows:

- Not used
- 5A
- 5B
- 5D
- 6
- 6A
- 6B
- 6C
- 6D
- 23
- 23A
- 23B
- 23D
- 23E
- 24
- 24A
- 24B
- 24D
- 24E
- 53
- 53A
- 53B
- 53D
- 54
- 54A
- 54B
- 54C
- 54D
- BR1A
- BR1P
- BR2P
- 59A
- 59B
- 59D
- 60A
- 60B
- 60D
- 53E

- 54E
- 59E
- 60E
- Eth (EPA - RFS2)
- B100 (EPA - RFS2)

Critical: API table conflicts with temperature units.

Critical: No density input configured [odd tables only].

Note: No entry if Temperature Units = Not Used.

Help: "Select the API table to be used for temperature compensation."

Note: Tables BR1A, BR1P, and BR2P are Brazilian tables.
Tables 59A, 59B, 59D, 60A, 60B, and 60D are ISO 91-2 correction tables.

Blend Stream 406 – Reference Density

This code has a constant five-digit entry with a floating decimal point. The format is based on table and product selection. The program code format and data entry allows the programmable entry of the Reference Density when Table 54 is selected, Relative Density when Table 24 is selected, API when Table 6 is selected, and temperature coefficient when a C Table is selected. This entry represents the reference value used to calculate the volume correction factor. The range of this value will vary with the table selection chosen.

Note: When Table 6 is selected, the leading digit will be used to show polarity, + = positive and a - = negative.
Entry range is based on table selection.

Table 6	-999.9 to +999.9 API
Table 24	0 to 9.9999 Relative Density
Table 54	0 to 9999.9 Reference Density
C Tables	0 to 0.9999 Percent per Degree Temperature

Note: If the API table selection is changed, the previous five-digit entry for reference will not be converted. This value must be re-entered.
The following are examples of the display when Tables 24, 54 or 6C and 54C are selected:

Table 6B selected: +43.2 API

Table 24 selected: 0.8175 Rel Density

Table 54 selected: 1150.2 Kg/M3

Table 6C or 54C selected: 0.0800 %/Deg. F or Deg. C

Fatal: Entry is out of specified range.

Note: No entry if Density Units = Not Used.
Note: No entry if API table is odd.

Help: "Enter the product density at reference temperature or the temperature coefficient (for C tables)."

Blend Stream 407 – High Density Alarm Limit

This code allows the entry of a density reading that will cause a high-density alarm to be generated. The units will be dependent on the entry made in the Density Units Select code. This four-digit entry will be dependent on the API table selection as follows:

–999.9 to +999.9 API

0 to 9999.0 Reference Density

Note: No entry if Density Units = Not Used.
Help: "Enter density that will signal an alarm for high product density."

Blend Stream 408 – Low Density Alarm Limit

This code allows the entry of a density reading that will cause a low-density alarm to be generated. The units will be dependent on the entry made in the Density Units Select code. This five-digit entry will be dependent on the API table selection as follows:

–999.9 to +999.9 API

0 to 9999.0 Reference Density

Note: No entry if Density Units = Not Used.
Help: "Enter density that will signal an alarm for low product density."

Blend Stream 409 – Reference Density's Temperature

This program code allows specifying the reference density's base temperature. If zero is entered, it is assumed that the reference density's base temperature is the same as the programmed reference temperature (Blend Stream 402). This parameter is applicable for even API 2004 tables, old 1952 even tables (6, 24, and 54), PTB ethanol (gasoline mixtures and aromatic hydrocarbon products. This program code has a valid range from 0.0 to 999.9.

Note: No entry if Density Units = Not Used.
Help: "Enter base temperature for reference density. If 0, parameter #162 Ref Temp is used."

Blend Stream 410 – Reference Density for 'C' Type Tables

When a C Table is used, the reference density parameter #413 is used to enter the coefficient of thermal expansion. This program code is used to calculate mass when using a C Table. This special density allows C Tables to have a reference density which enables mass to be computed when live density is not available. This program code has a valid range from -9999.9 to +9999.9.

Help: "Enter reference density used to calculate mass when using a C Table. Enter in units per parameter #163."

Blend Stream 411 – Share Density In

This entry determines if it is desired to share the opposite meter's density probe. Selections are as follows:

- Not Shared
- Blend Stream
- Wild Stream

Help: "Select if it is desired to share the opposite meter's density probe."

Pressure

```
┌─────────────────────────┐
│   Pressure Dir          │
│                         │
│   General Purpose       │
│   Back Pressure         │
│   Vapor Pressure        │
│                         │
│                         │
└─────────────────────────┘
```
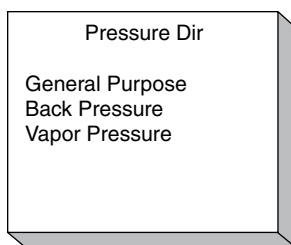
General Purpose Subdirectory

The subdirectory is used to provide general information regarding the setup of the miniBlend.net for pressure aspects. If "Pressure Units" program code is set to "NA", the remaining codes in this subdirectory will not be available.

```
            General Purpose

    Maint Pres         xxx
    Pres Coeff         xxx
    Hi Pres Alarm      xx
    Lo Pres Alarm      xx
    Share Pressure     xx
```

Blend Stream 501 – Maintenance Pressure

This code allows the entry of a maintenance pressure to be used when a pressure transmitter is not installed or is not working, but pressure-related calculations are desired. The pressure units will be dependent on the entry made in the Pressure Units Select code (Pressure 171). This five-digit entry has a range of 0.0 to 9999.9 pressure units. A non-zero value entered here will override an analog pressure input.

Note: No entry if Pressure Units = NA.
Help: "Select pressure to be used in CPL calculation."

Blend Stream 502 – Pressure Coefficient

This code will allow for the entry of a Compressibility Factor that will be used by the system to calculate the CPL. This entry should be zero if a densitometer is installed or a reference density is entered. In these cases, the miniBlend.net will calculate the compressibility factor. If, however, API table 6C or 54C is selected, then a compressibility factor must be entered here if pressure compensation is desired, as the miniBlend.net has no density with which to calculate the compressibility factor. The factor is used as the following: XXXXX equals the factor entered and it is applied as 0.0000XXXXX.

Note: No entry if Pressure Units = NA.
Note: This value will represent the "F" variable in the CPL equation.
Help: "Enter compressibility factor used to calculate CPL [where 0.0000XXXXX is the compressibility factor]."

Blend Stream 503 – High Pressure Alarm Limit

This code allows the entry of a pressure reading that will cause a high pressure alarm to be generated. The pressure units will be dependent on the entry made in the Pressure Units Select code. This four-digit entry has a range of 0.0 to +9999.

Note: No entry if Pressure Units = NA.
Note: An entry of "+9999" will disable the alarm.
Help: "If pressure exceeds this value an alarm will occur."

Blend Stream 504 – Low Pressure Alarm Limit

This code allows the entry of a pressure reading that will cause a low pressure alarm to be generated. The pressure units will be dependent on the entry made in the Pressure Unit Select code. This four-digit entry has a range of 0.0 to +9999.

Note: No entry if Pressure Units = NA.
Note: "9999" will disable the alarm.
Help: "If pressure drops below this value an alarm will occur."

Blend Stream 505 – Shared Pressure Input

This entry determines whether it is desired to share the opposite meter's pressure input. Selections are as follows:
- Not Shared
- Blend Stream
- Wild Stream

Help: "Select if it is desired to share the opposite meter's pressure input."

Back Pressure Subdirectory

```
         General Purpose

BP Flow Timer        xxx
BP % Reduction       xxx
Min Flow Rate        xx
Flo Recover Time     xx
Diff Pressure        xx
Flo Recover Pres     xxx
```

Blend Stream 511 – Minimum Back Pressure Flow Rate Timer

This two-digit entry will allow the operator to select the minimum time, in seconds, allowed for the unit to achieve a desired flow rate. If the flow rate is not reached in this time, the flow rate will be lowered by Back Pressure Percent Reduction to increase back pressure. If the flow rate falls below the back pressure minimum flow, an alarm will be issued and the valve will be closed. The range of this entry will be 0 to 99 seconds.

Note: This entry is used for Automatic Flow Optimization (AFO).
Note: "00" disables any back-pressure control (including the differential pressure method.)
Help: "Minimum time in seconds to reach desired flow rate during BP control."

Blend Stream 512 – Back Pressure Percent Reduction

This two-digit entry will allow the operator to select the percentage of flow rate to be used during insufficient back pressure conditions. (For example, an entry of 90% will cause the flow rate to be reduced to 90% of the current rate during insufficient back pressure conditions.) The range of this entry is 50 percent to 90 percent.

Note: This entry is used for Automatic Flow Optimization (AFO).
Help: "In BP control, the flow rate will be reduced to this percentage of the current flow rate. Range is 50% to 90%."

Blend Stream 513 – Minimum Back Pressure Flow Rate

This four-digit entry will allow the operator to select the Minimum Back Pressure Flow Rate that will not cause an alarm. That is, any time the flow rate is being controlled because of insufficient back pressure and it falls below this programmed rate, a back pressure alarm will be issued and the valve will be closed. The range of this entry will be 0 to 9999.

Help: "Min flow rate allowed during BP control before alarm, mass or vol based on pulse input type."

Blend Stream 514 – Back Pressure Flow Recovery Timer

This two-digit numeric entry programs the amount of time the miniBlend.net will wait to attempt flow rate recovery if a pressure reading is not available in the system. The range of this timer is from 0 to 99 minutes. Zero will disable the flow recovery feature. This parameter provides a method of flow recovery that does not require the use of a pressure transmitter input.

Help: "Enter the time interval in minutes to attempt flow recovery."

Blend Stream 515 – Differential Pressure

This four digit entry will allow the operator to select the delta pressure in PSIA, bars, kPa,or kg/cm2 (units depend upon the Pressure Units select entry (Pressure 171). This is the additional pressure to be maintained above the vapor pressure. If miniBlend.net is controlling flow with a two stage valve, no alarm is issued and flow is not halted if the pressure drops below the programmed limit determined by vapor pressure and differential pressure. Therefore this differential pressure feature should not be used with a two stage valve. In this situation, the low pressure alarm must be set high enough to ensure that the pressure does not fall below the product's vapor pressure.

The range of this entry is 0-9999 pressure units. An entry of "0" will disable pressure control of the valve by a pressure transducer.

Note: No entry if Pressure Units = NA.
Note: A non-zero entry here will override any other programmed type back pressure flow control.
Help: "Enter back pressure to be maintained above the product vapor pressure."

Blend Stream 516 – Flow Recovery Pressure

This four digit entry allows the programming of the amount of pressure above the vapor pressure of the product that must be read by the miniBlend.net before it will attempt flow recovery to the programmed high flow. This parameter is used in conjunction with a pressure transmitter input. The range of this entry is 0-9999 pressure units.

Note: This pressure must be sufficiently higher than the Differential Pressure entered in Pressure 515 to prevent flow rate oscillation.
Help: "Enter the differential; pressure above vapor pressure to attempt flow recovery."

