

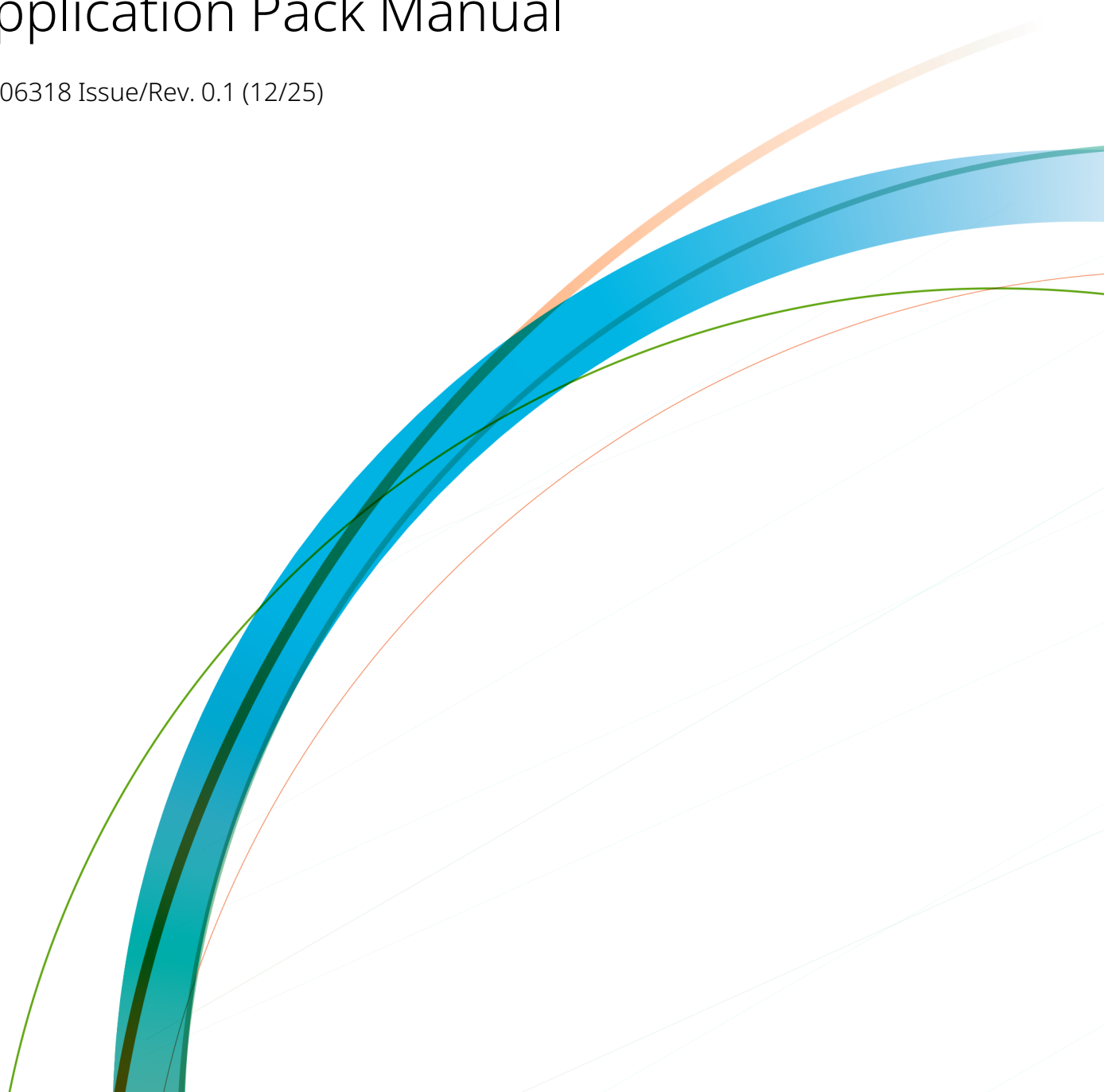


GUIDANT

# 1010CB Load Computer

## Application Pack Manual

MN06318 Issue/Rev. 0.1 (12/25)



## Important

All information and technical specifications in this document have been carefully checked and compiled by the author; however, we cannot completely exclude the possibility of errors. Guidant Measurement is always grateful to be informed of any errors; contact us at [TechnicalCommunications@GuidantMeasurement.com](mailto:TechnicalCommunications@GuidantMeasurement.com).

## Caution

The default or operating values used in this document and in the configuration parameters of the product described in this document are for factory testing only and should not be construed as default or operating values for your system. Each system is unique and each configuration parameter must be reviewed and programmed for that specific system application.

## Disclaimer

Guidant hereby disclaims all responsibility for damages, including but not included to consequential damages arising out of or related to the inputting of incorrect or improper program or default values entered in connection with the product described in this document.

## Technical Support

### Field Service Response Center

24/7 Technical Support/Schedule a Technician: +1 844.203.4014

System installation supervision, startup, and commissioning services are available.

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### Guidant Knowledge Base

[KB.GuidantMeasurement.com](http://KB.GuidantMeasurement.com)

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# 1 Description

The CB Application Pack is a line extension of 1010CJ load computer, handling blending and/or straight product loading and internal additive injector control depending upon the instrument configuration described in the following table. It is flash memory based with field configurable I/Os, full graphics display, and a rugged alphanumeric keyboard incorporating Hall Effect push buttons.

Sales Code	Description	Physical Loading Arms		Internal Additive	RIT Panel	Analog Inputs
		Arm 1	Arm 2			
MODEL A	One arm loading - no blending	Single Product	NA	4	YES	1 Temp Input 1 Density Input 1 Pressure Input
MODEL B	One arm loading with two product ratio blending	2 Product Ratio	NA	4	YES	2 Temp Input 2 Density Input 2 Pressure Input
MODEL C	One arm loading with two product side	2 Product Side Stream	NA	4	YES	2 Temp Input 2 Density Input 2 Pressure Input

Sales Code	Description	Physical Loading Arms		Internal Additive	RIT Panel	Analog Inputs
		Arm 1	Arm 2			
MODEL D	Two single arms - no blending	Single Product	Single Product	4	YES	2 Temp Input 2 Density Input 2 Pressure Input
MODEL E	Two load arms, each comprised of 2 product ratio blending	2 Product Ratio	2 Product Ratio	4	YES	4 Temp Input 4 Density Input 4 Pressure Input
MODEL F	Two load arms, one straight loading, one with side stream blending	Single Product	2 Product Side Stream	2	YES	3 Temp Input 3 Density Input 3 Pressure Input
MODEL K	One arm loading - Vapour Return for LNG/LPG loading	Single Product	NA	0	NO	3 Temp Input 3 Density Input 3 Pressure Input

Arm Number	Sales Code					
	A	B/C	D	F	E	K
Arm 1	Product 1 (Meter 1)	Product 1 (Meter 1) & Product 2 (Meter 2)	Product 1 (Meter1)	Product 1 (Meter 1)	Product 1 (Meter 1) & Product 2 (Meter 2)	Product 1 (Meter 1) & Vapour Return (Meter 2)
Arm 2	NA	NA	Product 2	Product 2 (Meter 2) & Product 3 (Meter 3)	Product 3 (Meter 3) & Product 4 (Meter 4)	NA

# 2 Features

## Flexible and Powerful

- Customizable
- Simplified Chinese language support
- Standalone mode
- 16 recipes for blending/additives
- 1000 transaction logs
- 2000 audit trail logs
- Straight, Ratio and Side stream blending
- Internal Additive Injector Control
- Dual/Single Pulse Input per channel
- Non-linearity Correction for flow
- Batch Control on Gross/Net
- Flow Control Valve (DCV, ACV, Two-Stage)
- Automated proving mode
- RIT Panel interface
- Pump Demand with Delay Time
- System Alarm Output
- Slow Opening During Resume Batch
- Power Failure Resume Batch

## Precise and Compliant

- Temperature, pressure and density correction
- Built according to API MPMS standards

## User Friendly

- Flash downloadable firmware
- Configurable I/O
- Large backlit LCD with adjustable contrast
- 18 alphanumeric keys
- Programmable Initial Message
- Programmable Permissive and Interlocks Message
- Programmable Units (liter/gallon/kg/lb, m<sup>3</sup>, t, g)

- Deadman Timer (Enable/Disable)
- Programmable Workflow Prompts
- Programmable Product Description (Alphanumeric)
- Programmable Product Name (Alphanumeric)
- Programmable Inputs (Pause/Timeout/Terminate/Manager Reset)

## Integrated

- Interfaces with Honeywell Terminal Automation Systems
- Allows 3rd Party TAS interface via SLIP+, Modbus RTU and Modbus TCP/IP
- 3 Isolated Serial RS485 communication ports
- Two TCP/IP (IEEE 802.3 10/100 Base-T standard) Ethernet ports

## Resilient

- Rugged push buttons
- Explosion proof NEC 500/505
- Flame-proof ATEX & IECEx
- Diagnostics program

## Secure

- Integrated touch key reader
- Third-party card reader (consult the factory for more information)
- Local or remote authorization
- Driver and truck ID (2,750 each)
- Illegal access lockout
- Multi-level security with password protection

Refer the 1010 CB Programming and Software Manuals for further details on individual functions.

