Instructions - Parts

Communications Gateway Module Installation Kit



3A1704R EN

For use with HFR[™] systems to provide fieldbus communications abilities. For professional use only.

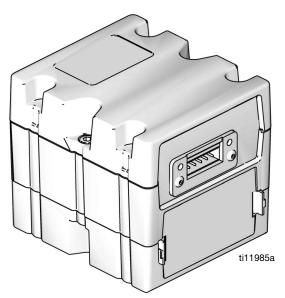
NOTE: Not for new designs. Use PLC/CGM interface outlined in Graco kit No. 26B872, map token No. 19C802 and flash drive No. 19C885 for new designs.

Kit 24J415



Important Safety Instructions

Read all warnings and instructions in your system manual. Save all instructions.



CGM with DeviceNet connector shown

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Kits

The following kit is the Communications Gateway Module (CGM) hardware/software and is required for all installations. The kit is used in conjunction with the correct fieldbus device.

| CGM Part No. | Description |
|--------------|---------------------------------|
| 24J415 | CGM Installation Kit (Required) |

The following kits work with kit 24J415 and includes all remaining parts necessary to install a CGM. See manual 312864 for repair parts for each assembly.

| CGM Part No. | Fieldbus |
|--------------|-------------|
| CGMDN0 | DeviceNet |
| CGMEP0 | EtherNet/IP |
| CGMPB0 | PROFIBUS |
| CGMPN0 | PROFINET |

Related Manuals

| Manual | Description |
|--------|--|
| 3A1974 | CAN Adapter Kit, Instructions |
| 312864 | Communications Gateway Module, Instructions - Parts |
| 313997 | HFR Operation |
| 313998 | HFR Repair - Parts |
| 406987 | GCA CAN Cables, Reference |

Overview

The Communications Gateway Module (CGM) provides a control link between the HFR system and a selected fieldbus. This provides the means for remote monitoring and control by external automation systems.

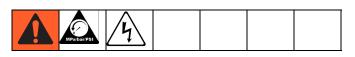
The data available by the CGM to the fieldbus depends on which GCA based system is connected. Unique data maps are defined for each GCA system and are available on the token provided in the kit.

See **Available Internal Data** on page 9 for a list of internal data from the HFR system that can be viewed or modified by your fieldbus master.

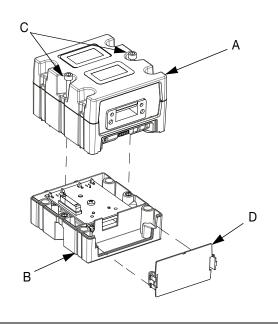
NOTE: The following system network configuration files are available at www.graco.com.

- EDS file: DeviceNet or Ethernet/IP fieldbus networks
- GSD file: PROFIBUS fieldbus networks
- GSDML: PROFINET fieldbus networks

Installation

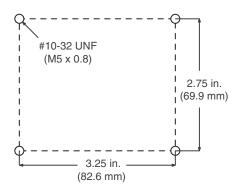


- 1. Install the CGM in the desired location.
 - a. Remove access cover (D). Loosen two screws(C) and remove CGM (A) from base (B).





b. Mount base (B) in desired location with four screws supplied in this kit. See the following mounting dimensions.



c. Mount CGM (A) on base (B) with two screws (C).

- 2. Install access cover (D).
- 3. Attach the ferrite suppressor to the CGM on each end of the CAN cable.

NOTICE

To avoid severe damage to GCA modules, ensure the CAN cable is connected to the appropriate CAN connection.

NOTICE

To avoid severe machine damage, do not connect any CAN device to connectors 2A, 2B, or 2C on the Motor Control Module. Connectors 2A, 2B, and 2C are not CAN connectors.

NOTE: CAN ports are located on the base of cube shaped GCA modules or port 6 on the High Power Temperature Control Module.

NOTE: If there are no free CAN ports, plug splitter (121807) into the CAN distribution block located in the Power Distribution Box (PDB). Connect the CAN cable into the splitter. For more detail, refer to the CAN Adapter Kit manual.

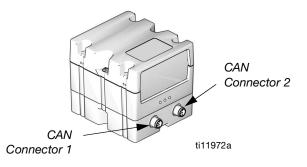


FIG. 2: Cable Connections

4. If used, connect the ethernet, DeviceNet, or PROFI-BUS cable to the CGM as applicable. Connect the other end of the cable to the FieldBus device.

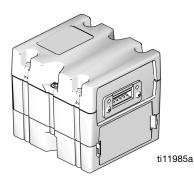


FIG. 3: Cable Connections

- 5. Connect cable (LC0032) to the MCM, port 2B, and a customer provided signal device. The signal device must have isolated, dry contacts.
- 6. Perform the Install or Update Data Map procedure in CGM manual 312864.
- 7. See **Available Internal Data** on page 9 for details on FieldBus pinout setup.
- 8. Perform Setup on page 5 to configure the fieldbus.

Setup

Gateway Screens

| Fieldbus Screens | Page |
|------------------|------|
| PROFIBUS | 5 |
| PROFINET | 6 |
| DeviceNet | 7 |
| EtherNet/IP | 7 |

The Gateway screens are used to configure the fieldbus. These screens are shown only if a CGM is correctly installed in your system. See **Installation** on page 3.

- 1. With the system on and enabled, press access the Setup screens.
- 🖬 to
- 2. Press the left arrow key once to navigate to the main Gateway screen. See FIG. 4.

| 02/16/11 | 13:20 | + | Advanced | Gateway | Shots | • | | |
|---------------|--------------------------------------|-----|--------------|---------|-------|----------|--|--|
| Standby | | | No Active Er | rors | | | | |
| | | | PROFIBUS | | _ | 1 | | |
| | Device Address: 126 Install Date: | | | | | | | |
| | Lo | oca | tion Tag: 🔄 | | | | | |
| Function Tag: | | | | | | | | |
| Description | | | | | | | | |
| | | | | | | | | |
| | | | | | | L | | |
| 3. 4: Exam | T elar | iel | dbus Scre | en | | | | |

PROFIBUS Fieldbus Screens

These screens are shown only if you have a PROFIBUS Fieldbus CGM installed. See **Kits** on page 2.

Screen 1

This screen enables the user to set the device address, install date, location tag, function tag, and description.

| 02/16/11 1 | 13:20 | Ŧ | Advanced | 0 | Gateway | Shots | • | |
|------------|---------------|------|--------------|------|---------|-------|-----------|--|
| Standby | | | No Active B | rror | s | | | |
| | | | PROFIBL | IS | | _ | | |
| | De | vice | Address: 1 | 26 | | | 1 | |
| | | Ins | tall Date: 🗌 | | | | | |
| | L | .oca | tion Tag: 🗌 | | | | \square | |
| | Function Tag: | | | | | | | |
| | | D | escription 🗌 | | | | | |
| | | | | | | | Ŧ | |

FIG. 5: PROFIBUS Fieldbus Screen 1

Screen 2

This screen displays the hardware revision, system serial number, and data map identification information.

| 02/16/11 13:2 | 1 🗲 | Advanced | Gateway | Shots 🔿 | | | |
|--|-----|----------------------------------|---------|---------|--|--|--|
| Standby | | No Active Err | rors | | | | |
| | | PROFIBUS | | _ | | | |
| Hardware Revision: 0000 System Serial #: 00000000 Map ID: 00001 Map Name: GMS STD | | | | | | | |
| | Мар | Revision: 001. Nap Date: 01/0 | 001 | 1 | | | |

FIG. 6: PROFIBUS Fieldbus Screen 2

PROFINET Fieldbus Screens

These screens are shown only if you have a PROFINET Fieldbus CGM installed. See **Kits** on page 2.