Vapor Pressure Subdirectory

Note: Pressure and temperature data, points 1,2,3 (Pressure 522-527) are only activated if "Straight Line Approximation" is selected as the "Vapor Pressure Calculation Method".

```
            Vapor Pressure
VP Calc             xxxxx
Vapor Pres 1        xxx
VP Temp 1           xx
Vapor Pres 2        xxx
VP Temp 2           xx
Vapor Pres 3        xxx
VP Temp 3           xx
```

Blend Stream 521 – Vapor Pressure Calculation Method

This parameter defines the method that the miniBlend.net will use to calculate the vapor pressure of a product. Selections are as follows:

- **Straight Line Approximation** (Requires points of the curve to be entered in codes 522 through 527).
- **As outlined in GPA TP-15** (Gas Processors Association Technical Publication 15). (Uses the reference density of the product in the calculations).

Critical: GPA-TP15 requires corrected density [temperature used, API table selected].
Help: "Choose vapor pressure calculation method."

Blend Stream 522, 524, 526 – Vapor Pressure 1, 2, 3

These three codes allow the operator to select the vapor pressures, which are used to define the vapor pressure versus temperature curve. This curve is used to calculate the current vapor pressure. The pressure(s) are defined beginning with the lowest pressure ascending to the highest pressure. The range of these five-digit numeric entries is 0000.0 to 9999.9 pressure units. The unit for this entry is dependent on the entry made in the Pressure Units Select Code. The vapor pressure calculation, determined from the entries made here, will be used both for differential back pressure control and in the CPL equation as the "Pe" entry. Therefore, careful consideration should be given in determining these points and their accuracy.

Critical: Vapor pressures must be entered in ascending order.
Note: No-entry if Vapor Pressure Calculation Method = GPA-TP15.
Help: "Enter vapor pressure at corresponding product temperature."

Pressure 523, 525, 527 – Vapor Pressure Temperature 1, 2, 3

These three codes, with three-digit numeric entries, allow the operator to select the temperatures that will be used to define the vapor pressure versus temperature curve. This curve is used to calculate the current vapor pressure. These temperatures correspond with the vapor pressures. The range of these entries is –999 degrees to +999 degrees. The units for these entries are as programmed in the Temperature Units Select Code. The vapor pressure calculation, determined from the entries made here, will be used both for differential back pressure control and in the CPL equation as the "Pe" entry. Therefore, careful consideration should be given in determining these points and their accuracy.

Critical: Corresponding vapor pressure not programmed.
Note: No entry if Vapor Pressure Calculation Method = GPA-TP15.
Help: "Enter product temperature at corresponding vapor pressure."

The Wild Stream Meter Directory has five directories:
- General Purpose
- Flow Control
- Volume Accuracy
- Temperature/Density
- Pressure

General Purpose

```
        Gen Purpose

Product ID          xxxx
HM Class 1          xxxx
HM Class 2          xxxx
HM Class 3          xxxx
HM Class 4          xxxx
```

Wild Stream 101 – Product ID
This program code specifies the name of the product, and is used in miniBlend.net menus and on batch reports.

```
        101 Product ID

ABCEDFEFGHIJKLNOPQRS
 TUVWXYZ0123456789!@
    #$%&*( )-+=,.?/;:'"
    SPACE ACCEPT < >

 x x x x
```

9 character alphanumeric entry
Help: "Enter an alphanumeric ID to describe the product."

Wild Stream 102 – Hazardous Material Classification Part 1
This program code is used to form an 80-character message that can be used on the batch report for the delivered recipe.

```
        102 HM Class 1

ABCEDFEFGHIJKLNOPQRS
 TUVWXYZ0123456789!@
    #$%&*( )-+=,.?/;:'"
    SPACE ACCEPT < >

 x x x x
```
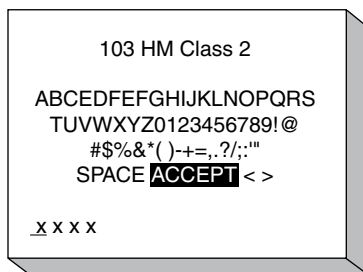
Help: "Enter characters 1-20 of the hazardous materials classification."

Wild Stream 103 – Hazardous Material Classification Part 2

This program code is used to form an 80-character message that can be used on the batch report for the delivered recipe.

```
            103 HM Class 2

    ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
        #$%&*( )-+=,.?/;:'"
    SPACE ACCEPT < >

     x x x x
```
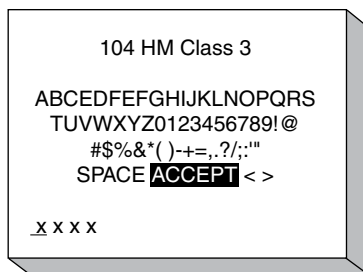
Help: "Enter characters 21-40 of the hazardous materials classification."

Wild Stream 104 – Hazardous Material Classification Part 3

This program code is used to form an 80-character message that can be used on the batch report for the delivered recipe.

```
            104 HM Class 3

    ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
        #$%&*( )-+=,.?/;:'"
    SPACE ACCEPT < >

     x x x x
```
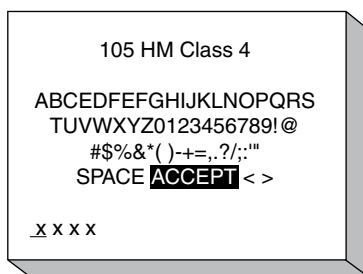
Help: "Enter characters 41-60 of the hazardous materials classification."

Wild Stream 105 – Hazardous Material Classification Part 4

This program code is used to form an 80-character message that can be used on the batch report for the delivered recipe.

```
            105 HM Class 4

    ABCEDFEFGHIJKLNOPQRS
    TUVWXYZ0123456789!@
        #$%&*( )-+=,.?/;:'"
    SPACE ACCEPT < >

     x x x x
```

Help: "Enter characters 61-80 of the hazardous materials classification."

Flow Control

```
        Flow Control

Alarm Limits
Timers
```

Alarm Limits

```
        Alarm Limits

Excess Hi Flow      ..
Lo Flow Alarm       xx
Overrun Limit       xxx
```
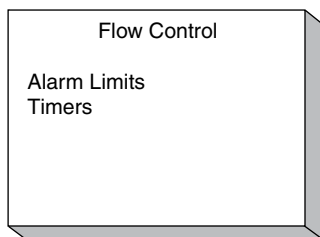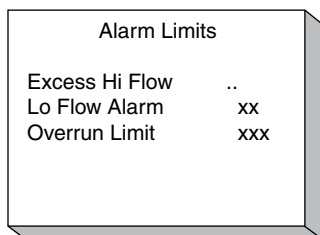
Wild Stream 221 – Excess High Flow Rate

This program code defines the highest flow rate at which the miniBlend.net can operate while a transaction is in progress before a high flow alarm is generated. This program code has a valid range from 0 to 99999 units.

Note: A zero disables this feature.

Help: "Enter the highest flow rate allowed without alarming, mass or volume based on pulse input type while a transaction is in progress."

Wild Stream 222 – Low Flow Rate Alarm Limit

This program code defines the lowest flow rate at which the miniBlend.net can operate before a low flow alarm is generated. This program code has a valid range from 0 to 999 units.

Note: A zero disables this feature.

Help: "Enter the minimum flow rate allowed without a low flow alarm, mass or volume based on pulse input type while a transaction is in progress."

Wild Stream – 223 Overrun Alarm Limit

This program code determines the amount of product overrun beyond the desired batch amount for the specific product before an alarm is generated. This program code has a valid range from 0 to 999 units.

Note: No entry if Auto Preset =0.

Help: "Enter the number of units delivered over product amount before alarm occurs."

Timers

```
        Delays/Timers

Hi Flow Alarm Time   xx
Lo Flow Alrm Time    xx
Zero Flow Time       xx
Valve Fault Time     xx
```
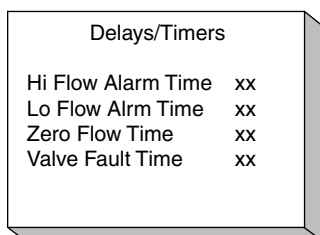
Wild Stream 231 – High Flow Alarm Timeout

This program code determines how long the Excess High Flow Rate can be exceeded before an alarm is generated. This program code has a valid range from 0 to 99 seconds.

Help: "Enter time in seconds to allow flow rate to exceed value programmed in Excess High Flow."

Wild Stream 232 – Low Flow Alarm Timeout

This program code determines how long the flow rate must remain below the Low Flow Rate Alarm Limit before an alarm is generated. This program code has a valid range from 0 to 99 seconds.

Help: "Enter time in seconds to allow flow rate to be less than value programmed in Low Flow Rate Alarm."

Wild Stream 233 – Zero Flow Timer

This parameter defines the amount of time that the miniBlend.net will ignore a zero flow condition before commanding the valve to close. Once this occurs, the miniBlend.net will require a start command before the batch in progress can be continued. This program code has a valid range from 0 to 99 seconds.

Note: Zero disables this feature.

Help: "Enter time in seconds. Zero flow is ignored before valve closure while a transaction is in progress."

Wild Stream 234 – Valve Fault Timeout

This program code defines the time that the miniBlend.net will tolerate flow after a valve close command is issued. If flow persists beyond this time, a Valve Fault alarm occurs. This program code has a valid range from 0 to 99 seconds.

Note: Zero disables this feature.

Help: "Enter time in seconds to ignore flow when valve has been commanded to close."

Volume Accuracy
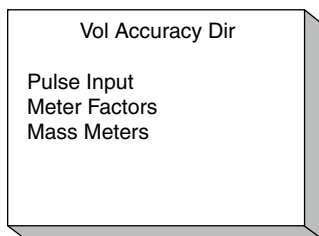
```
Vol Accuracy Dir

Pulse Input
Meter Factors
Mass Meters
```

Pulse Input Subdirectory

The Pulse Input Subdirectory contains program codes used in characterizing meter pulse inputs to the miniBlend.net.

```
Pulse Input

K Factor          xxx.xxx
Pulse Samples     x
Pulse Multiplier  xxx
Pulse Input       xxxxx
```
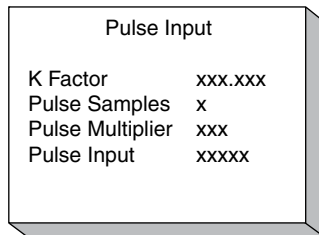
Wild Stream 301 – K Factor

This seven-digit numeric entry defines the nominal number of pulses comprising one unit of volume registration. The range of this entry is 0000.001 to 9999.999.

Critical: Security level for parameter must be at top 2 levels.

Fatal: Entry must not be zero.

Help: "Enter the number of pulses required for one unit of registration, mass or vol based on pulse input type."

Wild Stream 302 – Pulse Period Sample Count

This two-digit entry determines the length of time in 0.1 second increments over which the frequency of the meter pulses is averaged to provide flow rate smoothing. This parameter is intended for meters that produce a varying frequency pulse output when the flow is steady. The range of this two digit entry is 0-20.

Help: "Enter number of 1/10th second samples over which the pulse input periods are averaged."

Wild Stream 304 – Pulse Input

This parameter allows the user the selection of either compensated or uncompensated pulse input. Selections are as follows:

- Uncompensated
- Compensated

Help: "To specify whether the incoming wild stream meter pulses are compensated to the blend meter type or are uncompensated (raw)."