# 3 Hardware Description

Boards	Power supply board	S800PS4-6 Output
	Board	S10RA-RRR-I2
	Input board	S10NA-I2
	CPU card	S10CPU CARD 51307995-176-A2
	Display board	S810FPLG-18-I3
Max. Number of Arms per 1010A	2	
Products	(A) Crude Oils (API Tables 23, 24, 53, 54, 59 & 60) (B) Refined (API Tables 23, 24, 53, 54, 59 & 60) (C) Special (API Tables 24, 54 & 60) (D) Lube Oils (API Tables 23, 24, 53, 54, 59 & 60) (E) NGL and LPG (API Tables 23, 24, 53, 54, 59 & 60) (F) FAME - Fatty Acid Methyl Esters (NEN-EN14214) Support to GPA TP27 Tables	
Temperature Inputs	4-20 mA or RTD	
Pressure Inputs	4 - 20 mA (Availability based on sales code, refer terminal designation)	
Density Inputs	4 - 20 mA (Availability based on sales code, refer terminal designation)	
Protocol	SLIP+ Modbus RTU Modbus TCP/IP	

<p><b>Communications</b></p>	<p>Com Port 1: Isolated RS485/232 (standard)</p> <p>Com Port 2: Isolated RS485 standard)</p> <p>Com Port 3: Isolated RS485(standard)</p> <p>Ports no longer require jumper configuration: all configuration is obtained through software control via configuration settings.</p> <p>Ethernet Port 1: (IEEE 802.3 10/100 Base-T standard)</p> <p>Ethernet Port 2: (IEEE 802.3 10/100 Base-T standard)</p>
<p><b>Part Number</b></p>	<p>1010Ax - CB - abcNe Where</p> <p>x designates the sales code(A/B/C/D/E/F/K)</p> <p>a designates the authorization options</p> <p>b designates the glands and heater options</p> <p>c designates the power supply input</p> <p>N is for the graphics display</p> <p>e designates the metrology approvals</p>

# 4 Terminal Designation

## 4.1 Sales Code A

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 (Deadman Indicator)

A11 Relay A2 -GP Output #2

A12 (Deadman Bell)

A13 Relay A3 - GP Output #3 (Pump Demand Product 1)

A14 Relay A4 - GP Output #4 (None)

A15 Relay A5 - GP Output #5 (None)

A16 Relay A6 - GP Output #6 (None)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)

BA4 Relay B3 - GP Output #9 (Internal Add 1 Solenoid O/P)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10 (Internal Add 2 Solenoid O/P)

BA7 Relay B5 - GP Output #11 (Internal Add 3 Solenoid O/P)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (Internal Add 4 Solenoid O/P)

BA10 Relay B7 - GP Output #13 (Internal Add 5 Solenoid O/P)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (Internal Add 6 Solenoid O/P)

BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)

BA14 Common for Relay 9 & 10

BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)

BA16 Relay B11 - GP Output #17 (Pump Demand Additive 3)	BB16 Relay B23 - GP Output #29 (Deadman Callout)
BA17 Common for Relay 11 & 12	BB17 Common for Relay 23 & 24
BA18 Relay B12 - GP Output #18 (Pump Demand Additive 4)	BB18 Relay B24 - GP Output #30 (None)
BB1 Relay B13 - GP Output #19 (Pump Demand Additive 5)	CA1 RTD 1 Source
BB2 Common for Relay 13 & 14	CA2 RTD 1 Sense (+) / 4-20mA (+) Temperature Input Product 1
BB3 Relay B14 - GP Output #20 (Pump Demand Additive 6)	CA3 RTD 1 Sense (-)
BB4 Relay B15 - GP Output #21 (Isolation Valve Product 1)	CA4 RTD 1 Sink
BB5 Common for Relay 15 & 16	CA5 Not used
BB6 Relay B16 - GP Output 22 (None)	CA6 Not used
BB7 Relay B17- GP Output #23 (System Alarm)	CA7 Not used
BB8 Common for Relay 17 & 18	CA8 4-20mA (+) Pressure Input Product 1
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA9 Not used
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA10 Opto Output 1 (Add Pulse)
BB11 Common for Relay 19 & 20	CA11 Opto Output 2 (Add Pulse)
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA12 Opto 0 Volt
BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)	CA13 Signal Ground (Flow)/4-20mA (-)
BB14 Common for Relay 21 & 22	CA14 Flow Input Meter 1A Product 1 Pulse
BB15 Relay B22 - GP Output #28 (None)	CA15 Flow Input Meter 1B Product 1 Pulse
	CA16 Signal Ground (Flow)/4-20mA (-)
	CA17 Flow Input Meter 2A
	CA18 Flow Input Meter 2B

CA19 Signal Ground	CB16 Signal Ground (Flow)
CA20 GP Input 1 (Emergency Stop)	CB17 Flow Input Meter 4A
CA21 GP Input 2 (Overfill Ground)	CB18 Flow Input Meter 4B
CA22 GP Input 3 (Vapor Recovery)	CB19 Signal Ground
CA23 GP Input 4 (Prog Permissive)	CB20 GP Input 9 (Prog. Input #5)
CA24 Signal Ground	CB21 GP Input 10 (Prog. Input #6)
CA25 GP Input 5 (Prog. Input #1)	CB22 GP Input 11 (RIT Start Arm 1)
CA26 GP Input 6 (Prog. Input #2)	CB23 GP Input 12 (RIT Ack Arm 1)
CA27 GP Input 7 (Prog. Input #3)	CB24 Signal Ground
CA28 GP Input 8 (Prog. Input #4)	CB25 GP Input 13 (RIT Stop Arm 1)
CB1 Not used	CB26 GP Input 14 (None)
CB2 Not used	CB27 GP Input 15 (None)
CB3 Not used	CB28 GP Input 16 (None)
CB4 Not used	DA1 ETH 0V Common
CB5 Not used	DA2 Port 1 ETH_TXP
CB6 Not used	DA3 Port 1 ETH_TXN
CB7 Not used	DA4 Port 1 ETH_RXN
CB8 4-20mA (+)	DA5 Port 1 ETH_RXP
CB9 Not Used	DA6 Port 1 Tx RS232
CB10 Opto Output 3 (Add Pulse)	DA7 Port 1 Rx RS232
CB11 Opto Output 4 (Add Pulse)	DA8 Port 1 0V Common
CB12 Opto 0 Volt	DA9 Port 2 A RS485
CB13 Signal Ground (Flow)	DA10 Port 2 B RS485
CB14 Flow Input Meter 3A	DA11 Port 2 0V Common
CB15 Flow Input Meter 3B	DA12 Signal Ground