Screen 1

This screen enables the user to set the IP address, DHCP settings, subnet mask, gateway, and DNS information.

| 02/16/11 13:27 | Advanced | Gateway | Shots 🔿 |
|----------------|------------------------------|------------|----------|
| Standby | No Active Err | fors | |
| | PROFINE | Т | Î |
| | | | 3 |
| | IP Address: 000 | 00000000 | 00 |
| | DHCP: No | ▼ | 1 |
| | Subnet Mask: 😡 | 0000 000 0 | 00 |
| | Gateway: 000 | 0000 000 0 | 00 盲 |
| | DNS 1: 000 | 0000000 | 00 2 |
| | DNS 2: 000 | 0000 000 0 | 00 💻 |
| | | | 1 |

FIG. 7: PROFINET Fieldbus Screen 1

Screen 2

This screen enables the user to set the station name, install date, location tag, function tag, and description.

| 02/16/11 : | 13:29 🗲 | Advanced | Gateway | Shots | Ð |
|------------|---------|----------------|--------------|-------|-------------------------------|
| Standby | | No Active Err | rors | | |
| | | PROFINET | | _ | ↑1 |
| | Stati | on Name: GMS | 5 | | |
| | Ins | tall Date: 200 | 8-08-14 15:0 |)8 | 2 |
| | Loca | ition Tag: 📃 | | ?? | 2 |
| | Fund | tion Tag: 📃 | | | \square |
| | D | escription 🦳 | | | 3 |
| | | | | | Ŧ |

FIG. 8: PROFINET Fieldbus Screen 2

Screen 3

This screen displays the hardware revision, system serial number, and data map identification information.

| 02/16/11 13 | 31 🗲 | | Advanced | Gateway | Shots | • | | |
|---------------|---|-----|----------------|---------|-------|---|--|--|
| Standby | | | No Active Err | rons | | | | |
| _ | | | PROFINET | | _ | t | | |
| Ha | Hardware Revision: 0000 System Serial #: 00000000 | | | | | | | |
| | Map ID: 00001 Map Name: GMS STD Map Revision: 001.001 | | | | | | | |
| | | N | lap Date: 01/C | 16/12 | | 1 | | |
| ig. 9: PROFIN | IET F | =i, | eldbus Sci | reen 3 | | Ŧ | | |

EtherNet/IP Fieldbus Screens

These screens are shown only if you have a EtherNet/IP Fieldbus CGM installed. See **Kits** on page 2.

Screen 1

This screen enables the user to set the IP address, DHCP settings, subnet mask, gateway, and DNS information.

| 02/16/11 13:34 | ÷ | Advanced | Gateway | Shots | | | | |
|--|---|---------------|---------|-------|---|--|--|--|
| Standby | | No Active Err | rors | | | | | |
| - | EtherNet/IP | | | | | | | |
| | IP Address: 192 168 001 052 DHCP: No 🔽 | | | | | | | |
| Subnet Mask: 255/255/255/000 Gateway: 000/000/000/000 DNS 1: 005/002/001/002 DNS 2: 005/002/001/002 | | | | | | | | |
| | | | | | ÷ | | | |

FIG. 10: EtherNet/IP Fieldbus Screen 1

Screen 2

This screen displays the hardware revision, system serial number, and data map identification information.

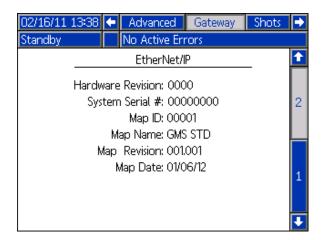
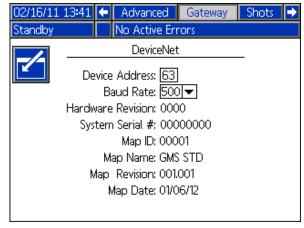


FIG. 11: EtherNet/IP Fieldbus Screen 2

DeviceNet Fieldbus Screen

This screen is shown only if you have a DeviceNet Fieldbus CGM installed. See **Kits** on page 2.

This screen enables the user to set the device address and baud rate, and to view the hardware revision, system serial number, data map identification information.





Maintenance

Install Upgrade Tokens

NOTE: The Motor Control Module, Fluid Control Module, and Temperature Control Module connection to the system is temporarily disabled during the installation of upgrade tokens.

To install software upgrades:

 Use correct software token stated in the table. See Graco Control Architecture[™] Module Programming manual for instructions.

NOTE: Upgrade all modules in the system to the software version on the token, even if you are replacing only one or two modules. Different software versions may not be compatible.

All data in the module (System Settings, USB Logs, Recipes, Maintenance Counters) may be reset to factory default settings. Download all settings and user preferences to a USB before the upgrade, for ease of restoring them following the upgrade.

See manuals for locations of specific GCA components.

The software version history for each system can be viewed in the technical support section at www.graco.com.

| Token | Application |
|--------|--------------------------------|
| 16H821 | HFR: |
| | - Communication Gateway Module |

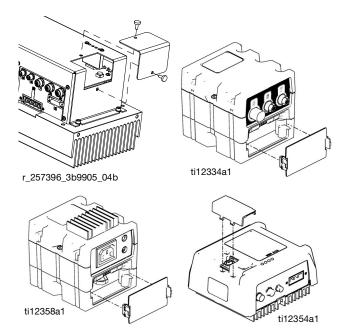


FIG. 13: Remove Access Cover

Available Internal Data

The following internal data with this system can be viewed (HFR outputs) and modified (PLC outputs) by your fieldbus master.