Meter Factors Subdirectory

```
            Meter Factors
Mtr Factor          xxxxx
Flow Rate 1         xxx
Mtr Factor 2        xxxxx
Flow Rate 2         xxx
Mtr Factor 3        xxxxx
Flow Rate 3         xxx
Mtr Factor 4        xxxxx
Flow Rate 4         xxx
Master Mtr Fact     xxxxx
Linear Factor Dev   xxxxx
```

Wild Stream 311 – Meter Factor 1
Wild Stream 313 – Meter Factor 2
Wild Stream 315 – Meter Factor 3
Wild Stream 317 – Meter Factor 4

These program codes and the associated flow rates below allow the entry of the meter factor curve. The miniBlend.net will perform linearization to calculate meter factors between the entered flow rates.

If only a single meter factor is used, it must be put into program code 311. The flow rate selected in program code 312 or 314 must be set to "0". Under these conditions any other meter factors programmed will be ignored. The range of these six-digit numeric entries is 0 to 9.99999.

Note: A zero entry in meter factor 1 will be considered an invalid entry. Zero entries in the remaining factors will result in that factor and subsequent factors that are not being used. (e.g., if a zero entry is made for factor 2, factors 3 and 4 will not be used.)

Fatal: Entry must not be zero [311 only].

Critical: Factor varies more than the Linearized Factor Deviation.

Critical: Meter factors must be within 2% of the master meter factor.

Help: "Meter factor = (actual volume x current factor x k factor)/input pulses."

Volume Accuracy 312 – Flow Rate 1
Volume Accuracy 314 – Flow Rate 2
Volume Accuracy 316 – Flow Rate 3
Volume Accuracy 318 – Flow Rate 4

These five-digit entries are the flow rates at which the meter factors (codes 311, 313, 315, 317) are defined beginning with the highest flow rate in program code 312 and descending to the lowest flow rate in program code 318. If only one meter factor is used, program code 312 or 314 must be set at "0". The range of these entries is 0 to 99999 flow units.

Critical: Flow rates must be entered in descending order.

Critical: Corresponding meter factor not programmed.

Help: "Enter the flow rate corresponding to the meter factor, mass or vol based on pulse input type."

Wild Stream 319 – Master Meter Factor

This program code allows the operator to set a master meter factor. This six-digit entry will be used to restrict meter factors one through four (codes 311, 313, 315 and 317), to plus or minus 2% of the master factor (i.e., the value entered here). This range restriction applies only to meter factors which are programmed for use (i.e., meter factor one always and, if linearizing, all the factors used). Any attempt to enter a meter factor outside the 2% range, if installed, will cause a Critical Warning.

In addition, a master factor entry that causes the current meter factors installed to be out of range will cause those meter factors which are out of range to prompt a Critical Message. This critical condition must be corrected so that all used meter factors are within the 2% range of the master factor before normal Run Mode operations can occur. The range of this entry is 0 to 9.99999.

Critical: Meter factor must be within 2% of the master meter factor.

Note: *Zero disables this feature.*
Help: "Restricts programmed meter factors to + or –2% of this master factor."

Wild Stream 320 – Linearized Factor Deviation

This code allows the operator to set a maximum deviation between adjacent meter factors. This three-digit entry will be used to restrict deviation between the adjacent meter factors in use to plus or minus the entered percentage (i.e., the value entered here). Any attempt to enter a meter factor outside the entered range will cause a Critical Warning.

A linearized factor deviation entry that results in the current meter factors installed to be out of range will set a program code alarm. The meter factors that are out of range will be indicated by a DA alarm. The meter factors at fault must be corrected so they are within range of the deviation entry before normal Run Mode operations can occur. The value of the linearized factor deviation may range from 0 to 9.99%.

Critical: Meter factor varies more than the Linearized Factor Deviation.

Note: *Zero disables this feature.*
Help: "Set the maximum deviation in percent allowed between adjacent meter factors."

Mass Meter Subdirectory

```
            Mass Meter
   Type              xx
   Sequence #         x
```

Wild Stream 331 – Mass Meter Type

This parameter allows the operator to select the mass meter used by the meter. The factory default is "NA." Selections are as follows:

- NA
- Promass

The mass meter is used to obtain meter temperature and density through communications. If a Promass meter is selected the Mass Meter Subdirectory is expanded to include mass meter data.

Help: "Select the type of mass meter."

Wild Stream 332 – Mass Meter Sequence Number

This entry allows the operator to enter the specific address assigned to a mass meter connected to the miniBlend. net. The range of this entry is from 0 to 99999.

Help: "Enter the address of the E+H Promass Meter."

```
Temp/Dens Dir

Temperature
Density
```

Temperature Subdirectory

```
Temperature

Maint Temp       xx.x
Hi Temp Alarm    xxx
Lo Temp Alarm    xxx
```

Wild Stream 401 – Maintenance Temperature

This parameter is a maintenance temperature value used when a temperature probe is not installed or not working but temperature related calculations are desired. If the maintenance temperature is set to anything EXCEPT –999.9, the maintenance temperature will override any other temperature from the RTD or from the mass meter. This program code has a valid range from –999.9 to +999.9.

Note: An entry of -999.9 disables this feature.
Note: No entry if Temperature Units = Not Used.
Help: "Select maintenance temperature if temperature probe is not installed or to override probe."

Wild Stream 402 – High Temperature Alarm Limit

This code allows the entry of a temperature reading that will cause a high temperature alarm to be generated. The temperature units will be dependent on the entry made in the Temperature Units Select code. This four-digit entry has a range of –999.9 to +999.9 degrees F or C.

Note: An entry of "+999" will disable the alarm.
Help: "Enter temperature that will cause an alarm for high temperature."

Wild Stream 403 – Low Temperature Alarm Limit

This code allows the entry of a temperature reading that will cause a low temperature alarm to be generated. The temperature units will be dependent on the entry made in the Temperature Units Select code. This four-digit entry has a range of –999.9 to +999.9 degrees F or C.

Note: No entry if Temperature Units = Not Used.
Note: An entry of "-999" will disable the alarm.
Help: "Enter temperature that will cause an alarm for low temperature."

Wild Stream 404 – Shared Temp In
This entry determines if it is desired to share the opposite meter's temperature probe. Options are:
- Not Shared
- Blend Stream
- Wild Stream

Density Subdirectory

```
            Density

API Table         xx
API               xx.x
Hi Dens Alarm     xxxxx
Lo Dens Alarm     xxxxx
Ref Dens Temp     xxxxx
```

Wild Stream 405 – API Table
This entry selects the API Table and product to be selected. Selections are as follows:
- Not used
- 5A
- 5B
- 5D
- 6
- 6A
- 6B
- 6C
- 6D
- 23
- 23A
- 23B
- 23D
- 23E
- 24
- 24A
- 24B
- 24D
- 24E
- 53
- 53A
- 53B
- 53D
- 54
- 54A
- 54B
- 54C
- 54D
- BR1A
- BR1P
- BR2P
- 59A
- 59B
- 59D
- 60A

- 60B
- 60D
- 53E
- 54E
- 59E
- 60E
- Eth (EPA - RFS2)
- B100 (EPA - RFS2)

Wild Stream 406 – Reference Density

This code has a constant five-digit entry with a floating decimal point. The format is based on table and product selection. The program code format and data entry allows the programmable entry of the Reference Density when Table 54 is selected, Relative Density when Table 24 is selected, API when Table 6 is selected, and temperature coefficient when a C Table is selected. This entry represents the reference value used to calculate the volume correction factor. The range of this value will vary with the table selection chosen.

Note: When Table 6 is selected, the leading digit will be used to show polarity, + = positive and a - = negative.

Entry range is based on table selection.

Table 6   -999.9 to +999.9 API

Table 24   0 to 9.9999 Relative Density

Table 54   0 to 9999.9 Reference Density

C Tables   0 to 0.9999 Percent per Degree Temperature

Note: If the API table selection is changed, the previous five-digit entry for reference will not be converted. This value must be re-entered.

The following are examples of the display when Tables 24, 54 or 6C and 54C are selected.

Table 6B selected: +43.2 API

Table 24 selected: 0.8175 Rel Density

Table 54 selected: 1150.2 Kg/M3

Table 6C or 54C selected: 0.0800 %/Deg. F or Deg. C

Fatal: Entry is out of specified range.

Note: No entry if Density Units = Not Used.
Note: No entry if API table is odd.

Help: "Enter the product density at reference temperature or the temperature coefficient (for C tables)."

Wild Stream 407 – High Density Alarm Limit

This code allows the entry of a density reading that will cause a high-density alarm to be generated. The units will be dependent on the entry made in the Density Units Select code. This four-digit entry will be dependent on the API table selection as follows:

–999.9 to +999.9 API

0 to 9999.0 Reference Density

Note: No entry if Density Units = Not Used.

Help: "Enter density that will signal an alarm for high product density."

Wild Stream 408 – Low Density Alarm Limit

This code allows the entry of a density reading that will cause a low-density alarm to be generated. The units will be dependent on the entry made in the Density Units Select code. This five-digit entry will be dependent on the API table selection as follows:

–999.9 to +999.9 API

0 to 9999.0 Reference Density

Note: No entry if Density Units = Not Used.

Help: "Enter density that will signal an alarm for low product density."

Wild Stream 409 – Reference Density's Temperature

The program code allows specifying the reference density's temperature. If zero is entered, it is assumed that the reference density's base temperature is the same as the programmed reference temperature (parameter #402). This parameter is applicable for even API 2004 tables, old 1952 even tables (6,24, and 54), PTB ethanol/gasoline mixtures and aromatic hydrocarbon products. This program code has a valid range from 0.0 to 999.9.

Help: "Enter base temperature for reference density. If 0, parameter #162 Ref Temp is used."

Wild Stream 410 – Reference Density for C Tables

When a C Table is used, the reference density parameter #413 is used to enter the coefficient of thermal expansion. This program code is used to calculate mass when using a C Table. This special density allows C Tables to have a reference density which enables mass to be computed when live density is not available. This parameter has a valid range from –9999.9 to +9999.9.

Help: "Enter ref density used to calculate mass when using a C Table. Enter in units per parameter #163."

Wild Stream 411 – Shared Density In

This entry determines if it is desired to share the opposite meter's density probe. Selections are as follows:

- Not Shared
- Blend Stream
- Wild Stream

Help: "Select if it is desired to share the opposite meter's density probe."

```
Pressure Dir

General Purpose
Vapor Pressure
```

General Purpose Subdirectory

The subdirectory is used to provide general information regarding the setup of the miniBlend.net for pressure aspects. If "Pressure Units" program code is set to "NA", the remaining codes in this subdirectory will not be available.

```
General Purpose

Maint Pres        xxx
Pres Coeff        xxx
Hi Pres Alarm     xx
Lo Pres Alarm     xx
```
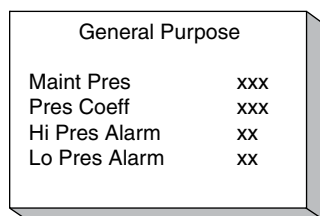
Wild Stream 501 – Maintenance Pressure

This code allows the entry of a maintenance pressure to be used when a pressure transmitter is not installed or is not working, but pressure-related calculations are desired. The pressure units will be dependent on the entry made in the Pressure Units Select code (Pressure 171). This five-digit entry has a range of 0.0 to 9999.9 pressure units. A non-zero value entered here will override an analog pressure input.

Note: No entry if Pressure Units = NA.
Help: "Select pressure to be used in CPL calculation."

Wild Stream 502 – Pressure Coefficient

This code will allow for the entry of a Compressibility Factor that will be used by the system to calculate the CPL. This entry should be zero if a densitometer is installed or a reference density is entered. In these cases, the miniBlend.net will calculate the compressibility factor. If, however, API table 6C or 54C is selected, then a compressibility factor must be entered here if pressure compensation is desired, as the miniBlend.net has no density with which to calculate the compressibility factor. The factor is used as the following: XXXXX equals the factor entered and it is applied as 0.0000XXXXX.