DA13 GP Input 17 (None)	DB5 Port 2 ETH_RXP
DA14 GP Input 18(None)	DB6 Port 1 A RS485
DA15 GP Input 19 (None)	DB7 Port 1 B RS485
DA16 GP Input 20 (None)	DB8 Port 1 0V Common
DA17 GP Input 21 (None)	DB9 Port 3 A RS485
DA18 GP Input 22 (None)	DB10 Port 3 B RS485
DA19 Signal Ground	DB11 Port 3 0V Common
DA20 +5V to Reader	DB12 Signal Ground
DA21 Signal Ground (Flow)/4-20mA (-)	DB13 GP Input 23 (None)
DA22 Flow Input Meter 5A (Internal Additive 1)	DB14 GP Input 24 (None)
DA23 Flow Input Meter 5B (Internal Additive 2)	DB15 GP Input 25 (None)
DB24 Flow Input Meter 6A (Internal Additive 3)	DB16 GP Input 26 (None)
DA25 Flow Input Meter 6B (Internal Additive 4)	DB17 GP Input 27 (None)
DA26 Signal Ground (Flow)/4-20mA (-)	DB18 GP Input 28 (None)
DA27 4-20mA 9(+) Density Input Product 1	DB19 Signal Ground
DA28 4-20mA 10(+)	DB20 Touchkey Data Out
DA29 4-20mA Channel 1 lout	DB21 Touchkey Data In
DB1 ETH 0V Common	DB22 Not used
DB2 Port 2 ETH_TXP	DB23 Signal Ground(Flow)/4- 20mA(-)
DB3 Port 2 ETH_TXN	DB24 Flow Input Meter 7A (Internal Additive 5)
DB4 Port 2 ETH_RXN	DB25 Flow Input Meter 7B (Internal Additive 6)
	DB26 Signal Ground(Flow)/4- 20mA(-)
	DB27 4-20mA 11(+)

DB28 4-20mA 12(+)

DB29 4-20mA Channel 1V+

## 4.2 Sales Code B

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 (Deadman Indicator)

A11 Relay A2 -GP Output #2

A12 (Deadman Bell)

A13 Relay A3 - GP Output #3 (Pump Demand Product 1)

A14 Relay A4 - GP Output #4 (Pump Demand Product 2)

A15 Relay A5 - GP Output #5(None)

A16 Relay A6 - GP Output #6 (None)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8(DCV Outlet Product 1)

BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)

BA7 Relay B5 - GP Output #11 (Internal Add 1 Solenoid O/P)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (Internal Add 2 Solenoid O/P)

BA10 Relay B7 - GP Output #13 (Internal Add 3 Solenoid O/P)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (Internal Add 4 Solenoid O/P)

BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)

BA14 Common for Relay 9 & 10

BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)

BA16 Relay B11 - GP Output #17 (Pump Demand Additive 3)	BB16 Relay B23 - GP Output #29 (Deadman Callout)
BA17 Common for Relay 11 & 12	BB17 Common for Relay 23 & 24
BA18 Relay B12 - GP Output #18 (Pump Demand Additive 4)	BB18 Relay B24 - GP Output #30 (None)
BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)	CA1 RTD 1 Source
BB2 Common for Relay 13 & 14	CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) Temperature Input Product 1
BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)	CA3 RTD 1 Sense (-)
BB4 Relay B15 - GP Output #21 (None)	CA4 RTD 1 & 2 Sink
BB5 Common for Relay 15 & 16	CA5 RTD 2 Source
BB6 Relay B16 - GP Output #22	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2 CA7 RTD 2 Sense (-)
BB7 Relay B17- GP Output #23 (System Alarm)	CA8 4-20mA 3 (+) Pressure Input Product 1
BB8 Common for Relay 17 & 18	CA9 4-20mA 4 (+) Pressure Input Product 2
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA10 Opto Output 1 (Add Pulse)
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA11 Opto Output 2 (Add Pulse)
BB11 Common for Relay 19 & 20	CA12 Opto 0 Volt
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA13 Signal Ground (Flow)/4-20mA (-)
BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)	CA14 Flow Input Meter 1A Product 1 Pulse
BB14 Common for Relay 21 & 22	CA15 Flow Input Meter 1B Product 1 Pulse
BB15 Relay B22 - GP Output #28 (None)	CA16 Signal Ground (Flow)/4-20mA (-)

CA17 Flow Input Meter 2A Product 2 Pulse	CB12 Opto 0 Volt
CA18 Flow Input Meter 2B Product 2 Pulse	CB13 Signal Ground (Flow) /4-20mA (-)
CA19 Signal Ground	CB14 Flow Input Meter 3A
CA20 GP Input 1 (Emergency Stop)	CB15 Flow Input Meter 3B
CA21 GP Input 2 (Overfill Ground)	CB16 Signal Ground (Flow) /4-20mA (-)
CA22 GP Input 3 (Vapor Recovery)	CB17 Flow Input Meter 4A
CA23 GP Input 4 (Prog Permissive)	CB18 Flow Input Meter 4B
CA24 Signal Ground	CB19 Signal Ground
CA25 GP Input 5 (Prog. Input #1)	CB20 GP Input 9 (Prog. Input #5)
CA26 GP Input 6 (Prog. Input #2)	CB21 GP Input 10 (Prog. Input #6)
CA27 GP Input 7 (Prog. Input #3)	CB22 GP Input 11 (RIT Start Arm 1)
CA28 GP Input 8 (Prog. Input #4)	CB23 GP Input 12 (RIT Ack Arm 1)
CB1 Not used	CB24 Signal Ground
CB2 Not used	CB25 GP Input 13 (RIT Stop Arm 1)
CB3 Not used	CB26 GP Input 14 (None)
CB4 Not used	CB27 GP Input 15 (None)
CB5 Not used	CB28 GP Input 16 (None)
CB6 Not used	DA1 ETH 0V Common
CB7 Not used	DA2 Port 1 ETH_TXP
CB8 4-20mA 7(+)	DA3 Port 1 ETH_TXN
CB9 4-20mA 8(+)	DA4 Port 1 ETH_RXN
CB10 Opto Output 3 (Add Pulse)	DA5 Port 1 ETH_RXP
CB11 Opto Output 4 (Add Pulse)	DA6 Port 1 Tx RS232
	DA7 Port 1 Rx RS232
	DA8 Port 1 0V Common

DA9 Port 2 A RS485	DB1 ETH 0V Common
DA10 Port 2 B RS485	DB2 Port 2 ETH_TXP
DA11 Port 2 0V Common	DB3 Port 2 ETH_TXN
DA12 Signal Ground	DB4 Port 2 ETH_RXN
DA13 GP Input 17 (None)	DB5 Port 2 ETH_RXP
DA14 GP Input 18(None)	DB6 Port 1 A RS485
DA15 GP Input 19 (None)	DB7 Port 1 B RS485
DA16 GP Input 20 (None)	DB8 Port 1 0V Common
DA17 GP Input 21 (None)	DB9 Port 3 A RS485
DA18 GP Input 22 (None)	DB10 Port 3 B RS485
DA19 Signal Ground	DB11 Port 3 0V Common
DA20 +5V to Reader	DB12 Signal Ground
DA21 Signal Ground (Flow)/4-20mA (-)	DB13 GP Input 23 (None)
DA22 Flow Input Meter 5A Internal Additive 1	DB14 GP Input 24 (None)
DA23 Flow Input Meter 5B Internal Additive 2	DB15 GP Input 25 (None)
DA24 Flow Input Meter 6A Internal Additive 3	DB16 GP Input 26 (None)
DA25 Flow Input Meter 6B Internal Additive 4	DB17 GP Input 27 (None)
DA26 Signal Ground (Flow)/4-20mA (-)	DB18 GP Input 28 (None)
DA27 4-20mA 9(+) Density Input Product 1	DB19 Signal Ground
DA28 4-20mA 10(+) Density Input Product 2	DB20 Touchkey Data Out
DA29 4-20mA Channel 1 Iout	DB21 Touchkey Data In
	DB22 Not used
	DB23 Signal Ground(Flow)/4- 20mA(-)
	DB24 Flow Input Meter 7A
	DB25 Flow Input Meter 7B

DB26 Signal Ground(Flow)/4- 20mA(-)

DB27 4-20mA 11(+)

DB28 4-20mA 12(+)

DB29 4-20mA Channel 1V+

## 4.3 Sales Code C

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 (Deadman Indicator)

A11 Relay A2 -GP Output #2

A12 (Deadman Bell)

A13 Relay A3 - GP Output #3 (Pump Demand Product 1)

A14 Relay A4 - GP Output #4  
(Pump Demand Product 2)

A15 Relay A5 - GP Output #5 (None)

A16 Relay A6 - GP Output #6 (None)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)

BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)

BA7 Relay B5 - GP Output #11 (Internal Add 1 Solenoid O/P)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (Internal Add 2 Solenoid O/P)