| 1 | | | CGM Output from PLC Input (Read) Most Significant Byte Least Significant Byte | | | | | | | | | | | | | | | | | | |
|----------|----------------|------|---|---------------|--------|--------|--------|-------|-------|-------|-------|--------|------------------|------------------------|-----------------------------|--------|-----|--------------------------|------------------|--|--|
| | Byte No. | | N | <i>l</i> lost | Sign | ificar | nt By | te | | | L | east | t Sign | ifica | nt By | te | | Deee | vintion | | |
| | Буте ио. | F | Ε | D | С | В | Α | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Desc | ription | | |
| 0 | 0,1 | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 | 1.2 | | _ | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.1 | 0.0 | Sta | itus | | |
| 1 | 2,3 | | SHOT | | | | | | | | | 2 OP | ERAT | ING N | NODI | E | | Shot | Mode | | |
| 2 | 4,5 | | | | ONDI | | | | | 4 | SEQL | JENC | E PAI | RT O | F SH | OT/SI | EQ | Cond. | Seq. | | |
| 3 | 6,7 | | 7 RED TANK FILL 6 BLUE TANK FILL | | | | | | | | | | | | R Tank | B Tank | | | | | |
| 4 | 8,9 | | 0 | 0.10 | | | | ~ ^ ~ | | | | | Y OF | 0.144 | | | | Errors to | | | |
| 5 | 10,11 | | 8 | ,9,10 | ,,,, | RRUI | K2 I | U AC | ,KINO | VVLEL | GE (/ | ARR/ | AY OF | 2 000 | JRD | 5) | | Acknowledge | | | |
| 6 | 12,13 | 13.7 | 3.7 13.6 13.5 13.4 13.3 13.2 13.1 13.0 12.7 12.6 12.5 12.4 12.3 12.2 12.1 12. | | | | | | | | | | | 12.0 | Ur | nits | | | | | |
| 7 | 14,15 | | 14,15,16,17 FLOW RATE SET POINT (ARRAY OF 2 WORDS) | | | | | | | | | | | Flow R | ate Set | | | | | | |
| 8 | 16,17 | | | 14,1 | 5,10, | ., | | | | | | | 012 | 1001 | 100) | | | Po | oint | | |
| 9 | 18,19 | | 18,19,20,21 DISPENSE AMOUNT SET POINT (ARRAY OF 2 WORDS) | | | | | | | | | | | | ense | | | | | | |
| 10 | 20,21 | | 18,1 | 19,20 | ,21 D | ISPE | NSE | AMC | DUNT | SETI | POIN | T (AR | RAY | OF 2 | WOR | RDS) | | | int Set pint | | |
| 11 | 22,23 | | | | 22 | ,23 N | IATE | RIAL | RATI | D SET | POI | NT (1 | WOF | RD) | | | | Ratio | St PT | | |
| 12 | 24,25 | | 24 2 | 25 26 | 27 B | FD P | UMF | | รรม | RF AC | | I (AR | RAY | OF 2 | WOR | NDS) | | Red Pump | | | |
| 13 | 26,27 | | ۲,۲ | _0,20 | ,2711 | | U VIII | 1115 | | | 10/1 | - 0 | | 01 2 | mor | 120) | | Pressure Actual | | | |
| 14 | 28,29 | | 28,29,30,31 BLUE PUMP PRESSURE ACTUAL (ARRAY OF 2 WORDS) | | | | | | | | | | | | Blue Pump Pressure Actua | | | | | | |
| 15 | 30,31 | | | | | | | | | | | | | | | | | | | | |
| 16 | 32,33 | | 32,33,34,35 PUMP FLOW RATE ACTUAL (ARRAY OF 2 WORDS) | | | | | | | | | | | Rate | | | | | | | |
| 17 | 34,35 | | 36,37 MATERIAL RATIO ACTUAL (1 WORD) | | | | | | | | | | | Actual Patio Actual | | | | | | | |
| 18 | 36,37 | | | | 3 | 6,37 | MAI | ERIA | L RAI | IO AO | STUA | L (1 \ | NORL |)) | | | | Ratio Actual Dispense | | | |
| 19 20 | 38,39 40,41 | | 38 | ,39,4 | 0,41 | DISP | ENS | E AM | IOUN | | UAL | (ARF | AY O | F 2 W | ORD | DS) | | • | ense t Actual | | |
| 21 22 | 42,43 44,45 | | 42, | 43,44 | 1,45 E | DISPE | INSE | E DUF | RATIO | N AC | TUAL | (AR | RAY C |)F 2 \ | NOR | DS) | | | ense n Actual | | |
| 22 | 44,45 46,47 | | | 16 | 17 E | | | | | | | CTU | AL (1 | | יחי | | | | ne Act. | | |
| 23 24 | 48,49 | | | | | | | | | | | | ¬∟ († \L (1 \ | | , | | | | se Act. | | |
| 25 | 50,51 | | | | | | | | | | | | <u>AL (1 V</u> | | , | | | | ne Act. | | |
| 26 | 52,53 | | | | | | | | | | | | L (1 V | | , | | | | se Act. | | |
| 27 | 54,55 | | | | , | | | | | | | | NL (1 V | | , | | | | k Act. | | |
| 28 | 56,57 | | | | | | | | | | | | L (1 V | | , | | | | k Act. | | |
| 29 | 58,59 | | | | | | | | | | | | JAL (1 | | , | | | | II Act. | | |
| 30 | 60,61 | | | , | | | | | | | | | IAL (1 | | , | | | | II Act. | | |
| 31 | 62,63 | | | | | | | | | | | | INT (1 | | , | | | | e St Pt. | | |
| 32 | 64,65 | | | , | | | | | | | | | NT (1 | | , | | | | e St Pt. | | |
| 33 | 66,67 | | | | | | | | | | | | ÎNT (1 | | , | | | R Inlin | e St Pt. | | |
| 34 | 68,69 | | | 68 | 8,69 F | RED H | IOSE | E TEN | 1PER | ATUR | E SE | rpoi | NT (1 | WOR | RD) | | | R Hose St Pt. | | | |
| 35 | 70,71 | | | 70 | ,71 B | LUE - | TAN | K TEN | ИРЕR | ATUF | E SE | TPOI | NT (1 | WOF | RD) | | | B Tank St Pt. | | | |
| 36 | 72,73 | | | 72 | 2,73 F | RED T | ANK | TEN | 1PER/ | TUR | E SET | POI | NT (1) | WOR | D) | | | R Tanl | st Pt. | | |
| 37 | 74,75 | | | 74,7 | 5 BLI | JE CI | HILL | ER TI | EMPE | RATU | JRE S | ETP | DINT | (1 WC | DRD) | | | B Chil | I St Pt. | | |

| | | CGM Output from PLC Input (Read) | | | | | | | | | | | | | | | | | |
|----|----------|----------------------------------|---|------|------|------|------|------|------|------|------|-------------|-------|-------------|----------|------|----|-------------|---------|
| | Byte No. | Most Significant Byte | | | | | | | | | L | .east | Sign | ificar | nt By | te | | Description | |
| | Byle NO. | F | F E D C B A 9 8 7 6 5 4 3 2 1 0 | | | | | | | | Desc | Description | | | | | | | |
| 38 | 76,77 | | 76,77 RED CHILLER TEMPERATURE SETPOINT (1 WORD) | | | | | | | | | | | R Chil | l St Pt. | | | | |
| 39 | 78,79 | 79 | 79 SCROLLING ERROR LOW WORD LOWBYTE 78 TANK LEVEL STATUS (1 BYTE) | | | | | | | | | S Error | Level | | | | | | |
| 40 | 80,81 | 819 | 81SCROLLING ERROR HIGH WORD LOWBYTE 80 SCROLLING ERROR LOW WORD HIGH BYTE | | | | | | | | | | SE | rror | | | | | |
| 41 | 82,83 | 83.7 | 83.6 | 83.5 | 83.4 | 83.3 | 83.2 | 83.1 | 83.0 | 82 : | SCRO | | | ROR BYTI | | H WO | RD | Status | S Error |