Note: *No entry if Pressure Units = NA.*
Note: *This value will represent the "F" variable in the CPL equation.*
Help: "Enter compressibility factor used to calculate CPL [where 0.0000XXXXX is the compressibility factor]."

Wild Stream 503 – High Pressure Alarm Limit

This code allows the entry of a pressure reading that will cause a high pressure alarm to be generated. The pressure units will be dependent on the entry made in the Pressure Units Select code. This four-digit entry has a range of 0.0 to +9999.

Note: *No entry if Pressure Units = NA.*
Note: *An entry of "+9999" will disable the alarm.*
Help: "If pressure exceeds this value an alarm will occur."

Wild Stream 504 – Low Pressure Alarm Limit

This code allows the entry of a pressure reading that will cause a low pressure alarm to be generated. The pressure units will be dependent on the entry made in the Pressure Unit Select code. This four-digit entry has a range of 0.0 to +9999.

Note: *No entry if Pressure Units = NA.*
Note: *An entry of "9999" will disable the alarm.*
Help: "If pressure drops below this value an alarm will occur."

Wild Stream 505 – Shared Pressure Input

This entry determines whether it is desired to share the opposite meter's pressure input. Selections are as follows:

- Not Shared
- Blend Stream
- Wild Stream

Help: "Select if it is desired to share the opposite meter's pressure input."

Vapor Pressure Subdirectory

```
Vapor Pressure

VP Calc          xxxxx
Vapor Pres 1     xxx
VP Temp 1        xx
Vapor Pres 2     xxx
VP Temp 2        xx
Vapor Pres 3     xxx
VP Temp 3        xx
```

Wild Stream 521 – Vapor Pressure Calculation Method

This parameter defines the method that the miniBlend.net will use to calculate the vapor pressure of a product. Selections are as follows:

- **Straight Line Approximation** (Requires points of the curve to be entered in codes 522 through 527).
- **As outlined in GPA TP-15** (Gas Processors Association Technical Publication 15). (Uses the reference density of the product in the calculations).

Critical: GPA-TP15 requires corrected density [temperature used, API table selected].

Help: "Choose vapor pressure calculation method."

Wild Stream 522, 524, 526 – Vapor Pressure 1, 2, 3

These three codes allow the operator to select the vapor pressures, which are used to define the vapor pressure versus temperature curve. This curve is used to calculate the current vapor pressure. The pressure(s) are defined beginning with the lowest pressure ascending to the highest pressure. The range of these five-digit numeric entries is 0000.0 to 9999.9 pressure units. The unit for this entry is dependent on the entry made in the Pressure Units Select Code. The vapor pressure calculation, determined from the entries made here, will be used both for differential back pressure control and in the CPL equation as the "Pe" entry. Therefore, careful consideration should be given in determining these points and their accuracy.

Critical: Vapor pressures must be entered in ascending order.

Note: No-entry if Vapor Pressure Calculation Method = GPA-TP15.
Help: "Enter vapor pressure at corresponding product temperature."

Wild Stream 523, 525, 527 – Vapor Pressure Temperature 1, 2, 3

These three codes, with three-digit numeric entries, allow the operator to select the temperatures that will be used to define the vapor pressure versus temperature curve. This curve is used to calculate the current vapor pressure. These temperatures correspond with the vapor pressures. The range of these entries is –999 degrees to +999 degrees. The units for these entries are as programmed in the Temperature Units Select Code. The vapor pressure calculation, determined from the entries made here, will be used both for differential back pressure control and in the CPL equation as the "Pe" entry. Therefore, careful consideration should be given in determining these points and their accuracy.

Critical: Corresponding vapor pressure not programmed.

Note: No entry if Vapor Pressure Calculation Method = GPA-TP15.
Help: "Enter product temperature at corresponding vapor pressure."

```
                Alarm Dir

        Driver Clearable      xx
        Powerfail Alarm       xx
        Alarm 1 Polarity      xxx
        Alarm 2 Polarity      xxx
        Configure Alarms
```

Alarm 601 – Driver Clearable Alarms

This parameter sets the number of alarms that can be cleared in the run and ready modes without a passcode. It is a two-digit entry with a range of 0-20.

Help: "Enter the number of alarms clearable not requiring a passcode."

Alarm 602 – Powerfail Alarm

This program code provides the operator with the capability of either enabling or disabling the powerfail alarm. The powerfail alarm is a diagnostic alarm that is not clearable through communications. The factory default for this parameter is "Yes". Selections are as follows:

- Yes
- No

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

Alarm 603 – Alarm 1 Output Polarity

This parameter allows the operator to select the polarity of Alarm 1.

- Active High
- Active Low

Help: "Select if this alarm relay becomes active or inactive when an alarm occurs."

Alarm 604 – Alarm 2 Output Polarity

- Active High
- Active Low

Help: "Select if this alarm relay becomes active or inactive when an alarm occurs."

Configure Alarms Subdirectory

```
                Alarm Dir

        System Alarms
        Meter Alarms
        User Alarms
        User Alarm Messages
```

Alarm 611 to 685 – Alarm Configuration

These parameters allow the actions of each alarm to be configured. Multiple options selected from the following list may be configured for each alarm. The miniBlend.net treats all alarm configured to an action as being logically "OR"ed. i.e. If any of the alarms assigned to action are energized, the action is energized. Selections are as follows:

- Allow run/ready clearing
- Energize alarm output 1
- Energize alarm output 2

Note: *Through Communications, add to get combination of desired options (i.e., 7 would set up all three options.)*

Note: *For more information about alarm messages and their equivalent in Blend-Pak injectors, Mini-Pak injectors, and metered injectors, refer to Appendix I – Alarms.*

Configuring Alarm Actions

The following examples illustrate the steps required to establish and view the configuration of alarms in a miniBlend.net. The Communications Alarm is used for the example, but the steps are typical of any alarm.

| System Alarms

611 Comm
612 Clean Line
613 Overrun | → | System Alarms
611 Comm

View Action
Configure Action | → | 611 Comm

Run/Ready Clear
Enable Alarm Out 1
Enable Alarm Out 2
Stop Flow | ⇄ | 611 Comm
Run/Ready Clear

Yes
No |
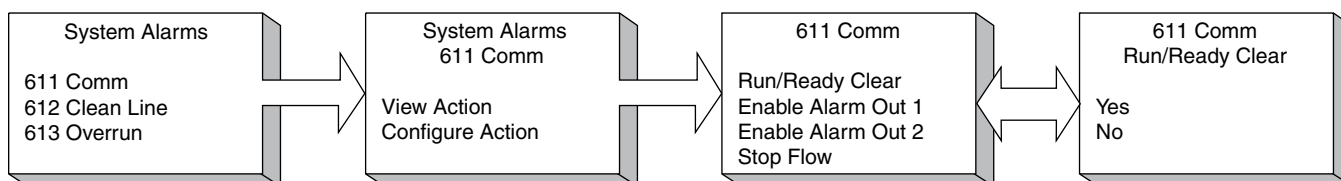
- From the "System Alarms" subdirectory select "611 Comm", press ENTER
- Select "Configure Action", press ENTER
- Select desired action, press ENTER (Actions already selected will be marked with an *)
- Select "Yes" to enable the action or "No" to disable the action, press ENTER
- The miniBlend.net returns to the previous screen for another selection, repeat or press CLEAR to return to the first screen of the selected alarm subdirectory.

Viewing Alarm Actions

| System Alarms

611 Comm
612 Clean Line | → | System Alarms
611 Comm

View Action
Configure Action | → | 611 Comm

Run/Ready Clear |
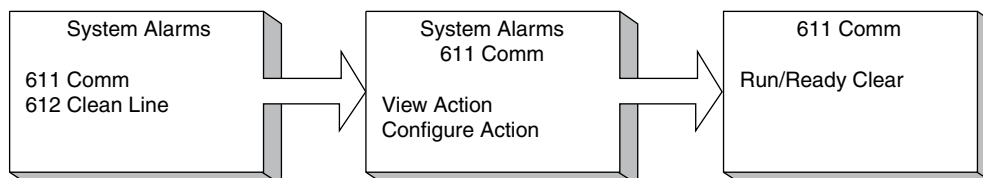
- From the "System Alarms" subdirectory select "611 Comm", press ENTER
- Select "View Action", press ENTER
- The miniBlend.net displays a list of enabled actions for the alarm. Press CLEAR to return to the first screen of the selected alarm subdirectory.

System Alarms Subdirectory

| System Alarms

611 Comm
612 Clean Line
613 Overrun |
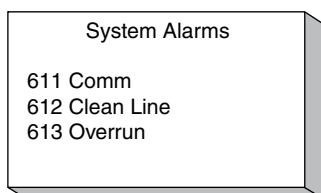
System Alarms

611 CM: Communications Alarm. Indicates a failure on one of the communication channels.

612 CL: Clean Line Alarm. Indicates that the clean line volume delivered has under-run the clean line volume programmed by at least the amount of the clean line limit.

613 OA: Overrun Alarm. Indicates the volume delivered exceeded the preset amount by at least the number of units programmed in the overrun alarm code.

Meter Alarms

631 PM: Promass Alarm. Indicates that the meter has a status problem.

632 OA: Product Overrun Alarm. Indicates that the product delivered exceeds the preset amount by at least the number of units programmed in the overrun alarm code.

633 HF: High Flow Alarm. Indicates that the flow rate has exceeded the flow limit set in the excess high flow program code for more than 4 seconds.

634 LF: Low Flow Alarm. Indicates that the flow rate was at or below the minimum flow rate established by the minimum flow rate limit program code for longer than eight seconds.

635 BP: Back Pressure Alarm. Indicates insufficient pressure in the system to maintain the minimum back pressure flow rate entry set.

636 VF: Valve Fault Alarm. Indicates that the valve did not close within the time allowed by the valve fault timeout program code after receiving the signal to close.

637 ZF: Zero Flow Alarm. Indicates that the zero flow timer has expired and the miniBlend has not detected any flow in the system.

638 HT: High Temperature Alarm. Indicates that the temperature probe or transducer is out of range of the high temperature setting.

639 LT: Low Temperature Alarm. Indicates that the temperature probe or transducer is out of range of the low alarm setting.

640 TP: Temperature Transducer Alarm. Indicates a temperature transducer failure or an out-of-range condition (less than 2mA or greater than 23 mA; less than 52.11 ohms or greater than 220.88 ohms).

641 HD: High Density Alarm. Indicates that the density transducer is out of range of the high alarm setting

642 LD: Low Density Alarm. Indicates that the density transducer is out of range of the low alarm setting

643 DR: Density Transducer Alarm. Indicates a density transducer failure or an out of range condition (less than 2mA or greater than 23 mA).

644 HP: High Pressure Alarm. Indicates that the pressure transducer is out of range of the high pressure setting

645 LP: Low Pressure Alarm. Indicates that the pressure transducer is out of range of the low alarm setting

646 PR: Pressure Transducer Alarm. Indicates a pressure transducer failure or an out of range condition (less than 2mA or greater than 23 mA).

647 LA: Leakage Alarm. Indicates that more product flowed through the meter than allowed by the programmed amount while no transaction was in progress.