BA10 Relay B7 - GP Output #13  
(Internal Add 3 Solenoid O/P)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (Internal Add 4 Solenoid O/P)	BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)
BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)	BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)
BA14 Common for Relay 9 & 10	BB14 Common for Relay 21 & 22
BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)	BB15 Relay B22 - GP Output #28 (None)
BA16 Relay B11 - GP Output #17 (Pump Demand Additive 3)	BB16 Relay B23 - GP Output #29 (Deadman Callout)
BA17 Common for Relay 11 & 12	BB17 Common for Relay 23 & 24
BA18 Relay B12 - GP Output #18 (Pump Demand Additive 4)	BB18 Relay B24 - GP Output #30 (None)
BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)	CA1 RTD 1 Source
BB2 Common for Relay 13 & 14	CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) Temperature Input Product 1
BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)	CA3 RTD 1 Sense (-)
BB4 Relay B15 - GP Output #21 (None)	CA4 RTD 1 & 2 Sink
BB5 Common for Relay 15 & 16	CA5 RTD 2 Source
BB6 Relay B16 - GP Output #22	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2
BB7 Relay B17 - GP Output #23 (System Alarm)	CA7 RTD 2 Sense (-)
BB8 Common for Relay 17 & 18	CA8 4-20mA 3 (+) Pressure Input Product 1
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA9 4-20mA 4 (+) Pressure Input Product 2
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA10 Opto Output 1 (Add Pulse)
BB11 Common for Relay 19 & 20	CA11 Opto Output 2 (Add Pulse)
	CA12 Opto 0 Volt
	CA13 Signal Ground (Flow)/4-20mA (-)

CA14 Flow Input Meter 1A Product 1 Pulse	CB8 4-20mA (+)
CA15 Flow Input Meter 1B Product 1 Pulse	CB9 Not Used
CA16 Signal Ground (Flow)/4-20mA (-)	CB10 Opto Output 3 (Add Pulse)
CA17 Flow Input Meter 2A Product 2 Pulse	CB11 Opto Output 4 (Add Pulse)
CA18 Flow Input Meter 2B Product 2 Pulse	CB12 Opto 0 Volt
CA19 Signal Ground	CB13 Signal Ground (Flow) /4-20mA (-)
CA20 GP Input 1 (Emergency Stop)	CB14 Flow Input Meter 3A
CA21 GP Input 2 (Overfill Ground)	CB15 Flow Input Meter 3B
CA22 GP Input 3 (Vapor Recovery)	CB16 Signal Ground (Flow) /4-20mA (-)
CA23 GP Input 4 (Prog Permissive)	CB17 Flow Input Meter 4A
CA24 Signal Ground	CB18 Flow Input Meter 4B
CA25 GP Input 5 (Programmable In #1)	CB19 Signal Ground
CA26 GP Input 6 (Programmable In #2)	CB20 GP Input 9 (Programmable In #5)
CA27 GP Input 7 (Programmable In #3)	CB21 GP Input 10 (Programmable In #6)
CA28 GP Input 8 (Programmable In #4)	CB22 GP Input 11 (RIT Start Arm 1)
CB1 Not used	CB23 GP Input 12 (RIT Ack Arm 1)
CB2 Not used	CB24 Signal Ground
CB3 Not used	CB25 GP Input 13 (RIT Stop Arm 1)
CB4 Not used	CB26 GP Input 14 (None)
CB5 Not used	CB27 GP Input 15 (None)
CB6 Not used	CB28 GP Input 16 (None)
CB7 Not used	DA1 ETH 0V Common
	DA2 Port 1 ETH_TXP
	DA3 Port 1 ETH_TXN

DA4 Port 1 ETH_RXN	DA26 Signal Ground (Flow)/4-20mA (-)
DA5 Port 1 ETH_RXP	DA27 4-20mA 9(+) Density Input Product 1
DA6 Port 1 Tx RS232	DA28 4-20mA 10(+) Density Input Product 2
DA7 Port 1 Rx RS232	DA29 4-20mA Channel 1 Iout
DA8 Port 1 0V Common	DB1 ETH 0V Common
DA9 Port 2 A RS485	DB2 Port 2 ETH_TXP
DA10 Port 2 B RS485	DB3 Port 2 ETH_TXN
DA11 Port 2 0V Common	DB4 Port 2 ETH_RXN
DA12 Signal Ground	DB5 Port 2 ETH_RXP
DA13 GP Input 17 (None)	DB6 Port 1 A RS485
DA14 GP Input 18 (None)	DB7 Port 1 B RS485
DA15 GP Input 19 (None)	DB8 Port 1 0V Common
DA16 GP Input 20 (None)	DB9 Port 3 A RS485
DA17 GP Input 21 (None)	DB10 Port 3 B RS485
DA18 GP Input 22 (None)	DB11 Port 3 0V Common
DA19 Signal Ground	DB12 Signal Ground
DA20 +5V to Reader	DB13 GP Input 23 (None)
DA21 Signal Ground (Flow)/4-20mA (-)	DB14 GP Input 24 (None)
DA22 Flow Input Meter 5A Internal Additive 1	DB15 GP Input 25 (None)
DA23 Flow Input Meter 5B Internal Additive 2	DB16 GP Input 26 (None)
DA24 Flow Input Meter 6A Internal Additive 3	DB17 GP Input 27 (None)
DA25 Flow Input Meter 6B Internal Additive 4	DB18 GP Input 28 (None)
	DB19 Signal Ground

DB20 Touchkey Data Out  
DB21 Touchkey Data In  
DB22 Not used  
DB23 Signal Ground(Flow)/4- 20mA(-)  
DB24 Flow Input Meter 7A  
DB25 Flow Input Meter 7B  
DB26 Signal Ground(Flow)/4- 20mA(-)  
DB27 4-20mA 11(+)  
DB28 4-20mA 12(+)  
DB29 4-20mA Channel 1V+

## 4.4 Sales Code D

A1 0 Vdc DC Ground	A13 Relay A3 - GP Output #3 (Pump Demand Product 1)
A2 Supply out (8 - 30 Vdc, 100mA)	A14 Relay A4 - GP Output #4 (Pump Demand Product 2)
A3 Supply out (12 Vdc, 250mA)	A15 Relay A5 - GP Output #5 (None)
A4 Not used	A16 Relay A6 - GP Output #6 (None)
A5 Not used	A17 Relay Common for A13 - A16
A6 Not used	BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)
A7 Not used	BA2 Common for Relay 1 & 2
A8 Not used	BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)
A9 Relay A1 - GP Output #1	
A10 (Deadman Indicator)	
A11 Relay A2 -GP Output #2	
A12 (Deadman Bell)	

BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)	BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)
BA5 Common for Relay 3 & 4	BB4 Relay B15 - GP Output #21 (None)
BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)	BB5 Common for Relay 15 & 16
BA7 Relay B5 - GP Output #11 (Internal Add 1 Solenoid O/P)	BB6 Relay B16 - GP Output #22 (None)
BA8 Common for Relay 5 & 6	BB7 Relay B17- GP Output #23 (System Alarm)
BA9 Relay B6 - GP Output #12 (Internal Add 2 Solenoid O/P)	BB8 Common for Relay 17 & 18
BA10 Relay B7 - GP Output #13 (Internal Add 3 Solenoid O/P)	BB9 Relay B18 - GP Output #24 (Instrument Alarm)
BA11 Common for Relay 7 & 8	BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)
BA12 Relay B8 - GP Output #14 (Internal Add 4 Solenoid O/P)	BB11 Common for Relay 19 & 20
BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)	BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)
BA14 Common for Relay 9 & 10	BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)
BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)	BB14 Common for Relay 21 & 22
BA16 Relay B11 - GP Output #17 (Pump Demand Additive 3)	BB15 Relay B22 - GP Output #28 (RIT Lamp Start Arm 2)
BA17 Common for Relay 11 & 12	BB16 Relay B23 - GP Output #29 (RIT Lamp Ack Arm 2)
BA18 Relay B12 - GP Output #18 (Pump Demand Additive 4)	BB17 Common for Relay 23 & 24
BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)	BB18 Relay B24 - GP Output #30 (RIT Lamp Stop Arm 2)
BB2 Common for Relay 13 & 14	CA1 RTD 1 Source
	CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) Temperature Input Product 1