| | | PLC Output to CGM Input (Write) | | | | | | | | | | | | | | | | | |
|----|----------|---|--|--------|-------|--------|--------|-------|-------|-------|------------------------|--------|-------|--------------|------|------|-----|-------------|---------------|
| | Byte No. | | I | Most | Sign | ifican | nt Byt | e | | | Least Significant Byte | | | | | | | Description | |
| | Byte NO. | F | Е | D | С | В | Α | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | Desc | nption |
| 0 | 0,1 | 1.7 1.6 1.5 1.4 1.3 1.2 1.1 1.0 0.7 0.6 0.5 0.4 0.3 0.2 0.1 0.0 | | | | | | | | | Sta | Status | | | | | | | |
| 1 | 2,3 | | 3 SHOT PART OF SHOT/SEQ 2 OPERATING MODE | | | | | | | | | | | | Shot | Mode | | | |
| 2 | 4,5 | | 5 CONDITIONING 4 SEQUENCE PART OF SHOT/SEQ | | | | | | | | | | | Cond. | Seq. | | | | |
| 3 | 6,7 | | 7 RED TANK FILL 6 BLUE TANK FILL R Tank B Tan | | | | | | | | | | | B Tank | | | | | |
| 4 | 8,9 | 89 | ,9,10,11 ERRORS TO ACKNOWLEDGE (ARRAY OF 2 WORDS) (ECHO BACK) | | | | | | | | | | | | | | | | |
| 5 | 10,11 | 0,0 | Acknowledge | | | | | | | | | | | | | | | | |
| 6 | 12,13 | 12, | 12,13,14,15 CHANGE FLOW RATE OR PRESSURE SET POINT (ARRAY OF 2 Flow Rate Set | | | | | | | | | | | | | | | | |
| 7 | 14,15 | | | | | | | | WOF | RDS) | | | | | | | | Po | int |
| 8 | 16,17 | | | | | _ | | | | | | | | | _ | | | | ense |
| 9 | 18,19 | 16, | 17,18 | 8,19 C | CHAN | GE D | ISPE | NSE | AMO | UNT | SET F | POINT | Г (AR | RAY(| OF 2 | WOR | DS) | | nt Set int |
| 10 | 20,21 | | | | | | 20,2 | 21 N(| DT US | SED (| 1 WO | RD) | | | | | | N | /Α |
| 11 | 22,23 | | | 22, | 23 CI | HANG | GE TE | MPE | RATL | JRE S | SET P | OINT | IN 0. | 1 UN | ITS | | | Temp | St Pt |
| 12 | 24,25 | | | | 24,25 | 5 SEL | ECT | TEM | PERA | TURE | ZON | IE TC | CHA | NGE | | | | Temp | zone |
| 13 | 26 | | | | | | | | | 26 T | OGGI | LE SY | | M PC YTE) | WER | CHA | NGE | | Power |

HFR Output to PLC Inputs for Monitoring Descriptions

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description |
|------|-----|--------------|--|---|
| | 0 | | must follo will shutde heartbeat | ave Heart Beat: CGM initiates a square wave that toggles every 3 sec. The PLC w the heartbeat. If the heart beat is lost from the PLC or CGM then the system own if the CGM/PLC is controlling the HFR. If the PLC does not detect the then the PLC should cycle the PLC output bit HI/LO in attempt to establish the from the CGM. |
| | | | 0 | Heartbeat pulse off |
| | | | 1 | Heartbeat pulse on |
| | 1 | | pending o L-head sy other type | Status: Monitor Only: On Circulation systems, this indicates that a dispense is or in progress (or when pre-dispense timer is active and during a dispense).On an stem Dispense Valve is considered open until the end of the clean out cycle. On es of systems the bit will indicate a dispense is active. not use for new designs. Use byte 83 bit 7. |
| | | | 0 | Dispense not active |
| | | | 1 | Dispense active |
| | | | | Valve Position: Used for diagnostics only. Not to be used to control a dispensed e: Do not use for new designs. Use byte 83 bit 7. |
| | 2 | | 0 | Dispense valve closed |
| | | | 1 | Dispense valve open |
| | | Bit | Not used. | |
| | 3 | | 0 | N/A |
| | | | 1 | N/A |
| 0 | 4 | | pump sha | ked: Parking the pump involves moving the Red pump to the position which the ft is least exposed to the atmosphere. System must be in Standby mode. will dispense out of the dispense valve if it is not a circulating system. |
| | | | 0 | Not parked |
| | | | 1 | Parked |
| | 5 | | configure shot or se | Valve Lockout/Circulation Control: Used to lock out the dispense valve or circulation mode (if circulation valves are installed) when in standby, operator, quence modes only. If the PLC is controlling the dispense valve directly (P2/ / option), operator mode only is available. |
| | | | 0 | Unlocked |
| | | | 1 | Locked out |
| | | | Mix Head | Cleanout: Used for L-Head systems cleanout /diagnostics only. |
| | 6 | | 0 | Cleanout is open |
| | | | 1 | Cleanout is closed |
| | 7 | | conditioni enabled w temperatu manual di point. For configure | tartup Bit: Bit will initiate a controlled startup of the system. The temperature ng zones will be initiated when the bit is high. Low pressure recirculation is also when the bit is set (Standby and night modes). Turning off this bit will turn OFF the are conditioning zones and circulation. For stall to pressure systems with a spense valve, setting this bit will configure the pumps to stall to the pressure set stall to pressure systems with a manual dispense valve, setting this bit will the pumps to stall to the pressure set point. |
| | | | 0 | System startup is on |
| | | | 1 | system startup is off |

Ē

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description |
|------|-----|--------------|--------------------------------------|--|
| | | | Not used. | |
| | 0 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not used. | |
| | 1 | | 0 | N/A |
| | | | 1 | N/A |
| | | | | ge: Only valid for HFR's with MCM Software, U82329. The system must be in Mode to get into Base Purge Mode. |
| | 2 | | 0 | N/A |
| | | | 1 | N/A |
| | 3 | | system w pressure o user can r | atus: Valid for full circulation systems only. Indicates status of the pumping hen in circulation. If system is in low pressure recirc the pumps will shift to High circ and then start the pre-dispense time. When the pre-dispense time expires, request dispenses. After expiration of post-dispense time, the system will return essure modes. Pre and post dispense times are settable on the ADM system-2 ns. |
| | | | 0 | Low pressure recirc on |
| 1 | | Bit | 1 | High pressure recirc on |
| | | | Purge Ala | rm: Indicates the status up the purging routine. Monitor only. |
| | 4 | | 0 | Purge shot not active |
| | | | 1 | Purge shot active |
| | - | | | bles Dispensing: PLC enables / disables dispensing from the GCA controller, n or remote start via the MCM. |
| | 5 | | 0 | Dispensing enabled |
| | | | 1 | Dispensing disabled |
| | 6 | | control of be able to When cor | rol: Monitor whether the PLC (CGM) has control of the system or the ADM has the system. If in PLC control, the ADM control keys will be disabled, user will not enter the setup screens, but system information will still be visible on the ADM. nmanded to PLC control, the user should navigate away from the main home en back for the screen to update. |
| | | | 0 | ADM has control/CGM only monitors |
| | | | 1 | CGM has control |
| | | | Not used. | |
| | 7 | | 0 | N/A |
| | | | 1 | N/A |