648 BH: Blend High Alarm. Indicates that the blend tolerance has been exceeded and the product being delivered is under the volume required for the batch.

649 BL: Blend Low Alarm. Indicates that the blend tolerance has not been met and the product being delivered is under the volume required for the batch.

650 MF: Mass Mtr Comm Alarm. This alarm is set when any command sent to a mass meter fails both the first and second attempt. The normal polling sequence to each of the mass meters is not interrupted by the occurrence of a mass meter communication alarm. The mass meter in alarm will be skipped in polling until this alarm is cleared.

User Alarms Subdirectory

```
          User Alarms

   681 User Alarm 1
   682 User Alarm 2
   683 User Alarm 3
   684 User Alarm 4
   685 User Alarm 5
```

Alarm 681 to 685 – User Alarms

These program codes allow the operator to customize the miniBlend.net by defining alarm conditions to a particular system. User alarms may be set through communications or Boolean/algebraic equations, or may be selected from the following:

- Allow clearing without passcode entry
- Energize alarm output #1
- Energize alarm output #2
- Stop Flow

Help: "Assign options: allow driver clearing (no passcode); energize alarm output(s)."

Alarm 691 to 695 – User Alarm Messages

These program codes permit the entry of an 18-character text entry identifying an alarm condition. User alarms can be set through communications or Boolean/algebraic equations. The data entry allows the following characters to be selected:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

```
   691 User Alarm 1 Msg

   ABCDEFGHIJKLMNO
     PQRSTUVWXYZ
      0123456789
   !@#$%&*()-+=,.?/;:'"
   SPACE ACCEPT < >
   xxxxxxxxxxxxxxxxxxxxxx
```

Help: "Enter message to be displayed when this user alarm occurs."

```
Communications Dir

Comm Port Config
Host Interface
Reports
```

Comm Port Configuration Subdirectory

The Comm Port Configuration subdirectory contains information vital to the operation of the miniBlend.net's three (3) serial communications ports. The following example demonstrates the procedure for configuring a previously unassigned Comm Port 2.

- Select "Comm 2" from the Communications Dir menu, press ENTER
- "Function…..NA" will be displayed, press ENTER to configure.
  Note: If the port had been previously assigned the function would be displayed as well as port settings.
- Select function from list, press ENTER
- Selected function and default port settings will be displayed.
- If required, adjust port settings by selecting appropriate parameter and pressing ENTER
- Select desired value, press ENTER
- Selected function and port settings will be displayed.
- When required settings complete press CLEAR to return to the port selection menu.

```
Communications Dir          Comm 2                707 Function                  Comm 2
                                                            NA
Comm 1   xxxxxxxxx      Function    NA          NA                        Function    Printer
Comm 2   NA                                     Term Host                 Baud        1200
Comm 3   xxxxxxxxx                              Minicomp Host             Data/Parity 7/None
                                                Printer                   Control     None
                                                SLIP (TCP/IP)             Timeout     0
                                                Promass                   Mode        RS232

                                                PRINT=Help    more...
```
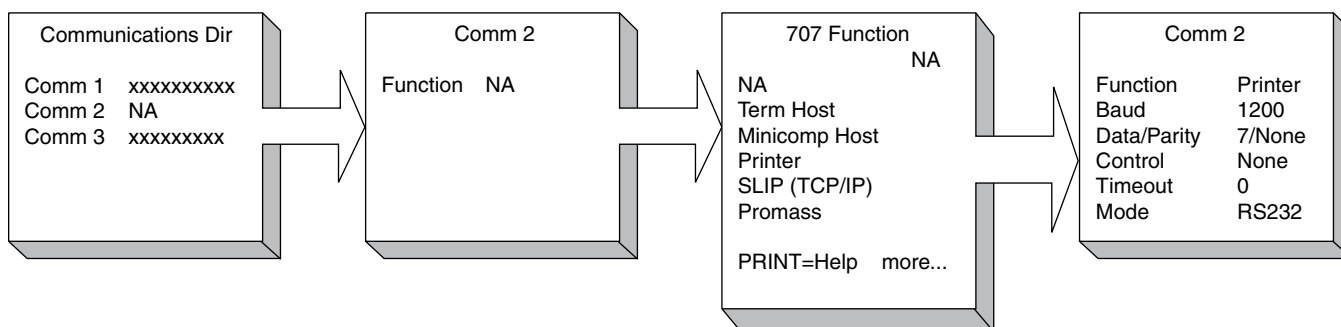
Communications 701, 707, 713 – Comm Port Function

This program code defines the function of the communications port. The factory default is "Minicomp Host" on comm port 1. Selections are as follows:

- **Not Used** – This communications port is not selected for use.
- **Terminal Host Communications** – This port communicates with a terminal type device using a simplified communications protocol.
- **Minicomputer Host Communications** – This port communicates with a minicomputer type device using a sophisticated and secure communications protocol.
- **Printer** – Permits the miniBlend.net through this communication port to automatically output an end of a transaction report to a printer connected to the miniBlend.net.
- **SLIP (TCP/IP)** – Serial Line Internet Protocol emulates ethernet TCP/IP protocol over serial (RS-232, RS-485) communications hardware.
- **Promass** – Assigns a communications channel to a Promass Mass Meter.

Critical: Only one port may be configured for mass meter communications.

Critical: An address must not be zero.

Critical: Only two ports may be configured for host interface.

Critical: Only two ports may be configured for host interface.

Critical: Function conflicts with Port Control.

Port Settings

```
Comm 2

Function      Printer
Baud          1200
Data/Parity   7/None
Control       None
Timeout       0
Mode          RS232
```

```
708 Baud
                        1200
1200
2400
4800
9600
19200
38400
PRINT=Help      more...
```

```
709 Data/Parity
                        7/None
7/None
7/Odd
7/Even
8/None
8/Odd
8/Even
8/N/2Stop
PRINT=Help      more...
```

```
710 Control
                        None
None
Poll & Program
Host Control
Xon/Xoff

PRINT=Help      more...
```

```
711 Timeout
        >____

Enter elapsed time in
seconds of comm fail
before signaling an alarm
```

```
712 Mode
                        RS232
RS232
RS485

PRINT=Help
```

Communications 702, 708, 714 – Baud Rate

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

- 1200 baud
- 2400 baud
- 4800 baud
- 9600 baud
- 19200 baud
- 38400 baud

Note: *No entry if corresponding function = Not Used.*

Help: "Select the baud rate for this communications port."

Communications 703, 709, 715 – 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:

- 7 bits No Parity
- 7 bits Odd Parity
- 7 bits Even Parity
- 8 bits No Parity
- 8 bits Odd Parity
- 8 bits Even Parity
- 8 bits No Parity, 2 Stop bits

Note: *No entry if corresponding function = Not Used.*

Help: "Select the data format: number of bits per character and type of parity."

Communications 704, 710, 716 – Control

This program code defines the level of control the associated communications port commands. Poll and Program, and Host Control are valid with host communications options. XON/XOFF is valid with printer options. Only one port can have transaction control. The factory default is "Poll & Program." Selections are as follows:

- None – No communications on this port.
- Poll & Program – For use with demonstration/BlendMate ports. Allows full program access but does not affect transaction control (acts like a standalone unit).
- Host Control – Full programming and prompting control. Transaction control (also requiring authorization from host) Allows use of SB – Set Batch to enter the preset remotely and EB to end the batch remotely. This is designed for pre-dispatch operations where the driver has limited input during the load process and the preset is host-controlled.
- Xon/Xoff – For printer ports only. Xon/Xoff flow control.
- PTB-FX and PTB-LQ – Security level designed to support PTB Weights and Measures. Agency Approved printer interface.

Critical: Comm port not configured for host communications.

Critical: Comm port not configured for printer.

Note: *No entry if corresponding function = Not Used.*

Help: "Select the degree of control for this communications port."

Communications 705, 711, 717 – Timeout

These three-digit codes allow the operator to specify the amount of time, in seconds, before aborting a communications transfer that has halted. The communications alarm will then be set. This entry is also used to abort a printout if waiting for a shared printer on an XON from a printer. If the timer expires while waiting for a shared printer, the shared printer alarm will be set. The range of this entry is from 0 to 999 seconds.

If the port is configured for host communication, zero disables the communications timeout and the accompanying alarm. If the port is configured for a printer, the timeout cannot be disabled.

Note: No entry if corresponding function = Not Used.
Note: If using shared printing, the timeout may want to be set higher than normal in case two (+) miniBlend.nets are trying to print at the same time.
Help: "Enter elapsed time in seconds of comm fail before signaling an alarm."

Communications 706, 712, 718 – Mode

This program code defines the type of serial communications interface assigned to this port. Selections are as follows:
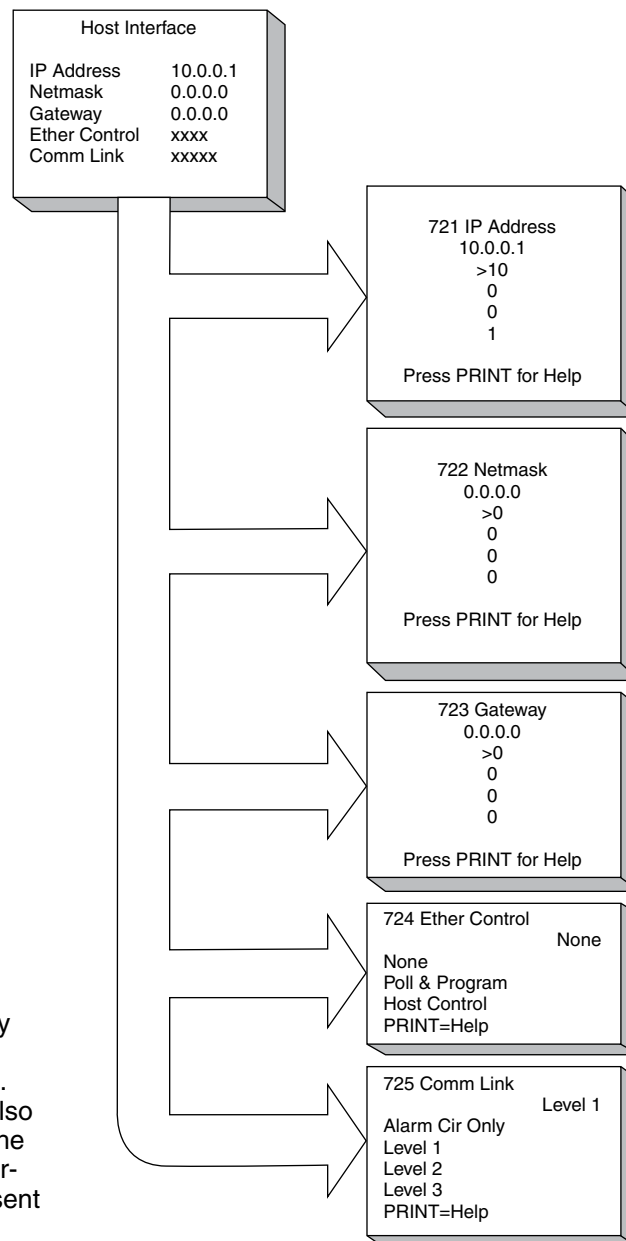
- RS232
- RS485

Note: No entry if corresponding function = Not Used.
Help: "Select if comm. Interface is RS232 or RS485."