CA3 RTD 1 Sense (-)	CA23 GP Input 4 (Prog Permissive)
CA4 RTD 1 & 2 Sink	CA24 Signal Ground
CA5 RTD 2 Source	CA25 GP Input 5 (Prog. Input #1)
CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2	CA26 GP Input 6 (Prog. Input #2)
CA7 RTD 2 Sense (-)	CA27 GP Input 7 (Prog. Input #3)
CA8 4-20mA 3 (+) Pressure Input Product 1	CA28 GP Input 8 (Prog. Input #4)
CA9 4-20mA 4 (+) Pressure Input Product 2	CB1 Not used
CA10 Opto Output 1 (Add Pulse)	CB2 Not used
CA11 Opto Output 2 (Add Pulse)	CB3 Not used
CA12 Opto 0 Volt	CB4 Not used
CA13 Signal Ground (Flow)/4-20mA (-)	CB5 Not used
CA14 Flow Input Meter 1A Product 1 Pulse	CB6 Not used
CA15 Flow Input Meter 1B Product 1 Pulse	CB7 Not used
CA16 Signal Ground (Flow)/4-20mA (-)	CB8 4-20mA 7 (+)
CA17 Flow Input Meter 2A Product 2 Pulse	CB9 4-20mA 8(+)
CA18 Flow Input Meter 2B Product 2 Pulse	CB10 Opto Output 3 (Add Pulse)
CA19 Signal Ground	CB11 Opto Output 4 (Add Pulse)
CA20 GP Input 1 (Emergency Stop)	CB12 Opto 0 Volt
CA21 GP Input 2 (Overfill Ground)	CB13 Signal Ground (Flow) /4-20mA (-)
CA22 GP Input 3 (Vapor Recovery)	CB14 Flow Input Meter 3A
	CB15 Flow Input Meter 3B
	CB16 Signal Ground (Flow) /4-20mA (-)
	CB17 Flow Input Meter 4A
	CB18 Flow Input Meter 4B
	CB19 Signal Ground

CB20 GP Input 9 (Prog. Input #5)	DA17 GP Input 21 (None)
CB21 GP Input 10 (Prog. Input #6)	DA18 GP Input 22 (None)
CB22 GP Input 11 (RIT Start Arm 1)	DA19 Signal Ground
CB23 GP Input 12 (RIT Ack Arm 1)	DA20 +5V to Reader
CB24 Signal Ground	DA21 Signal Ground (Flow)/4-20mA (-)
CB25 GP Input 13 (RIT Stop Arm 1)	DA22 Flow Input Meter 5A Internal Additive 1
CB26 GP Input 14 (RIT Start Arm 2)	DA23 Flow Input Meter 5B Internal Additive 2
CB27 GP Input 15 (RIT Ack Arm 2)	DA24 Flow Input Meter 6A Internal Additive 3
CB28 GP Input 16 (RIT Stop Arm 2)	DA25 Flow Input Meter 6B Internal Additive 4
DA1 ETH 0V Common	DA26 Signal Ground (Flow)/4-20mA (-)
DA2 Port 1 ETH_TXP	DA27 4-20mA 9(+) Density Input Product 1
DA3 Port 1 ETH_TXN	DA28 4-20mA 10(+) Density Input Product 2
DA4 Port 1 ETH_RXN	DA29 4-20mA Channel 1 Iout
DA5 Port 1 ETH_RXP	DB1 ETH 0V Common
DA6 Port 1 Tx RS232	DB2 Port 2 ETH_TXP
DA7 Port 1 Rx RS232	DB3 Port 2 ETH_TXN
DA8 Port 1 0V Common	DB4 Port 2 ETH_RXN
DA9 Port 2 A RS485	DB5 Port 2 ETH_RXP
DA10 Port 2 B RS485	DB6 Port 1 A RS485
DA11 Port 2 0V Common	DB7 Port 1 B RS485
DA12 Signal Ground	DB8 Port 1 0V Common
DA13 GP Input 17 (None)	
DA14 GP Input 18 (None)	
DA15 GP Input 19 (None)	
DA16 GP Input 20 (None)	

DB9 Port 3 A RS485  
DB10 Port 3 B RS485  
DB11 Port 3 0V Common  
DB12 Signal Ground  
DB13 GP Input 23 (None)  
DB14 GP Input 24 (None)  
DB15 GP Input 25 (None)  
DB16 GP Input 26 (None)  
DB17 GP Input 27 (None)  
DB18 GP Input 28 (None)  
DB19 Signal Ground  
DB20 Touchkey Data Out  
DB21 Touchkey Data In  
DB22 Not used  
DB23 Signal Ground(Flow)/4- 20mA(-)  
DB24 Flow Input Meter 7A  
DB25 Flow Input Meter 7B  
DB26 Signal Ground(Flow)/4- 20mA(-)  
DB27 4-20mA 11(+)  
DB28 4-20mA 12(+)  
DB29 4-20mA Channel 1V+

## 4.5 Sales Code E

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)	BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)
A4 Not used	BA7 Relay B5 - GP Output #11 (DCV Inlet Product 3)
A5 Not used	BA8 Common for Relay 5 & 6
A6 Not used	BA9 Relay B6 - GP Output #12 (DCV Outlet Product 3)
A7 Not used	BA10 Relay B7 - GP Output #13 (Internal Add 1 Solenoid O/P)
A8 Not used	BA11 Common for Relay 7 & 8
A9 Relay A1 - GP Output #1	BA12 Relay B8 - GP Output #14 (Internal Add 2 Solenoid O/P)
A10 (Deadman Indicator)	BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)
A11 Relay A2 -GP Output #2	BA14 Common for Relay 9 & 10
A12 (Deadman Bell)	BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)
A13 Relay A3 - GP Output #3 (Pump Demand Product 1)	BA16 Relay B11 - GP Output #17 (None)
A14 Relay A4 - GP Output #4 (Pump Demand Product 2)	BA17 Common for Relay 11 & 12
A15 Relay A5 - GP Output #5 (Pump Demand Product 3)	BA18 Relay B12 - GP Output #18 (None)
A16 Relay A6 - GP Output #6 (None)	BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)
A17 Relay Common for A13 - A16	BB2 Common for Relay 13 & 14
BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)	BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)
BA2 Common for Relay 1 & 2	BB4 Relay B15 - GP Output #21 (Isolation Valve Product 3)
BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)	BB5 Common for Relay 15 & 16
BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)	
BA5 Common for Relay 3 & 4	

BB6 Relay B16 - GP Output #22 (None)	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2
BB7 Relay B17- GP Output #23 (System Alarm)	CA7 RTD 2 Sense (-)
BB8 Common for Relay 17 & 18	CA8 4-20mA 3 (+) Pressure Input Product 1
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA9 4-20mA 4 (+) Pressure Input Product 2
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA10 Opto Output 1 (Add Pulse)
BB11 Common for Relay 19 & 20	CA11 Opto Output 2 (Add Pulse)
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA12 Opto 0 Volt
BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)	CA13 Signal Ground (Flow)/4-20mA (-)
BB14 Common for Relay 21 & 22	CA14 Flow Input Meter 1A Product 1 Pulse
BB15 Relay B22 - GP Output #28 (RIT Lamp Start Arm 2)	CA15 Flow Input Meter 1B Product 1 Pulse
BB16 Relay B23 - GP Output #29 (RIT Lamp Ack Arm 2)	CA16 Signal Ground (Flow)/4-20mA (-)
BB17 Common for Relay 23 & 24	CA17 Flow Input Meter 2A Product 2 Pulse
BB18 Relay B24 - GP Output #30 (RIT Lamp Stop Arm 2)	CA18 Flow Input Meter 2B Product 2 Pulse
CA1 RTD 1 Source	CA19 Signal Ground
CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) Temperature Input Product 1	CA20 GP Input 1 (Emergency Stop)
CA3 RTD 1 Sense (-)	CA21 GP Input 2 (Overfill Ground)
CA4 RTD 1 & 2 Sink	CA22 GP Input 3 (Vapor Recovery)
CA5 RTD 2 Source	CA23 GP Input 4 (Prog Permissive)
	CA24 Signal Ground
	CA25 GP Input 5 (Prog. Input #1)