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description |
|------|-----|--------------|-------------------------------------|--|
| | | | system. C on standa using a m | ode Select (Operating Mode): Monitor the various modes of the dispensing GM feedbacks the status of the system to the PLC. Night mode is only available rd HFRs with full circulation, or Semi-automatic circulation valves installed. If anually controlled dispense valve (P2/ Fusion DV Option), shot and sequence e not available. |
| | | | 1 | DISABLED mode |
| 2 | | Integer | 2 | STANDBY mode |
| | | | 3 | SHOT mode |
| | | | 4 | SEQUENCE mode |
| | | | 5 | OPERATOR mode |
| | | | 6 | N/A |
| | | | 7 | NIGHT mode |
| 2 | | Integer | | Shot/Sequence Position Number: In Shot Mode, monitors the Active Shot n Sequence Mode, monitors the Active Sequence position number. |
| 3 | | Integer | 1-100 | Shot mode |
| | | | 1-20 | Sequence mode |
| 4 | | Integer | Selected | sequence: In Sequence mode, set the active sequence. |
| - | | integer | 1-5 | Active sequence |
| | | | Monitor R | ed Tank Heater |
| | 0 | | 0 | Red tank heater disabled |
| | | | 1 | Red tank heater enabled |
| | | | Monitor B | lue Tank Heater |
| | 1 | | 0 | Blue tank heater disabled |
| | | | 1 | Blue tank heater enabled |
| | | | | ed Inline Heater |
| | 2 | | 0 | Red inline heater disabled |
| | | _ | 1 | Red inline heater enabled |
| | | | | lue Inline Heater |
| | 3 | | 0 | Blue inline heater disabled |
| 5 | | Bit | 1 | Blue inline heater enabled |
| | | | | ed Hose Heater |
| | 4 | | 0 | Red hose heater disabled |
| | | | 1 | Red hose heater enabled |
| | _ | | | lue Hose Heater |
| | 5 | | 0 | Blue hose heater disabled |
| | | | 1 | Blue hose heater enabled |
| | ~ | | Monitor R | |
| | 6 | | 0 | Red chiller disabled |
| | | 4 | 1 Manitar D | Red chiller enabled |
| | 7 | | | lue Chiller |
| | 7 | | 0 | Blue chiller disabled |
| | | | 1 | Blue chiller enabled |

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description |
|------|-----|--------------|-------------------|---|
| | | | Blue Tank | Fill: Monitors if the Blue Tank is Filling |
| | 0 | | 0 | Blue tank is not filling |
| | | | 1 | Blue tank is filling |
| | | | Not Used | |
| | 1 | | 0 | N/A |
| | | | 1 | N/A |
| | 2 | | Not Used | |
| | | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 3 | | 0 | N/A |
| 6 | | Bit | 1 | N/A |
| 0 | | Dit | Not Used | |
| | 4 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 5 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 6 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 7 | | 0 | N/A |
| | | | 1 | N/A |

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description |
|-----------------|-----|--------------|--|---|
| | | | Red Tank | Fill: Monitors if the Red Tank is Filling |
| | 0 | | 0 | Red tank is not filling |
| | | | 1 | Red tank is filling |
| | | | Not Used | |
| | 1 | | 0 | N/A |
| | | | 1 | N/A |
| | 2 | | Not Used | |
| | | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 3 | | 0 | N/A |
| 7 | | Bit | 1 | N/A |
| | 4 | Dit | Not Used | |
| | | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 5 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 6 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 7 | | 0 | N/A |
| | | | 1 | N/A |
| 8, 9, 10, 11 | | ASCII | currently for the err to the CG incorrect | uiring acknowledgment are presented on first in first out basis. The latest error is in the error register in the CGM. The PLC must send back the exact ASCII value or to be acknowledged in the CGM. If an incorrect ASCII error code is sent back M then the error will not clear and the CGM register will be overwritten with the error. If multiple error codes exist, then the PLC must acknowledge them in the errors are sent to the PLC from the CGM. |
| | | | ASCII valu Byte 8 = Byte 9 = Byte 10 Byte 11 | = 9 = C |

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description | | | | | | | |
|------|-----|--------------|--|---|--|--|--|--|--|--|--|
| | 0 | | Units and operating Information: Volume Units | | | | | | | | |
| | 1 | | 10 (bits) 00 = Gallo 01 = cc's 10 = Liter | ons | | | | | | | |
| | 2 | | | operating Information: Weight Units | | | | | | | |
| | 3 | | 32 (bits) 00 = Gran 01 = Kilog 10 = Pour | rams | | | | | | | |
| 12 | 4 | Bit | Units and operating Information: Pressure Units | | | | | | | | |
| 12 | 5 | Dit | 54 (bits) 00 = Bar 01 = psi 10 = Mpa | 00 = Bar 01 = psi | | | | | | | |
| | | | Units and | operating Information: Temperature Units | | | | | | | |
| | 6 | | 0 | Fahrenheit | | | | | | | |
| | | | 1 | Celsius | | | | | | | |
| | | | Units and operating Information: Flow Unit | | | | | | | | |
| | 7 | | 0 Volume | | | | | | | | |
| | | 1 Weight | | | | | | | | | |

| Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description | | | | |
|--------------------------|-----|-------------------|---|--|--|--|--|--|
| | | | Units and | Operating Information: Rate Unit | | | | |
| | 0 | | 0 | Minute | | | | |
| | | | 1 | Second | | | | |
| | | | Units and | Operating Information: Control Mode | | | | |
| | 1 | | 0 | Pressure | | | | |
| | | | 1 | Flow | | | | |
| | 2 | | 32 (bits) 00 = Time 01 = Volu | me | | | | |
| | | | 10 = Weig | Int | | | | |
| 13 | 4 | | Not Used | | | | | |
| | 4 | | 0 | N/A | | | | |
| | | | 1 | N/A | | | | |
| | - | | Not Used | | | | | |
| | 5 | | 0 | N/A | | | | |
| | | | 1 | N/A | | | | |
| | | | Not Used | | | | | |
| | 6 | | 0 | N/A | | | | |
| | | | 1 | N/A | | | | |
| | | | Not Used | | | | | |
| | 7 | | 0 | N/A | | | | |
| | | | 1 | N/A | | | | |
| 14, 15, 16, 17 | | Double Integer | rate set p is recircul The value | e (or pressure if in constant pressure mode) Set point: Integer value of the flow oint if dispensing. This value does not reflect the flow rate set point if the system ating material with the recirculation option. from the CGM is an integer and must be multiplied by 0.0001 for the requested to be in system units. | | | | |
| 17 | | | | | | | | |
| 18, 19, 20, 21, | | Double Integer | Example: Double word 14 = 291234 = 29.1234cc/sec (unit chosen is cc/sec) Dispense Amount (Shot Size) Set point: Integer value of the Dispense amount set point: the dispensing system. The value from the CGM is an integer and must be multiplied by 0.001 for the request | | | | | |
| 22, 23 | | Integer | Ratio Set system. N The value ratio to be | Double word 18 = 5002499 = 5002.499cc (unit chosen is cc) point: Integer value of the Red / Blue Material Ratio set point in the dispensing lote this value is dependent on the pump sizes and does not vary. from the CGM is an integer and must be multiplied by 0.01 for the requested in system units. xx.xx: 1 where xx.xx is Red and 1 is Blue Word 22 = 2400 = 24.00:1 (red pump = 120, blue pump = 5) | | | | |
| 24, 25, 26, 27 | | Double Integer | Red Pum The value sure to be | p Pressure Actual: Integer value of the actual Red pump pressure. from the CGM is an integer and must be multiplied by 0.0001 for the actual pres- in system units. Double word 12345678 = 1234.5678psi (unit chosen is psi) | | | | |