Host Interface Subdirectory

The Host Interface Subdirectory establishes the Ethernet settings required by the miniBlend.net.

```
          Host Interface

   IP Address      10.0.0.1
   Netmask         0.0.0.0
   Gateway         0.0.0.0
   Ether Control   xxxx
   Comm Link       xxxxx
```

```
       721 IP Address
          10.0.0.1
            >10
             0
             0
             1

     Press PRINT for Help
```

```
        722 Netmask
          0.0.0.0
            >0
             0
             0
             0

     Press PRINT for Help
```

```
        723 Gateway
          0.0.0.0
            >0
             0
             0
             0

     Press PRINT for Help
```

```
   724 Ether Control
                      None
   None
   Poll & Program
   Host Control
   PRINT=Help
```

```
   725 Comm Link
                      Level 1
   Alarm Cir Only
   Level 1
   Level 2
   Level 3
   PRINT=Help
```

The IP, Netmask and Gateway Addresses are in the form of four numbers separated by ".". The range of each number (also known as "octet"), is 0-255. The miniBlend.net screen for entering these values lists the present octet values vertically.

Communications 721 – IP Address

This code provides a unique Internet Protocol address for each miniBlend.net unit. The IP Address code consists of a set of four octets. The range of each octet is 0-255.

If the Ethernet port is used for Mini Host or Term Host, Smith Meters proprietary type communication only the final two digits of the last octet are used to provide a unique address. The range in this case is 0-99.

Help: "Enter the IP address for this device to connect to the internet. The last octet is used for Smith Meter Comms addr."

Communications 722 – Netmask Address (Subnet Mask)

This code provides a unique Internet Protocol subnet address for each miniBlend.net unit. The IP Subnet Mask Address code consists of a set of four octets. The range of each octet is 0-255.

Help: "Enter the IP subnet mask for this IP address."

Communications 723 – Gateway Address

This code provides a unique Gateway address for each miniBlend.net unit which allows access to other IP networks. The Gateway Address code consists of a set of four octets. The range of each octet is 0-255.

Help: "Enter the address that allows access to other IP networks."

Communications 724 – Ethernet Control

This program code defines the level of control the associated Ethernet communications port commands. Poll and Program, and Host Control are valid with host communications options. Only one port can have transaction control. Selections are as follows:

- None – No communications on this port.
- Poll & Program – For use with demonstration/BlendMate ports. Allows full program access but does not affect transaction control (acts like a stand-alone unit).
- Host Control – Full programming and prompting control. Transaction control (also requiring authorization from host) Allows use of SB – Set Batch to enter the preset remotely and EB to end the batch remotely. This is designed for pre-dispatch operations where the user has limited input during the load process and the preset is host-controlled.

Critical: Comm port not configured for host communications.

Note: No entry if corresponding function = Not Used.
Help: "Enter the level of control from the Ethernet port."

Communications 725 – Comm Link Programming

This program code defines which program code parameters can be modified through communications by the access level assigned to those parameters. The factory default is "Level 1 Access." Selections are as follows:

- Alarm Clearing Only –This selection allows only the alarms to be reset (cleared) through communications.
- Level 1 Access Parameters – This selection allows only the parameters that are assigned level 1 access to be changed through communications.
- Level 2 Access Parameters – This selection allows only the parameters that are assigned levels 1 and 2 access to be changed through communications.
- Level 3 Access Parameters – This selection allows only the parameters that are assigned levels 1 through 3 access to be changed through communications.

Help: "Select program mode groups modifiable via communications."

Communications 726 – Modbus Endian Select

This entry specifies the byte and/or word ordering for floating point values in the Modbus address space.

　　　0-　　　Big Endian
　　　1-　　　Little Endian – byte
　　　2-　　　Little Endian – word

"Endian-ness" refers to a particular microprocessor's implementation of memory access. Some processors (Motorola,

etc.) organize data that requires multiple memory addresses to store in MSB or LSB fashion, which is referred to as Big-endian alignment. Others (primarily Intel based platforms such as the PC) store multi-byte data types with the least significant byte in the lowest address space in memory. This is a Little-endian architecture.

The miniBlend.net is based on a Motorola microcontroller and hence naturally would use a Big-endian alignment. However, since not all Modbus host devices may utilize or support the same alignment, the miniBlend.net provides for a method to 'swap' the order of the data for multi-byte data types (IEEE floating point values).

If the host device does support optional byte ordering of floating point variables, choose Big-endian (which is the native ordering for the miniBlend.net) and configure the host to handle the ordering.

Communications 727 – Ethernet Host Timeout

This program code specifies the timeout value in seconds for the host communications protocol available via Ethernet/TCP-IP network (Smith/IP, Modbus TCP) before a communications alarm will be generated. Range 0-999.

Note: Zero disables this feature.
Help: "Enter elapsed time in seconds of communication failure before signaling an alarm."

Reports Subdirectory

```
              Reports
Rap Select        Default
Rep Vol Res       Whole
Rep Print Time    00..
Rep Interval      x
```

Communications 731 – Report Selection

This program code defines which delivery report will be printed at the completion of a transaction if a printer function is assigned to one or more communications ports. The factory default is "Default." Selections are as follows:

- Default
- User Configured Report

Note: The user-configured reports are designed on the BlendMate and downloaded to the miniBlend.net.
Note: Even if a user-configured report has been downloaded from the BlendMate to the miniBlend.net, it will not be printed unless it is selected here. If a user-configured report is selected but none has been downloaded, no report will print.
Help: "Select the report type to be printed."

Communications 732 – Report Total Resolution

This entry selects the volume resolution to print on default reports. Selections are as follows:

- Whole Units
- Tenths
- Hundredths

Help: "Select the volume resolution to print on default reports."

Communications 737 – Summary Report Print Time

This parameter defines the initial time at which the miniBlend.net will generate the summary report. This report sumarizes all transaction data for the interval defined in the Summary Report Interval Parameter. This parameter requires up to six alphanumeric characters.

Help: "Enter time to print summary report. Time format is HH:MMT, where T=A.P.M."

Communications 738 – Summary Report Interval

This parameter code defines the interval of time covered by the Summary Report. Use in conjunction with the Summary Report Print Time, a new report is generated at the interval specified in this program code. This parameter has a valid range from 0 to 999 hours.
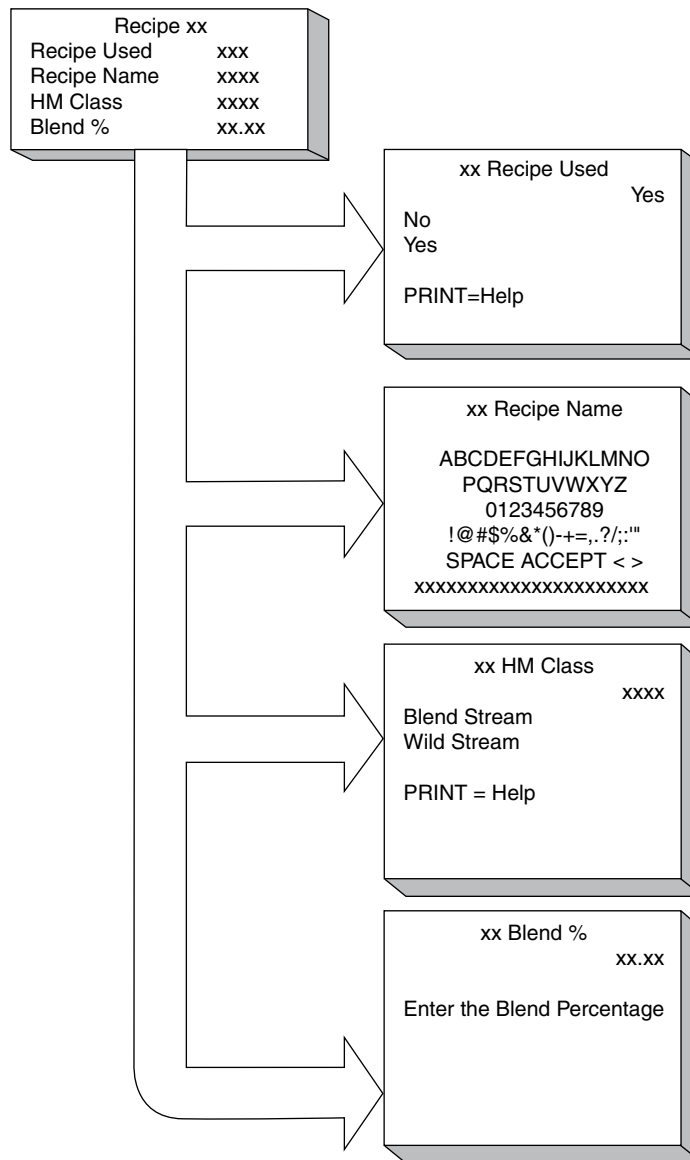
Note: Summary Report Disable = zero.
Help: "Enter time interval in hours between printed reports."

Recipe Setup Subdirectory

The Recipe Setup Subdirectory provides a means to establish recipe identification parameters i.e. Recipe number and name.

```
Recipe xx
Recipe Used      xxx
Recipe Name      xxxx
HM Class         xxxx
Blend %          xx.xx
```

```
xx Recipe Used
                        Yes
No
Yes

PRINT=Help
```

```
xx Recipe Name

ABCDEFGHIJKLMNO
PQRSTUVWXYZ
0123456789
!@#$%&*()-+=,.?/;:'"
SPACE ACCEPT < >
xxxxxxxxxxxxxxxxxxxxx
```

```
xx HM Class
                        xxxx
Blend Stream
Wild Stream

PRINT = Help
```

```
xx Blend %
                        xx.xx

Enter the Blend Percentage
```

Recipe 01 – Recipe Used (rr = Recipe# 01-12)

This program code indicates whether a recipe is configured for use. Selections are as follows:

- No
- Yes

Critical: At least one recipe must be configured.

Help: "Select whether this recipe is to be enabled for use or not."

Recipe 02 – Recipe Name (rr = Recipe# 01-12)

This program code allows an alphanumeric entry of up to fifteen (15) characters. It is used as an identifier of the recipe in the preset display and on the product receipt ticket. The data entry allows the following characters to be selected as part of the name:

- A B C D E F G H I J K L M N O P Q R S U V W X Y Z # *
- a b c d e f g h i j k l m n o p q r s t u v w x y z & @
- 0 1 2 3 4 5 6 7 8 9 < > ( ) ? ! . , ' - " / + = _ END

Help: "Enter an alphanumeric message to identify this recipe."

Enter this parameter by selecting characters using the UP/DOWN and LEFT/RIGHT Arrow keys. Press ENTER for each selected character. When all characters have been entered, select "ACCEPT" and press ENTER to complete the process.

Recipe 03 – HM Class

This program code prompts the user to select either the Blend Stream or the Wild Stream for the current recipe.

- Blend Stream
- Wild Stream

Note: No entry if Corresponding Recipe = Not Used.
Help: "Select product HM Class for this recipe."

Recipe 04 – Blend %

This program code prompts the user to enter the percentage of product to be blended.

5 digit numeric entry, range: 0 to 100.00

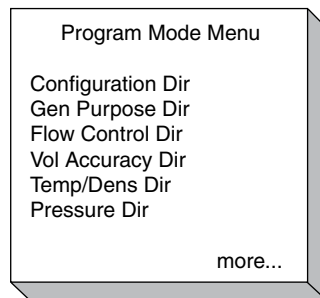*Note: No entry if Corresponding Recipe = Not Used.*
Help: Enter the blend percentage for the blend or wild stream product.