CA26 GP Input 6 (Prog. Input #2)	CB18 Flow Input Meter 4B Product 3 Pulse
CA27 GP Input 7 (Prog. Input #3)	CB19 Signal Ground
CA28 GP Input 8 (Prog. Input #4)	CB20 GP Input 9 (Prog. Input #5)
CB1 RTD 3 Source	CB21 GP Input 10 (Prog. Input #6)
CB2 RTD 3 Sense (+)/4-20mA 5 (+) Temperature Input Product 3	CB22 GP Input 11 (RIT Start Arm 1)
CB3 RTD 3 Sense (-)	CB23 GP Input 12 (RIT Ack Arm 1)
CB4 RTD 3 Sink	CB24 Signal Ground
CB5 RTD 4 Source	CB25 GP Input 13 (RIT Stop Arm 1)
CB6 RTD 4 Sense (+)/4-20mA 6 (+) Temperature Input Product 4	CB26 GP Input 14 (RIT Start Arm 2)
CB7 RTD 3 Sense(-)	CB27 GP Input 15 (RIT Ack Arm 2)
CB8 4-20mA 7 (+) Pressure Input Product 3	CB28 GP Input 16 (RIT Stop Arm 2)
CB9 4-20mA 8 (+) Pressure Input Product4	DA1 ETH 0V Common
CB10 Opto Output 3 (Add Pulse)	DA2 Port 1 ETH_TXP
CB11 Opto Output 4 (Add Pulse)	DA3 Port 1 ETH_TXN
CB12 Opto 0 Volt	DA4 Port 1 ETH_RXN
CB13 Signal Ground (Flow) /4-20mA (-)	DA5 Port 1 ETH_RXP
CB14 Flow Input Meter 3A Product 3 Pulse	DA6 Port 1 Tx RS232
CB15 Flow Input Meter 3B Product 3 Pulse	DA7 Port 1 Rx RS232
CB16 Signal Ground (Flow) /4-20mA (-)	DA8 Port 1 0V Common
CB17 Flow Input Meter 4A Product 4 Pulse	DA9 Port 2 A RS485
	DA10 Port 2 B RS485
	DA11 Port 2 0V Common
	DA12 Signal Ground
	DA13 GP Input 17 (None)

DA14 GP Input 18(None)	DB6 Port 1 A RS485
DA15 GP Input 19 (None)	DB7 Port 1 B RS485
DA16 GP Input 20 (None)	DB8 Port 1 0V Common
DA17 GP Input 21 (None)	DB9 Port 3 A RS485
DA18 GP Input 22 (None)	DB10 Port 3 B RS485
DA19 Signal Ground	DB11 Port 3 0V Common
DA20 +5V to Reader	DB12 Signal Ground
DA21 Signal Ground (Flow)/4-20mA (-)	DB13 GP Input 23 (None)
DA22 Flow Input Meter 5A Internal Additive 1	DB14 GP Input 24 (None)
DA23 Flow Input Meter 5B Internal Additive 2	DB15 GP Input 25 (None)
DA24 Flow Input Meter 6A Internal Additive 3	DB16 GP Input 26 (None)
DA25 Flow Input Meter 6B Internal Additive 4	DB17 GP Input 27 (None)
DA26 Signal Ground (Flow)/4-20mA (-)	DB18 GP Input 28 (None)
DA27 4-20mA 9(+) Density Input Product 1	DB19 Signal Ground
DA28 4-20mA 10(+) Density Input Product 2	DB20 Touchkey Data Out
DA29 4-20mA Channel 1 Iout	DB21 Touchkey Data In
DB1 ETH 0V Common	DB22 Not used
DB2 Port 2 ETH_TXP	DB23 Signal Ground(Flow)/4- 20mA(-)
DB3 Port 2 ETH_TXN	DB24 Flow Input Meter 7A
DB4 Port 2 ETH_RXN	DB25 Flow Input Meter 7B
DB5 Port 2 ETH_RXP	DB26 Signal Ground(Flow)/4- 20mA(-)
	DB27 4-20mA 11(+) Density Input Product 3
	DB28 4-20mA 12(+) Density Input Product 4

DB29 4-20mA Channel 1V

## 4.6 Sales Code F

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 (Deadman Indicator)

A11 Relay A2 -GP Output #2

A12 (Deadman Bell)

A13 Relay A3 - GP Output #3 (Pump Demand Product 1)

A14 Relay A4 - GP Output #4 (Pump Demand Product 2)

A15 Relay A5 - GP Output #5 (Pump Demand Product 3)

A16 Relay A6 - GP Output #6 (None)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1 )

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)

BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)

BA7 Relay B5 - GP Output #11 (DCV Inlet Product 3)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (DCV Outlet Product 3)

BA10 Relay B7 - GP Output #13 (Internal Add 1 Solenoid O/P)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (Internal Add 2 Solenoid O/P)

BA13 Relay B9 - GP Output #15 (Pump Demand Additive 1)

BA14 Common for Relay 9 & 10

BA15 Relay B10 - GP Output #16 (Pump Demand Additive 2)

BA16 Relay B11 - GP Output #17 (None)

BA17 Common for Relay 11 & 12	BB17 Common for Relay 23 & 24
BA18 Relay B12 - GP Output #18 (None)	BB18 Relay B24 - GP Output #30 (RIT Lamp Stop Arm 2)
BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)	CA1 RTD 1 Source
BB2 Common for Relay 13 & 14	CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) (Temperature Input Product 1 )
BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)	CA3 RTD 1 Sense (-)
BB4 Relay B15 - GP Output #21 (Isolation Valve Product 3)	CA4 RTD 1 & 2 Sink
BB5 Common for Relay 15 & 16	CA5 RTD 2 Source
BB6 Relay B16 - GP Output #22 (None)	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2
BB7 Relay B17- GP Output #23 (System Alarm)	CA7 RTD 2 Sense (-)
BB8 Common for Relay 17 & 18	CA8 4-20mA 3 (+) (Pressure Input Product 1)
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA9 4-20mA 4 (+) (Pressure Input Product 2)
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA10 Opto Output 1 (Add Pulse)
BB11 Common for Relay 19 & 20	CA11 Opto Output 2 (Add Pulse)
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA12 Opto 0 Volt
BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)	CA13 Signal Ground (Flow)/4-20mA (-)
BB14 Common for Relay 21 & 22	CA14 Flow Input Meter 1A Product 1 Pulse
BB15 Relay B22 - GP Output #28 (RIT Lamp Start Arm 2)	CA15 Flow Input Meter 1B Product 1 Pulse
BB16 Relay B23 - GP Output #29 (RIT Lamp Ack Arm 2)	CA16 Signal Ground (Flow)/4-20mA (-)
	CA17 Flow Input Meter 2A Product 2 Pulse

CA18 Flow Input Meter 2B Product 2 Pulse	CB13 Signal Ground (Flow) /4-20mA (-)
CA19 Signal Ground	CB14 Flow Input Meter 3A Product 3 Pulse
CA20 GP Input 1 (Emergency Stop)	CB15 Flow Input Meter 3B Product 3 Pulse
CA21 GP Input 2 (Overfill Ground)	CB16 Signal Ground (Flow) /4-20mA (-)
CA22 GP Input 3 (Vapor Recovery)	CB17 Flow Input Meter 4A
CA23 GP Input 4 (Prog Permissive)	CB18 Flow Input Meter 4B
CA24 Signal Ground	CB19 Signal Ground
CA25 GP Input 5 (Prog. Input #1)	CB20 GP Input 9 (Prog. Input #5)
CA26 GP Input 6 (Prog. Input #2)	CB21 GP Input 10 (Prog. Input #6)
CA27 GP Input 7 (Prog. Input #3)	CB22 GP Input 11 (RIT Start Arm 1)
CA28 GP Input 8 (Prog. Input #4)	CB23 GP Input 12 (RIT Ack Arm 1)
CB1 RTD 3 Source	CB24 Signal Ground
CB2 RTD 3 Sense (+)/4-20mA 5 (+) Temperature Input Product 3	CB25 GP Input 13 (RIT Stop Arm 1)
CB3 RTD 3 Sense (-)	CB26 GP Input 14 (RIT Start Arm 2)
CB4 RTD 3 Sink	CB27 GP Input 15 (RIT Ack Arm 2)
CB5 Not used	CB28 GP Input 16 (RIT Stop Arm 2)
CB6 Not used	DA1 ETH 0V Common
CB7 Not used	DA2 Port 1 ETH_TXP
CB8 4-20mA 7 (+) Pressure Input Product 3	DA3 Port 1 ETH_TXN
CB9 Not used	DA4 Port 1 ETH_RXN
CB10 Opto Output 3 (Add Pulse)	DA5 Port 1 ETH_RXP
CB11 Opto Output 4 (Add Pulse)	DA6 Port 1 Tx RS232
CB12 Opto 0 Volt	DA7 Port 1 Rx RS232