| 34, Integer rate to be in system units. 35, Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36, Hatio Value Actual: Integer value of the actual Material Ratio. Note this only can be moni- tored if the ratio monitoring option (flow meters) is installed. 37 Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio to be in system units. xx.x: 1 where xx.xx is Red and 1 is Blue. 38, Duble The value from the CGM is an integer and must be multiplied by 0.001 for the actual dis- pense amount Actual: Integer value of the actual dispense amount (shot size). 40, Integer Duble 11 Example: Double word 875240 = 875.240cc (unit chosen is cc) 42, Dispense Amount Actual: Integer value (mS) if the actual fibre the dispense lasts. 43, Integer The value from the CGM is an integer and must be multiplied by 0.001 morthe actual temper ture. 44, Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual temper ture. 45, Blue Inline Temperature Actual: Integer value of the actual Blue inline temperature. 46, Integer Blue from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 46, Integer Blue from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | Byte | Bit | Data Type | State or HFR Output to PLC Inputs for Monitoring Description | | | | | |
|---|------|-----|--------------|--|--|--|--|--|--|
| 30. Integer sure to be in system units. 31 Fixmple: Double word 7561234 = 756.1234 psi (unit chosen is psi) 32. Fixer Mate Actual: Integer value of the actual Flow Rate. 33. Double The value from the CGM is an integer and must be multiplied by 0.0001 for the actual flor 34. Integer Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36. Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be monit tored if the ratio monitoring option (flow meters) is installed. 37. Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio 1 be in system units. 38. Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual ratio 1 be in system units. 40. Integer Example: Double word 875240 = 875.240cc (unit chosen is cc) 42. Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). 43. Integer Example: Double Word 5895 = 5895 mc 44. Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 45. Blue Inline Temperature Actual: Integer value of the actual Blue Inline temperature. 46. <td< td=""><td></td><td></td><td></td><td colspan="6"></td></td<> | | | | | | | | | |
| 31 Example: Double word 7561234 = 756.1234 psi (unit chosen is psi) 32, Flow Rate Actual: Integer value of the actual Flow Rate. 33, Double The value from the CGM is an integer and must be multiplied by 0.0001 for the actual flow rate to be in system units. 35 Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36, Integer Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be monitoring option (flow meters) is installed. 37 Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio 1 be in system units. 38, Double Integer Value of the actual dispense amount (shot size). 38, Double Integer Value of the actual dispense amount (shot size). 41 Example: Double word 875240 = 875.240cc (unit chosen is cc) 42, Dispense Duration Actual: Integer value of the actual Blue inline temperature. 43, Double Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual time the dispense lasts. 44, Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 45, Double Integer Vord 6695 = 5695mS = 5.695 sec 81 <th< td=""><td></td><td></td><td></td><td colspan="5">he value from the CGM is an integer and must be multiplied by 0.0001 for the actual pres</td></th<> | | | | he value from the CGM is an integer and must be multiplied by 0.0001 for the actual pres | | | | | |
| 32, Flow Rate Actual: Integer value of the actual Flow Rate. 33, Double The value from the CGM is an integer and must be multiplied by 0.0001 for the actual flow rate to be in system units. 35 Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36, Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be monitoring option (flow meters) is installed. 36, The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio to be in system units. xx.xx is with the actual dispense amount (shot size). 38, Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount Actual: Integer value of the actual dispense amount (shot size). 39, Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). 41, Example: word 46 = 1025 = 102.5°F (unit chosen is cc) 42, Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). 44, Example: word 46 = 1025 = 102.5°F (unit chosen is °F) Blue Inline Temperature Actual: Integer value of the actual Blue inline temperature. 46, Hore geneding on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 48, Hore geneding on the system set up this is read in °C or °F The value from t | | | Integer | ure to be in system units. | | | | | |
| 33. 34. 35. Double Integer The value from the CGM is an integer and must be multiplied by 0.0001 for the actual for rate to be in system units. Example: Double word 259976 = 25.9876cc/sec (unit chosen is cc/sec) 36. 37. Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be moni- tored if the ratio monitoring option (flow meters) is installed. The value from the CGM is an integer and must be multiplied by 0.011 for the actual ratio the be in system units. xx xx : 1 where xx.xx is Red and 1 is Blue. Example: Word 36 = 2368 = 23.68:1 38. 40. 40. 41. 42. 43. 43. 44. 43. 44. 44. 45. 44. 45. 44. 45. 44. 45. 45 | | | | xample: Double word 7561234 = 756.1234psi (unit chosen is psi) | | | | | |
| 34, Integer rate to be in system units. 35 Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36, Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be monitoring option (flow meters) is installed. 36, Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio to be in system units. xx xx : 1 where xx xx is Red and 1 is Blue. 38, Dispense Amount Actual: Integer value of the actual dispense amount (shot size). 39, Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount to be in system units. 41 Example: Double word 875240 = 875.240cc (unit chosen is cc) 42, Dispense Duration Actual: Integer value (mS) if the actual file the dispense lasts. 43, Integer The value from the CGM is an integer in milliseconds (1 second = 1000 mS). 44, Example: Double Word 5695 = 5695 mS = 5.695 sec Blue Inline Temperature Actual: Integer value of the actual Blue inline temperature. Depending on the system set up this is read in °C or °F 46, Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 48, Hore from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 46 = 1025 = 102.5°F (unit chosen is °F) 5 | | | | | | | | | |
| 35 Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) 36, 37 Hatio Value Actual: Integer value of the actual Material Ratio. Note this only can be moni- tored if the ratio monitoring option (flow meters) is installed. 37 The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio ta be in system units. xx.xx i T where xx.xs is Red and 1 is Blue. Example: Word 36 = 2368 = 23.68:1 38, 40, 41 Double Integer Double word 875240 = 875.240cc (unit chosen is cc) 41, 42, 43, 44, 45 Double Integer Double Pense amount to be in system units. Example: Double word 875240 = 875.240cc (unit chosen is cc) 44, 45 Double Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual dis- pense Duration Actual: Integer value (mS) if the actual lime the dispense lasts. 46, 47 The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 46, 47 Integer 48, 49 Integer 48, 49 Integer 50, 51 Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer 50, 51 Integer 52, 53 Red Inline Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the syste | | | | he value from the CGM is an integer and must be multiplied by 0.0001 for the actual flow | | | | | |
| 36, 37 Integer Integer Ratio Value Actual: Integer value of the actual Material Ratio. Note this only can be moni- tored if the ratio monitoring option (flow meters) is installed. 38, 39, 40, 40, 41 Dispense Amount Actual: Integer and must be multiplied by 0.01 for the actual ratio 1 be in system units. xx.x: 1 where xx.xx is Red and 1 is Blue. Example: Word 36 = 2368 = 23.68:1 41 Dispense Amount Actual: Integer value of the actual dispense amount (shot size). 42, 43, 44, 44, 44, 44, 45 Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). Example: Double word 875240 = 875.240cc (unit chosen is cc) 46, 47 Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). Example: Double Word 5695 = 5695mS = 5.695 sec 46, 47 Bue Inline Temperature Actual: Integer value of the actual Blue inline temperature. Depending on the system set up this is read in °C or °F 48, 49 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 48 = 1025 = 102.5°F (unit chosen is °F) 50, 51 Integer Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 48 = 1056 = 105.6°F (unit chosen is °F) 50, 51 Integer Red Inline Temperature Actual: Integer value of the actual Red inline te | | | Integer | ate to be in system units. | | | | | |
| 36, 37 Integer Integer the value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio to be in system units. xxx.x: 1 where xx.xx is Red and 1 is Blue. Example: Word 36 = 23.68 = 23.68.1 38, 39, 40, 40, 41 Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount (shot size). 41, 42, 43, 44, 45 Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount (bbe word 875240 = 875.240cc (unit chosen is cc) 44, 45 Double The value from the CGM is an integer in milliseconds (1 second = 1000 mS). Example: Double word 875240 = 875.240cc (unit chosen is cc) 46, 47 Double The value from the CGM is an integer value of the actual Blue inline temperature. Depending on the system set up this is read in °C or °F 48, 49 Blue Inline Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 48, 49 Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer Red Inline Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 52, 53 Integer Red Hose Temperature Actual: Integer value of the actual Blue Inline temperature. Depending on the system set up this is read in °C or °F 54, 55 Integer | 35 | | | Example: Double word 259876 = 25.9876cc/sec (unit chosen is cc/sec) | | | | | |
| 37 Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio t be in system units. xx.xx : 1 where xx.xx is Red and 1 is Blue. 38, Dispense Amount Actual: Integer value of the actual dispense amount (shot size). 39, Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount (shot size). 40, Example: Word 36 = 2368:1 Dispense Amount Actual: Integer value of the actual dispense amount (shot size). 41 Example: Double word 875240 = 875.240cc (unit chosen is cc) Dispense Duration Actual: Integer value (mS) if the actual time the dispense lasts. 44, Double The value from the CGM is an integer and must be multiplied by 0.01 for the actual time the dispense lasts. 45, Double The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 46, The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 46, The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 47 The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 48, Pepending on the system set up this is read in °C or °F 48, The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 50, The v | | | | • | | | | | |
| 37 Integer The value from the CGM is an integer and must be multiplied by 0.01 for the actual ratio 1 be in system units. xx.x : 1 where xx.x is Red and 1 is Blue. Example: Word 36 = 2368 = 23.68:1 38, Double Dispense Amount Actual: Integer value of the actual dispense amount (shot size). 40, Integer Double The value from the CGM is an integer and must be multiplied by 0.001 for the actual dispense amount (shot size). 41 Example: Double word 875240 = 875.240cc (unit chosen is cc) Example: Double Word 875240 = 875.240cc (unit chosen is cc) 42, Double Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual dispense lasts. 43, Double Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 44, Example: Word 46 = 1025 = 102.5°F (unit chosen is °F) Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 48, He value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 48 = 1056 = 105.6°F (unit chosen is °F) 50, Fine value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 50 = 985 = 98.5°F (unit chosen is °F) 51 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the act | 36. | | _ | | | | | | |
| be in system units. xx.x1 i where xx.xx is He and it is blue. Example: Word 36 = 2368:1 39, Jouble The value from the CGM is an integer and must be multiplied by 0.001 for the actual dis- pense amount to be in system units. 41 42, 43, 44, 44, 45, 44, 45, 44, 45, 46, 47, 48, 44, 45, 46, 47, 10teger 11te value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 25,000 46, 47 46, 47 11teger 11the value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 25,000 11the value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. 25,011 11teger 11the value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | Integer | | | | | | |
| 38, 39, 40, 40, 41 Double Dispense Amount Actual: Integer value of the actual dispense amount (shot size). The value from the CGM is an integer and must be multiplied by 0.001 for the actual dis- pense amount to be in system units. Example: Double word 875240 = 875.240cc (unit chosen is cc) 42, 43, 44, 45 Double Double word 875240 = 875.240cc (unit chosen is cc) 44, 45 Double Dispense Duration Actual: Integer value (mS) if the actual time the dispense lasts. 46, 47 Double The value from the CGM is an integer nalue (mS) if the actual Blue inline temperature. Depending on the system set up this is read in °C or °F 48, 49 Blue Filme Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 50 = 98.5 98.5°F (unit chosen is °F) 52, 53 Red Inline Temperature Actual: Integer value of the actual Red hose temperature. Depend ing on the system set up this is read in °C or °F 54, 55 Integer The value from the CGM is an integer and must be multiplied by 0.1 for t | 0. | | | | | | | | |
| 39, 40, 11 Double Integer The value from the CGM is an integer and must be multiplied by 0.001 for the actual dis- pense amount to be in system units. 41 Example: Double word \$75240 = 875.240cc (unit chosen is cc) 42, 43, 44, 45 Double Integer Dispense Duration Actual: Integer value (mS) if the actual time the dispense lasts. 44, 45 Double 44, 45 The value from the CGM is an integer in milliseconds (1 second = 1000 mS). Example: Double Word 5695 = 5695mS = 5.695 sec 46, 47 Blue Inline Temperature Actual: Integer value of the actual Blue inline temperature. Depending on the system set up this is read in °C or °F 48, 49 Integer Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 48, 49 Integer Blue Hose Temperature Actual: Integer value of the actual Blue hose temperature. Depending on the system set up this is read in °C or °F 50, 51 Integer Red Inline Temperature Actual: Integer value of the actual Red inline temperature. Depending on the system set up this is read in °C or °F 52, 53 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 50 = 98.5 98.5°F (unit chosen is °F) 54, 55 Red Hose Temperature Actual: Integer value of the actual Red hose temperature. Depend ing on the system set up this is read in °C or °F 54, 55 Integer | | | | • | | | | | |
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| 52, 53Red Hose Temperature Actual: Integer value of the actual Red hose temperature. Depending on the system set up this is read in °C or °F52, 53IntegerRed Hose Temperature Actual: Integer value of the actual Red hose temperature. Depending on the system set up this is read in °C or °F54, 55IntegerBlue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F54, 55IntegerBlue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F54, 55IntegerBlue Tank Temperature Actual: Integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture.56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 52, 53Red Hose Temperature Actual: Integer value of the actual Red hose temperature. Depending on the system set up this is read in °C or °F54, 55The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 52 = 780 = 78.0°F (unit chosen is °F)54, 55Blue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F54, 55The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57Integer56, 57Integer56, 57Integer56, 57The value from the CGM is an integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57The value from the CGM is an integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57The value from the CGM is an integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | 51 | | | | | | | | |
| 52, 53ing on the system set up this is read in °C or °F54, 55IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 52 = 780 = 78.0°F (unit chosen is °F)54, 55IntegerBlue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depend ing on the system set up this is read in °C or °F54, 55IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture.56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | | | | | | |
| 52, 53IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 52 = 780 = 78.0°F (unit chosen is °F)54, 55Blue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture.56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | | | | | | |
| 53The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 52 = 780 = 78.0°F (unit chosen is °F)54, 55IntegerBlue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depend ing on the system set up this is read in °C or °F54, 55IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture.56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | 52 | | | | | | | | |
| 54, 55Blue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F54, 55IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 54, 55Blue Tank Temperature Actual: Integer value of the actual Blue tank temperature. Depending on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | 50 | | | | | | | | |
| 54, 55Integering on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57IntegerRed Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | | | | | | |
| 54, 55IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F)56, 57Red Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- ing on the system set up this is read in °C or °F56, 57The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | | | | | | |
| 55 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. Example: Word 54 = 1157 = 115.7°F (unit chosen is °F) 56, 57 Red Tank Temperature Actual: Integer value of the actual Red tank temperature. Dependenting on the system set up this is read in °C or °F 56, 57 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temperature. | 54 | | | | | | | | |
| 56, 57 56, Integer 56, The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 56, 57Red Tank Temperature Actual: Integer value of the actual Red tank temperature. Depending on the system set up this is read in °C or °F56, 57IntegerThe value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | 55 | | | | | | | | |
| 56, 57Integering on the system set up this is read in °C or °F57The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | | | | | | |
| 50, 57 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | | | | Red Tank Temperature Actual: Integer value of the actual Red tank temperature. Depend- | | | | | |
| 50, 57 Integer The value from the CGM is an integer and must be multiplied by 0.1 for the actual temper ture. | 56 | | | ing on the system set up this is read in °C or °F | | | | | |
| ture. | | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| Example: Word $56 - 200 - 200 $ (unit choose is 90) | 57 | | - | ture. | | | | | |
| $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ $ | | | | Example: Word 56 = 322 =32.2°C (unit chosen is °C) | | | | | |