Select Recipe Subdirectory

```
          Recipe Dir

Recipe 1        xxxx
Recipe 2        xxxx
Recipe 3        xxxx
Recipe 4        xxxx
Recipe 5        xxxx
Recipe 6        xxxx
Recipe 7        xxxx
Recipe 8        xxxx
Recipe 9        xxxx
Recipe 10       xxxx
Recipe 11       xxxx
Recipe 12       xxxx

                more....
```
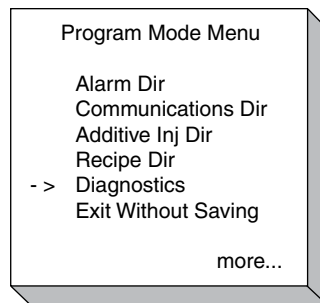
Program Mode Diagnostics

The Program Mode Diagnostics are used to troubleshoot or to determine the current status of the miniBlend.net. Program Mode Diagnostics is selected by moving the cursor to "Diagnostics" on the Program Mode menu and pressing ENTER. This will display the Diagnostics menu. Note that Program Mode Diagnostics are only available if Program Mode was entered at a security level at or greater than the level entered in General Purpose Parameter 165.

```
        Program Mode Menu

     Configuration Dir
     Gen Purpose Dir
     Flow Control Dir
     Vol Accuracy Dir
     Temp/Dens Dir
     Pressure Dir

                          more...
```

To access the Diagnostics Directory, arrow up or down until the arrow is beside the Diagnostics Menu.

```
        Program Mode Menu

        Alarm Dir
        Communications Dir
        Additive Inj Dir
        Recipe Dir
   - >  Diagnostics
        Exit Without Saving

                          more...
```

Pressing ENTER with the arrow in front of Diagnostics will display six items of the Diagnostics Menu. Pressing the up and/or down arrows will step through the Diagnostics Menu. The available diagnostics in the order that they appear on the menu are as follows:

- Analog Input Test
- Digital Input Test
- Digital Output Test
- Pulse Input Test
- Pulse Output Test
- Communications Test
- Keypad Test
- Display Pixel Test
- Boolean/Algebraic
- Reset Totals
- Erase Event Log
- Erase Transaction Log
- Erase Web Pages
- Upgrade Firmware
- Factory Initialize
- Factory Diagnostics
  - Watchdog Reset Test
  - Power-up Diagnostics
  - Flow Stimulator
  - Field Test Initialize

Analog Input Test

Selecting Analog Input Test and pressing ENTER will display the status of the analog input points in the miniBlend.net.

```
              Analog Inputs

#1:  A1 Temp In          76.6F
     109.657 Ohms        28744
#2:  A1 Pressure         210.0 Psi
     14.023 mA           36753


#1Cal: 013072  0917504
#2Cal: 013072  0917504
```

Digital Input Test

Selecting Digital Input Test and pressing ENTER will display the status of the digital input points in the miniBlend.net.

```
              Digital Inputs

#1  NA                  ON
#2  NA                  ON
#3  NA                  OFF
```

This screen shows the input number, the function that is programmed in the unit for the input and the status of the input point (i.e., if it is on (closed) or off (open)). Check the inputs by changing the status of the input, then referring to the diagnostic screen to see if the miniBlend.net recognizes the change of state.

Digital Output Test

Select "Digital Output Test" and press ENTER to display the status of the digital output points in the miniBlend.net.

```
           Digital Output Test

#1  NA                      OFF
#2  Pump                    OFF
#3  Upstream Solenoid       OFF
#4  Downstream Solenoid OFF
#5  NA                      OFF
#6  NA                      OFF
```

Moving the arrow to the output that is to be tested and pressing ENTER will change that state of the output. An example would be moving the arrow to output #2 Pump and pressing ENTER.
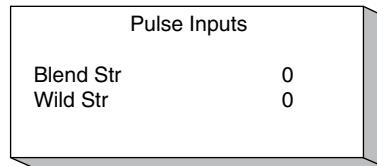
```
              Digital Output Test

     #1  NA                      OFF
->   #2  Pump                    OFF
     #3  Upstream Solenoid       OFF
     #4  Downstream Solenoid     OFF
     #5  NA                      OFF
     #6  NA                      OFF
```

Pulse Input Test

Selecting the Pulse Input Test and pressing ENTER will display a screen that indicates the number of pulses received by the respective pulse input. Pressing ENTER clears the pulse count value. This diagnostic should not be used to verify the actual meter pulses received for any batch or transaction. It is intended as a method of verifying pulse input wiring to the respective pulse input on the miniBlend.net. Applying pulse to the respective input will cause the respective counter to increment.

Note: If Dual Pulse is enabled, "Reset Dual Pulse Errors" will appear as a menu option on the screen. Also, if a metered injector is used, it will appear in the screen, just as seen below.
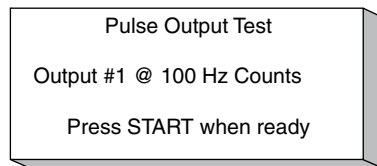
```
              Pulse Inputs

       Blend Str          0
       Wild Str           0
```

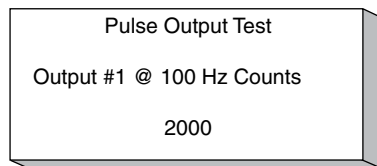Pressing CLEAR will return the display to the Diagnostic Menu.

Pulse Output Test

Selecting the Pulse Output Test and pressing ENTER will display a screen that shows the pulse outputs test and the counts that are output from the miniBlend.net to the pulse receiving device. The output sends out pulses at 100 Hz. The output will send out 2000 pulses.

```
            Pulse Output Test

        Output #1 @ 100 Hz Counts

          Press START when ready
```

When the test is complete, the receiving device counts should be compared to the diagnostic screen. To start the test when the diagnostic screen is displayed, press the START key.
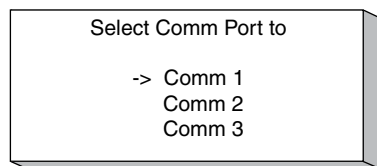
```
            Pulse Output Test

        Output #1 @ 100 Hz Counts

                 2000
```

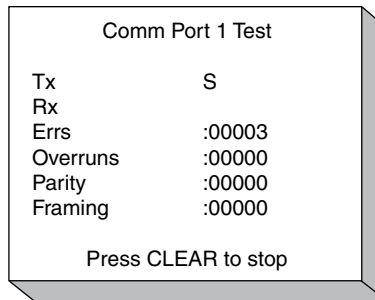Pressing CLEAR will return the display to the Diagnostic Menu.

Communications Test

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

```
          Select Comm Port to

             ->  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 by moving the arrow to the required port, pressing ENTER will start the communications test.

```
            Comm Port 1 Test

    Tx              S
    Rx
    Errs            :00003
    Overruns        :00000
    Parity          :00000
    Framing         :00000

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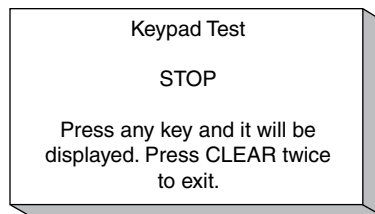
The test will display the characters that are being transmitted on the transmit line. It will also display the characters as they are received back into the instrument. Also displayed are the errors that have occurred during the test, the overruns, the parity, and the framing errors. Pressing CLEAR will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

Keypad Test

Select "Keypad Test" from the menu to run a diagnostic test on the keypad of the miniBlend.net. Pressing ENTER will display the keypad test screen.

```
            Keypad Test

       Press any key and it will be
       displayed. Press CLEAR twice
                 to exit.
```
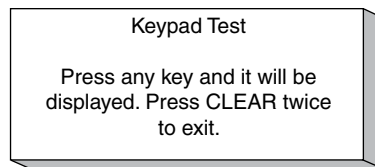
With this screen displayed, any key that is pressed will appear on the screen as the key that was pressed.

```
            Keypad Test

               STOP

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

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.

Boolean/Algebraic Processing

Selecting "Boolean/Algebraic Processing" and pressing ENTER will display the following list of Boolean/Algebraic-related diagnostic displays that can be viewed by the operator.

- User Boolean Registers
- User Algebraic Registers
- Equation Line State
- General Purpose Timers

User Boolean Registers

Selecting "User Boolean Registers" and pressing ENTER will display the first twelve user Boolean registers. Ther are a total of 50 user Boolean registers. The range of these registers is 0 to 255. These registers are set aside for the user. They can be written to by Boolean/Algebraic equations or via communications. The values can be printed on user-defined reports.

```
              User Boolean Regs

#1          0  #7          0
#2          0  #8          0
#3          0  #9          0
#4          0  #10         0
#5          0  #11         0
#6          0  #12         0

                 More...
```

User Algebraic Registers

Selecting "User Algebraic Registers" and pressing ENTER will display the first six user algebraic registers.

```
              User Algebraic Regs

#1                      0
#2                      0
#3                      0
#4                      0
#5                      0
#6                      0
                 More...
```

Equation Line State

The Equation Line Status displays the current status of the equations, where "D" indicates that the equation is disabled, "T" is True, and "F" is False. All equations without an "IF" statement will have a "True" status. Those with an "IF" will indicate the result of the "IF" expression: either "True" or "False."

```
              Equation Line State

1.                  7.
2.                  8.
3.                  9.
4.                  10.
5.                  11.
6.                  12.

       More... STOP to toggle
```

Entering the equation number that is to be disabled and pressing ENTER will change the status on the screen from either "T" (True) or "F" (False) to "D" (Disabled). The equation from that point until enabled will not be active. To enable an equation the same process is followed, except that the screen will indicate that the equation is "D" (Disabled). Entering the equation number will enable that equation.

```
              Toggle ON/OFF

       Enter Equation #
                        - >  1
```

General Purpose Timers

Selecting "General Purpose Timers" and pressing ENTER will display nine of the sixteen general purpose timers that can be activated and used through the Boolean and/or algebraic equations.

```
              General Purpose Timers

#1            0  #7            0
#2            0  #8            0
#3            0
#4            0
#5            0
#6            0
```

The timers are incremented at these intervals:

Timer Numbers	Resolution	Range
1 - 2	0.1 second	109 minutes
3 - 4	1.0 second	18.2 hours
5 - 6	1.0 minute	45.5 days
7 - 8	1 hour	7.5 years

The operator can clear the times by writing a zero to the database location of the desired timer. Like the user Boolean and user algebraic registers, these timers are reserved strictly for the user. They may be started via Boolean/ Algebraic equations or via communications. Timers are very useful in the design of equations as they allow setting a user alarm or taking some other action after an event has persisted for a period of time.

Reset Totals

This diagnostic is used for resetting the non-resettable totals. Pressing ENTER will display the following screen.

```
              Reset Totals
              WARNING
              Non-resettable
              volumes will be
              reset. Press ENTER to
              continue or CLEAR to
              exit.
```

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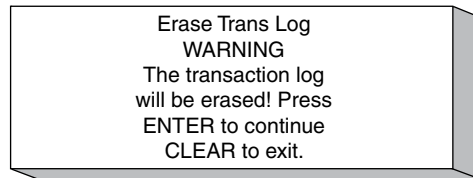
Pressing CLEAR will return the unit to the Diagnostics Menu screen without erasing the event log. Pressing ENTER will erase the event log and return the unit to the Diagnostics Menu screen.

Erase Transaction Log

This diagnostic is used to erase the transaction log. Pressing ENTER with the arrow in front of "Erase Transaction Log" will display the following screen.