DA8 Port 1 0V Common	DA21 Signal Ground (Flow)/4-20mA (-)
DA9 Port 2 A RS485	
DA10 Port 2 B RS485	
DA11 Port 2 0V Common	
DA12 Signal Ground	
DA13 GP Input 17 (None)	
DA14 GP Input 18 (None)	
DA15 GP Input 19 (None)	
DA16 GP Input 20 (None)	
DA17 GP Input 21 (None)	
DA18 GP Input 22 (None)	
DA19 Signal Ground	
DA20 +5V to Reader	
DA21 Signal Ground (Flow)/4-20mA (-)	
DA22 Flow Input Meter 5A	
DA23 Flow Input Meter 5B	
DA24 Flow Input Meter 6A	
DA25 Flow Input Meter 6B	
DA26 Signal Ground (Flow)/4-20mA (-)	
DA27 4-20mA 9(+) Density Input Product 1	
DA28 4-20mA 10(+) Density Input Product 2	
DA29 4-20mA Channel 1 Iout	
DA20 +5V to Reader	

## 4.7 Sales Code G

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 (Deadman Indicator)

A11 Relay A2 -GP Output #2

A12 (Deadman Bell)

A13 Relay A3 - GP Output #3 (Pump Demand Product 1)

A14 Relay A4 - GP Output #4 (Pump Demand Product 2)

A15 Relay A5 - GP Output #5 (Pump Demand Product 3)

A16 Relay A6 - GP Output #6 (Pump Demand Product 4)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet Product 1)

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8 (DCV Outlet Product 1)

BA4 Relay B3 - GP Output #9 (DCV Inlet Product 2)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10 (DCV Outlet Product 2)

BA7 Relay B5 - GP Output #11 (DCV Inlet Product 3)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (DCV Outlet Product 3)

BA10 Relay B7 - GP Output #13 (DCV Inlet Product 4)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (DCV Outlet Product 4)

BA13 Relay B9 - GP Output #15 (None)

BA14 Common for Relay 9 & 10

BA15 Relay B10 - GP Output #16 (None)

BA16 Relay B11 - GP Output #17 (None)

BA17 Common for Relay 11 & 12

BA18 Relay B12 - GP Output #18 (None)

BB1 Relay B13 - GP Output #19 (Isolation Valve Product 1)

BB2 Common for Relay 13 & 14	CA1 RTD 1 Source
BB3 Relay B14 - GP Output #20 (Isolation Valve Product 2)	CA2 RTD 1 Sense (+)/ 4-20mA 1 (+) Temperature Input Product 1
BB4 Relay B15 - GP Output #21 (Isolation Valve Product 3)	CA3 RTD 1 Sense (-)
BB5 Common for Relay 15 & 16	CA4 RTD 1 & 2 Sink
BB6 Relay B16 - GP Output #22 (Isolation Valve Product 4)	CA5 RTD 2 Source
BB7 Relay B17- GP Output #23 (System Alarm)	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Temperature Input Product 2
BB8 Common for Relay 17 & 18	CA7 RTD 2 Sense (-)
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA8 4-20mA 3 (+) Pressure Input Product 1
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA9 4-20mA 4 (+) Pressure Input Product 2
BB11 Common for Relay 19 & 20	CA10 Opto Output 1 (Add Pulse)
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA11 Opto Output 2 (Add Pulse)
BB13 Relay B21 - GP Output #27 (RIT Lamp Stop Arm 1)	CA12 Opto 0 Volt
BB14 Common for Relay 21 & 22	CA13 Signal Ground (Flow)/4-20mA (-)
BB15 Relay B22 - GP Output #28 (RIT Lamp Start Arm 2)	CA14 Flow Input Meter 1A Product 1 Pulse
BB16 Relay B23 - GP Output #29 (RIT Lamp Ack Arm 2)	CA15 Flow Input Meter 1B Product 1 Pulse
BB17 Common for Relay 23 & 24	CA16 Signal Ground (Flow)/4-20mA (-)
BB18 Relay B24 - GP Output #30 (RIT Lamp Stop Arm 2)	CA17 Flow Input Meter 2A Product 2 Pulse
	CA18 Flow Input Meter 2B Product 2 Pulse
	CA19 Signal Ground

CA20 GP Input 1 (Emergency Stop)	CB14 Flow Input Meter 3A Product 3 Pulse
CA21 GP Input 2 (Overfill Ground)	CB15 Flow Input Meter 3B Product 3 Pulse
CA22 GP Input 3 (Vapor Recovery)	CB16 Signal Ground (Flow) /4-20mA (-)
CA23 GP Input 4 (Prog Permissive)	CB17 Flow Input Meter 4A Product 4 Pulse
CA24 Signal Ground	CB18 Flow Input Meter 4B Product 4 Pulse
CA25 GP Input 5 (Prog. Input #1)	CB19 Signal Ground
CA26 GP Input 6 (Prog. Input #2)	CB20 GP Input 9 (Prog. Input #5)
CA27 GP Input 7 (Prog. Input #3)	CB21 GP Input 10 (Prog. Input #6)
CA28 GP Input 8 (Prog. Input #4)	CB22 GP Input 11 (RIT Start Arm 1)
CB1 RTD 3 Source	CB23 GP Input 12 (RIT Ack Arm 1)
CB2 RTD 3 Sense (+) / 4-20mA 5 (+) Temperature Input Product 3	CB24 Signal Ground
CB3 RTD 3 Sense (-)	CB25 GP Input 13 (RIT Stop Arm 1)
CB4 RTD 3 Sink	CB26 GP Input 14 (RIT Start Arm 2)
CB5 RTD 4 Source	CB27 GP Input 15 (RIT Ack Arm 2)
CB6 RTD 4 Sense (+) / 4-20mA 6 (+) Temperature Input Product 4	CB28 GP Input 16 (RIT Stop Arm 2)
CB7 RTD 4 Sense (-)	DA1 ETH 0V Common
CB8 4-20mA 7 (+) Pressure Input Product 3	DA2 Port 1 ETH_TXP
CB9 4-20mA 8 (+) Pressure Input Product 4	DA3 Port 1 ETH_TXN
CB10 Opto Output 3 (Add Pulse)	DA4 Port 1 ETH_RXN
CB11 Opto Output 4 (Add Pulse)	DA5 Port 1 ETH_RXP
CB12 Opto 0 Volt	DA6 Port 1 Tx RS232
CB13 Signal Ground (Flow) /4-20mA (-)	DA7 Port 1 Rx RS232

DA8 Port 1 0V Common	DB2 Port 2 ETH_TXP
DA9 Port 2 A RS485	DB3 Port 2 ETH_TXN
DA10 Port 2 B RS485	DB4 Port 2 ETH_RXN
DA11 Port 2 0V Common	DB5 Port 2 ETH_RXP
DA12 Signal Ground	DB6 Port 1 A RS485
DA13 GP Input 17 (None)	DB7 Port 1 B RS485
DA14 GP Input 18 (None)	DB8 Port 1 0V Common
DA15 GP Input 19 (None)	DB9 Port 3 A RS485
DA16 GP Input 20 (None)	DB10 Port 3 B RS485
DA17 GP Input 21 (None)	DB11 Port 3 0V Common
DA18 GP Input 22 (None)	DB12 Signal Ground
DA19 Signal Ground	DB13 GP Input 23 (None)
DA20 +5V to Reader	DB14 GP Input 24 (None)
DA21 Signal Ground (Flow)/4-20mA (-)	DB15 GP Input 25 (None)
DA22 Flow Input Meter 5A	DB16 GP Input 26 (None)
DA23 Flow Input Meter 5B	DB17 GP Input 27 (None)
DA24 Flow Input Meter 6A	DB18 GP Input 28 (None)
DA25 Flow Input Meter 6B	DB19 Signal Ground
DA26 Signal Ground (Flow)/4-20mA (-)	DB20 Touchkey Data Out
DA27 4-20mA 9(+) Density Input Product 1	DB21 Touchkey Data In
DA28 4-20mA 10(+) Density Input Product 2	DB22 Not used
DA29 4-20mA Channel 1 Iout	DB23 Signal Ground(Flow)/4-20mA(-)
DB1 ETH 0V Common	DB24 Flow Input Meter 7A
	DB25 Flow Input Meter 7B
	DB26 Signal Ground(Flow)/4-20mA(-)

DB27 4-20mA 11(+) Density Input  
Product 3

DB28 4-20mA 12(+) Density Input  
Product 4

DB29 4-20mA Channel 1V+

## 4.8 Sales Code K

A1 0 Vdc DC Ground

A2 Supply out (8 - 30 Vdc, 100mA)