| Byte | Bit | Data Type | State or Range HFR Output to PLC Inputs for Monitoring Description | | | | | |
|------------|-----|--------------|---|--|--|--|--|--|
| | | ,, | Blue Chiller Temperature Actual: Integer value of the actual Blue chiller temperature. | | | | | |
| 50 | | | Depending on the system set up this is read in °C or °F | | | | | |
| 58, 59 | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 55 | | | ture. | | | | | |
| | | | Example: Word $58 = 345 = 34.5^{\circ}$ C (unit chosen is °C) | | | | | |
| | | | Red Chiller Temperature Actual: Integer value of the actual Red chiller temperature. | | | | | |
| 60, | | Intogor | Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 61 | | Integer | ture. | | | | | |
| | | | Example: Word $60 = 238 = 23.8$ °C (unit chosen is °C) | | | | | |
| | | | Blue Inline Temperature Set Point: Integer value of the Blue inline temperature set point. | | | | | |
| 60 | | | Depending on the system set up this is read in °C or °F | | | | | |
| 62, 63 | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 05 | | | ture. | | | | | |
| | | | Example: Word $62 = 1000 = 100.0^{\circ}$ F (unit chosen is $^{\circ}$ F) | | | | | |
| | | | Blue Hose Temperature Set Point: Integer value of the Blue hose temperature set point. | | | | | |
| 64, | | Integer | Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 65 | | integer | ture. | | | | | |
| | | | Example: Word $64 = 950 = 95.0^{\circ}$ F (unit chosen is °F) | | | | | |
| | | | Red Inline Temperature Set Point: Integer value of the Red inline temperature set point. | | | | | |
| 66 | | Integer | Depending on the system set up this is read in °C or ° | | | | | |
| 66, 67 | | | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 07 | | | ture. | | | | | |
| | | | Example: Word $66 = 900 = 90.0^{\circ}F$ (unit chosen is $^{\circ}F$) | | | | | |
| | | Integer | Red Hose Temperature Set Point: Integer value of the Red hose temperature set point. | | | | | |
| 68, | | | Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 69 | | | ture. | | | | | |
| | | | Example: Word $68 = 1100 = 110.0^{\circ}F$ (unit chosen is $^{\circ}F$) | | | | | |
| | | | Blue Tank Temperature Set Point: Integer value of the Blue tank temperature set point. | | | | | |
| 70, | | | Depending on the system set up this is read in °C or °F | | | | | |
| 70, 71 | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| <i>'</i> ' | | | ture. | | | | | |
| | | | Example: Word $70 = 1050 = 105.0^{\circ}$ F (unit chosen is $^{\circ}$ F) | | | | | |
| | | | Red Tank Temperature Set Point: Integer value of the Red tank temperature set point. | | | | | |
| 72, | | Integer | Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 73 | | integer | ture. | | | | | |
| | | | Example: Word $72 = 300 = 30.0^{\circ}$ C (unit chosen is °C) | | | | | |
| | | | Blue Chiller Temperature Set Point: Integer value of the Blue chiller temperature set point. | | | | | |
| 74 | | | Depending on the system set up this is read in °C or °F | | | | | |
| 74, 75 | | Integer | The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 15 | | | ture. | | | | | |
| | | | Example: Word 74 = 320 = 32.0°C (unit chosen is °C) | | | | | |
| | | | Red Chiller Temperature Set Point: Integer value of the Red chiller temperature set point. | | | | | |
| 76, | | Integer | Depending on the system set up this is read in °C or °F The value from the CGM is an integer and must be multiplied by 0.1 for the actual tempera- | | | | | |
| 77 | | Integer | ture. | | | | | |
| | | | Example: Word $76 = 350 = 35.0$ °C (unit chosen is °C) | | | | | |
| | l | 1 | | | | | | |