```
Erase Trans Log
WARNING
The transaction log
will be erased! Press
ENTER to continue
CLEAR to exit.
```

Pressing CLEAR will return the unit to the Diagnostics Menu screen without erasing the transaction log. Pressing ENTER will erase the transaction log and return the unit to the Diagnostics Menu. Not only will the log be erased, but historic transactions currently archived will no longer be available via communications.

Erase Web Pages

This diagnostic is used to erase the web pages. Pressing ENTER with the arrow in front of "Erase Transaction Log" will display the following screen:

```
Erase Web Pages
WARNING
All web pages will be
erased! Press ENTER
to continue or CLEAR
to exit.
```
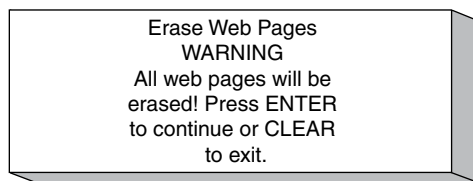
Pressing CLEAR will return the unit to the Diagnostics Menu screen without erasing the web pages. Pressing ENTER will erase the web pages and return the unit to the Diagnostics Menu.

Upgrade Firmware

This diagnostic tool will allow a new software revision to be downloaded into the miniBlend.net. In order for a new software revision to be downloaded the Comlink Level must be set to the highest level, unless, the miniBlend.net is in the diagnostic screen shown below, which will override the Comlink Level setting.

```
Upgrade Firmware

Waiting for new
firmware revision

Press CLEAR to Cancel
```
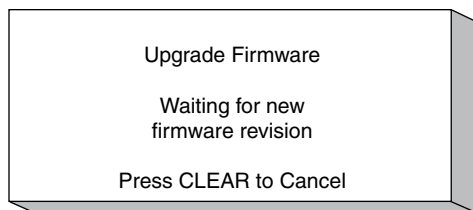
Factory Initialize

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. The only data saved will be that which is stored in the audit trail for Weights and Measures Approvals.

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

Factory Diagnostics

The Watchdog Rest Test, Powerup Diagnostics, Flow Simulator, and Field Test Init are for factory use only.

Appendix I – Configuration

Configuration Directory			
Pulse Outputs	**Digital Inputs**	**Digital Outputs**	**Analog Inputs**
101 Output Enable	201 In #1 Function	301 Out #1 Function	401 Input Function
102 Pulses/Volume	202 In #2 Function	302 Out #2 Function	402 RTD Offset
103 Pulse Units	203 In #3 Function	303 Out #3 Function	411 In #2 Function
104 Max Freq		304 Out #4 Function	412 In #2 Low Value
105 Pulse Out Product		305 Out #5 Function	413 In #2 High Value
		306 Out #6 Function	

Appendix II – General Purpose

General Purpose 100 Directory		
Time	**Timeouts**	**Pressure**
101 Date	131 Dynamic Display Timeout	171 Pressure Units
102 Time		
103 Unit MAC Address		
Units	**Controls**	**Alarm Limits**
111 Flow Rate Time	141 Recipes/Transaction	181 Leak Alarm Limit
112 Flow Rate Descriptor	142 Start Key Disable	182 Overrun Alarm Limit
113 Volume Units	143 Stop Key Disable	
114 Volume Descriptor	144 Transaction Start	
115 Mass Units	145 Transaction Termination	
116 Mass Descriptor	146 Auto Preset	
	147 Transaction Reset Time	
	148 Trans Reset Start Hour	
	149 Pulse In Type	
Display	**Temperature/Density**	**Security**
121 Position ID	161 Temp Units	191 Level 1 Access Code
122 Ready Message	162 Reference Temp	192 Level 2 Access Code
123 Run Screen	163 Density Units	193 Level 3 Access Code
124 Display Resolution		194 Security In Level
125 Decimal/Comma Select		195 Diagnostic Security Level
126 Default/Translated Literals		Parameter Security Level

Appendix III – Blend Control

Blend Control 200 Directory		
Blend Control	**Alarm Limits**	**Delays/Timers**
201 Blend Tolerance Percentage	221 Blend Alarm Timeout	231 Valve Delay to Open
202 Blend Tolerance Amount	222 Blend Alarm Min Amount	232 Start After Stop Delay
203 Blend Correction Amount	223 Clean Alarm Limit	233 Pump Delay Off
204 Blend Correction Time		234 Pump Start
205 Blend Error Reset		
206 Blend Amount Type		
207 Clean Line Amount		

Appendix IV – Blend Stream

Blend Stream 100 Directory
General Purpose
101 Product ID
102 HM Class 1
103 HM Class 2
104 HM Class 3
105 HM Class 4

Blend Stream 200 Flow Control Directory		
Flow Control	**Alarm Limits**	**Delays/Timers**
201 Flow Tolerance Percentage	221 Excess High Flow Rate	231 High Flow Alarm Timeout
202 Flow Tolerance Rate	222 Low Flow Rate Alarm Limit	232 Low Flow Alarm Timeout
203 Flow Adjust Tolerance	223 Overrun Alarm Limit	233 Zero Flow Timeout
204 Flow Adjust Time		234 Valve Fault Timeout
205 Minimum Flow Rate		
206 Maintain Min Flow		**Prove Control**
207 Valve Min Close Time		251 Low Flow Start Rate
208 Meter Plumbing		252 Low Flow Start Amount
209 High Flow Rate		253 Auto Prove
210 First Trip Amount		
211 Second Trip Amount		

Blend Stream 300 Volume Accuracy Directory		
Pulse Input	**Meter Factor**	**Mass Meter**
301 K-Factor	311 Meter Factor 1	331 Type
302 Pulse Period Sample	312 Flow Rate 1	332 Sequence Number
	313 Meter Factor 2	
	314 Flow Rate 2	
	315 Meter Factor 3	
	316 Flow Rate 3	
	317 Meter Factor 4	
	318 Flow Rate 4	
	319 Master Meter Factor	
	320 Linearized Factor Deviation	

Blend Stream 400 Temperature/Density Directory	
Temperature	**Density**
401 Maintenance Temperature	405 API Table
402 High Temperature Alarm	406 Ref Density
403 Low Temperature Alarm	407 High Density Alarm
404 Shared Temperature In	408 Low Density Alarm
	409 Ref Density's Temperature
	410 Ref Density for C Tables
	411 Shared Density In

Blend Stream 500 Pressure Directory		
General Purpose	**Back Pressure**	**Vapor Pressure**
501 Maintenance Pressure	511 Min BP Flow Rate Timer	521 Vapor Pres Calc Method
502 Pressure Coefficient	512 BP % Reduction	522 Vapor Pressure 1
503 High Pressure Alarm	513 Min BP Flow Rate	523 Vapor Pres Temp 1
504 Low Pressure Alarm	514 BP Flow Recovery Timer	524 Vapor Pressure 2
505 Shared Pressure In	515 Differential Pressure	525 Vapor Pres Temp 2
	516 Flow Recovery Pressure	526 Vapor Pressure 3
		527 Vapor Pres Temp 3

Appendix V – Wild Stream

Wild Stream 100 Directory
General Purpose
101 Product ID
102 HM Class 1
103 HM Class 2
104 HM Class 3
105 HM Class 4

Wild Stream 200 Flow Control Directory	
Alarm Limits	**Timers**
221 Excess High Flow Rate	231 High Flow Alarm Timeout
222 Low Flow Rate Alarm Limit	232 Low Flow Alarm Timeout
223 Overrun Alarm Limit	233 Zero Flow Timeout
	234 Valve Fault Timeout

Wild Stream 300 Volume Accuracy Directory		
Pulse Input	**Meter Factor**	**Mass Meter**
301 K-Factor	311 Meter Factor 1	331 Type
302 Pulse Period Sample	312 Flow Rate 1	332 Sequence Number
304 Pulse Input	313 Meter Factor 2	
	314 Flow Rate 2	
	315 Meter Factor 3	
	316 Flow Rate 3	
	317 Meter Factor 4	
	318 Flow Rate 4	
	319 Master Meter Factor	
	320 Linearized Factor Deviation	

Wild Stream 400 Temperature/Density Directory	
Temperature	**Density**
401 Maintenance Temperature	405 API Table
402 High Temperature Alarm	406 Ref Density
403 Low Temperature Alarm	407 High Density Alarm
404 Shared Temperature In	408 Low Density Alarm
	409 Ref Density's Temperature
	410 Ref Density for C Tables
	411 Shared Density In

Wild Stream 500 Pressure Directory	
General Purpose	**Vapor Pressure**
501 Maintenance Pressure	521 Vapor Pres Calc Method
502 Pressure Coefficient	522 Vapor Pressure 1
503 High Pressure Alarm	523 Vapor Pres Temp 1
504 Low Pressure Alarm	524 Vapor Pressure 2
505 Shared Pressure In	525 Vapor Pres Temp 2
	526 Vapor Pressure 3
	527 Vapor Pres Temp 3

Appendix VI – Alarms

Alarm 600 Directory
601 Driver Clearable
602 Powerfail Alarm Disable
603 Alarm 1 Output Polarity
604 Alarm 2 Output Polarity

Alarm 600 Configure Alarm Directory		
System Alarms	**Meter Alarms**	**User Alarms**
611 Communications Alarm	631 Promass Alarm	681 User Alarm #1
612 Clean Line	632 Overrun	682 User Alarm #2
613 Overrun	633 High Flow	683 User Alarm #3
614 PTB Printer	634 Low Flow	684 User Alarm #4
615 Shared Printer	635 Back Pressure	685 User Alarm #5
	636 Valve Fault	691 User Alarm #1 Message
	637 Zero Flow	692 User Alarm #2 Message
	638 High Temperature	693 User Alarm #3 Message
	639 Low Temperature	694 User Alarm #4 Message
	640 Temperature Transducer	695 User Alarm #5 Message
	641 High Density	
	642 Low Density	
	643 Density Transducer	
	644 High Pressure	
	645 Low Pressure	
	646 Pressure Transducer	
	647 Leakage	
	648 Blend High	
	649 Blend Low	
	650 Mass Meter Comm	

Appendix VII – Communications

Communications 700 Directory		
Port Configuration	**Host Interface**	**Reports**
701 Comm Port 1 Function	721 IP Address	731 Report Select
702 Comm Port 1 Baud Rate	722 Net Mask	732 Report Volume Resolution
703 Comm Port 1 Data/Parity	723 Gateway	737 Summary Report Print Time
704 Comm Port 1 Control	724 Ethernet Host Control	738 Summary Report Interval
705 Comm Port 1 Timeout	725 Comm Link Programming	
706 Comm Port 1 Mode	726 Ethernet Host Timeout	
707 Comm Port 2 Function	727 Modbus Endian Select	
708 Comm Port 2 Baud Rate		
709 Comm Port 2 Data/Parity		
710 Comm Port 2 Control		
711 Comm Port 2 Timeout		
712 Comm Port 2 Mode		
713 Comm Port 3 Function		
714 Comm Port 3 Baud Rate		
715 Comm Port 3 Data/Parity		
716 Comm Port 3 Control		
717 Comm Port 3 Timeout		
718 Comm Port 3 Mode		

Appendix VIII – Recipe

Recipe Directory
--01 Recipe Used
--02 Recipe Name
--03 HM Class
--04 Blend Percent

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