A3 Supply out (12 Vdc, 250mA)

A4 Not used

A5 Not used

A6 Not used

A7 Not used

A8 Not used

A9 Relay A1 - GP Output #1

A10 Liquid (V1) Isolation Valve

A11 Relay A2 -GP Output #2

A12 Vapour (V2) Isolation Valve

A13 Relay A3 - GP Output #3 Cooling  
(V3) Isolation Valve

A14 Relay A4 - GP Output #4 Drain (V4)  
Isolation Valve

A15 Relay A5 - GP Output #5 Pump  
Demand Liquid

A16 Relay A6 - GP Output #6 (None)

A17 Relay Common for A13 - A16

BA1 Relay B1 - GP Output #7 (DCV Inlet  
Liquid)

BA2 Common for Relay 1 & 2

BA3 Relay B2 - GP Output #8 (DCV  
Outlet Liquid)

BA4 Relay B3 - GP Output #9(None)

BA5 Common for Relay 3 & 4

BA6 Relay B4 - GP Output #10(None)

BA7 Relay B5 - GP Output #11 (None)

BA8 Common for Relay 5 & 6

BA9 Relay B6 - GP Output #12 (None)

BA10 Relay B7 - GP Output #13 (None)

BA11 Common for Relay 7 & 8

BA12 Relay B8 - GP Output #14 (None)

BA13 Relay B9 - GP Output #15 (None)

BA14 Common for Relay 9 & 10

BA15 Relay B10 - GP Output #16 (None)

BA16 Relay B11 - GP Output #17 (None)	CA2 RTD 1 Sense (+) / 4-20mA (+) Liquid Line Temperature (TT1)
BA17 Common for Relay 11 & 12	CA3 RTD 1 Sense (-)
BA18 Relay B12 - GP Output #18 (None)	CA4 RTD 1 & RTD 2 Sink
BB1 Relay B13 - GP Output #19 (None)	CA5 RTD 2 Source
BB2 Common for Relay 13 & 14	CA6 RTD 2 Sense (+) / 4-20mA 2 (+) Vapour Line Temperature (TT2)
BB3 Relay B14 - GP Output #20 (None)	CA7 RTD 2 Sense (-)
BB4 Relay B15 - GP Output #21 (None)	CA8 4-20mA 3 (+) Liquid Line Pressure (PT1)
BB5 Common for Relay 15 & 16	CA9 4-20mA 4 (+) Vapour Line Pressure (PT2)
BB6 Relay B16 - GP Output 22 (None)	CA10 Opto Output 1 (None)
BB7 Relay B17- GP Output #23 (System Alarm)	CA11 Opto Output 2 (None)
BB8 Common for Relay 17 & 18	CA12 Opto 0 Volt
BB9 Relay B18 - GP Output #24 (Instrument Alarm)	CA13 Signal Ground (Flow)/4-20mA (-)
BB10 Relay B19 - GP Output #25 (RIT Lamp Start Arm 1)	CA14 Flow Input Meter 1A Liquid Flow Meter Pulse Input A
BB11 Common for Relay 19 & 20	CA15 Flow Input Meter 1B Liquid Flow Meter Pulse Input B
BB12 Relay B20 - GP Output #26 (RIT Lamp Ack Arm 1)	CA16 Signal Ground (Flow)/4-20mA (-)
BB13 Relay B21 - GP Output #27 (None)	CA17 Flow Input Meter 2A Vapour Meter Pulse Input A
BB14 Common for Relay 21 & 22	CA18 Flow Input Meter 2B Vapour Meter Pulse Input B
BB15 Relay B22 - GP Output #28 (None)	CA19 Signal Ground
BB16 Relay B23 - GP Output #29 (None)	CA20 GP Input 1 (Emergency Stop)
BB17 Common for Relay 23 & 24	
BB18 Relay B24 - GP Output #30 (None)	
CA1 RTD 1 Source	

CA21 GP Input 2 (Overflow Ground)	CB16 Signal Ground (Flow)
CA22 GP Input 3 (Vapor Recovery)	CB17 Flow Input Meter 4A
CA23 GP Input 4 (Prog Permissive)	CB18 Flow Input Meter 4B
CA24 Signal Ground	CB19 Signal Ground
CA25 GP Input 5 (Prog. Input #1)	CB20 GP Input 9 (Prog. Input #5)
CA26 GP Input 6 (Prog. Input #2)	CB21 GP Input 10 (Prog. Input #6)
CA27 GP Input 7 (Prog. Input #3)	CB22 GP Input 11 (None)
CA28 GP Input 8 (Prog. Input #4)	CB23 GP Input 12 (None)
CB1 RTD 3 Source	CB24 Signal Ground
CB2 RTD 3 Sense (+)/4-20mA 5 (+) LNG Arm Temperature (TT3)	CB25 GP Input 13 (None)
CB3 RTD 3 Sense (-)	CB26 GP Input 14 (None)
CB4 RTD 3 Sink	CB27 GP Input 15 (None)
CB5 Not used	CB28 GP Input 16 (None)
CB6 Not used	DA1 ETH 0V Common
CB7 Not used	DA2 Port 1 ETH_TXP
CB8 4-20mA 7 (+) LNG Arm Pressure (PT3)	DA3 Port 1 ETH_TXN
CB9 Not Used	DA4 Port 1 ETH_RXN
CB10 Opto Output 3 (None)	DA5 Port 1 ETH_RXP
CB11 Opto Output 4 (None)	DA6 Port 1 Tx RS232
CB12 Opto 0 Volt	DA7 Port 1 Rx RS232
CB13 Signal Ground (Flow)	DA8 Port 1 0V Common
CB14 Flow Input Meter 3A	DA9 Port 2 A RS485
CB15 Flow Input Meter 3B	DA10 Port 2 B RS485
	DA11 Port 2 0V Common
	DA12 Signal Ground

DA13 GP Input 17 (None)	DB8 Port 1 0V Common
DA14 GP Input 18 (None)	DB9 Port 3 A RS485
DA15 GP Input 19 (None)	DB10 Port 3 B RS485
DA16 GP Input 20 (None)	DB11 Port 3 0V Common
DA17 GP Input 21 (None)	DB12 Signal Ground
DA18 GP Input 22 (None)	DB13 GP Input 23 (None)
DA19 Signal Ground	DB14 GP Input 24 (None)
DA20 +5V to Reader	DB15 GP Input 25 (None)
DA21 Signal Ground (Flow)/4-20mA (-)	DB16 GP Input 26 (None)
DA22 Flow Input Meter 5A (None)	DB17 GP Input 27 (None)
DA23 Flow Input Meter 5B (None)	DB18 GP Input 28 (None)
DB24 Flow Input Meter 6A (None)	DB19 Signal Ground
DA25 Flow Input Meter 6B (None)	DB20 Touchkey Data Out
DA26 Signal Ground (Flow)/4-20mA (-)	DB21 Touchkey Data In
DA27 4-20mA 9(+) Density Input Product 1	DB22 Not used
DA28 4-20mA 10(+)	DB23 Signal Ground(Flow)/ 4- 20mA(-)
DA29 Analog Control Valve - 4- 20mA (+)	DB24 Flow Input Meter 7A (None)
DB1 ETH 0V Common	DB25 Flow Input Meter 7B (None)
DB2 Port 2 ETH_TXP	DB26 Signal Ground(Flow)/4- 20mA(-)
DB3 Port 2 ETH_TXN	DB27 4-20mA 11(+)
DB4 Port 2 ETH_RXN	DB28 4-20mA 12(+)
DB5 Port 2 ETH_RXP	DB29 Analog Control Valve - 4- 20mA (-)
DB6 Port 1 A RS485	
DB7 Port 1 B RS485	

#### NOTES:

- GP Outputs are configurable. The settings listed in brackets for GP outputs are default settings.
- RIT output and inputs will be set only if the RIT Panel is enabled.
- Except for emergency stop the rest inputs are configurable. The settings listed for rest of GP inputs in the brackets are default settings.
- Either the RTD or 4-20mA sensor can be used to sense the temperature of the product.
- For configuration refer to the 1010 CB programming manual.
- Internal Additives are not available in sales codes K.
- RIT Panel is not available in the sales code K.
- In case of straight loading arm if the mass meter is used with volume preset then the inputs shown for density can be used to connect the densitometer.

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