| 0 Tank Material Level Status: The state of the level switches on the tank. 2 78 4 3 00000010 Fed Tank Level Low On 000000100 = Red Tank Level High On 00010000 = Blue Tank Level High On 00100000 = Blue Tank Level High On 00100000 = Blue Tank Level High On 79, -7 -7 -7 78 -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 70, -7 -7 -7 80, -7 -7 -7 80, -7 -7 -7 79, -7 -7 -7 79, -7 -7 -7 80, -7 -7 -7 70 -7 -7 -7 7 -7 -7 -7 | Byte | Bit | Data Type | State or Range | HFR Output to PLC Inputs for Monitoring Description | | | |
|---|------|-----|--------------|--|--|--|--|--|
| 78 2 00000010 = Red Tank Level Low On 0000010 = Red Tank Level Middle On 0000100 = Red Tank Level High On 0010000 = Blue Tank Level High On 00100000 = Blue Tank Level High On 78 4 Bit 0010000 = Blue Tank Level High On 00100000 = Blue Tank Level High On 7 0000010 = Red Tank Level High On 01000000 = Blue Tank Level High On Errors requiring acknowledgment are presented on first in first out basis. The latest err currently in the error register in the CGM. The PLC must send back the exact ASCII va for the error to be acknowledged in the CGM. The PLC must acknowledge them in t incorrect error. If multiple error codes exist, then the PLC must acknowledge them in t order the errors are sent to the PLC from the CGM. 81. ASCII ASCII value for each Byte: Example Error LBAT = Red Auto Fill Refill Timeout: Byte 80 = 6 Byte 81 = A Byte 82 = 1 9 NA 1 N/A 1 NA 1 N/A 1 N/A 1 N/A 2 0 N/A 1 N/A 3 4 0 N/A 1 N/A 1 N/A 1 N/A 1 N/A 4 0 N/A 1 N/A 1 5 0 N/A <td< td=""><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | |
| 78 3 Bit 0000010 = Red Tank Level Middle On 0000100 = Red Tank Level High On 0010000 = Blue Tank Level High On 00100000 = Blue Tank Level High On 01000000 = Blue Tank Level High On 79, 80, 81, 82 A Errors requiring acknowledgment are presented on first in first out basis. The latest err currently in the error register in the CGM. If an incorrect ASCII error code is sent to to the error to be acknowledged in the CGM. If an incorrect ASCII error code is sent to to the CGM then the error will not clear and the CGM register will be overwritten with incorrect error. If multiple error codes exist, then the PLC must acknowledge them in to order the errors are sent to the PLC from the CGM. 81, 82 ASCII ASCII 84 Intervent acknowledge them in to order the errors are sent to the PLC from the CGM. 85 Not Used Intervent acknowledge them in to order the errors are sent to the PLC from the CGM. 1 Not Used Intervent acknowledge them in to order the errors are sent to the PLC from the CGM. 1 Not Used Intervent acknowledge them in to order the error set acknowledge them in to order the errors are sent to the PLC from the CGM. 1 Not Used Intervent acknowledge them in to order the error set acknowledge them in to order the errors are sent to the PLC from the CGM. 2 Intervent acknowledge them in to order the error set acknowledge them in to order the error set acknowledge them intorder the error set acknowledge them in to order the error set a | | - | | | | | | |
| 78 4 Bit 00000100 = Red Tank Level High On 00010000 = Blue Tank Level Middle On 01000000 = Blue Tank Level Middle On 0 The Pros requiring acknowledged in the CGM. If an incorrect ASCII error code is sent to to the CGM then the error will not clear and the CGM register will be overwriten with incorrect error. If multiple error codes exist, then the PLC must acknowledge them in to order the errors are sent to the PLC from the CGM. 80, 81, 82 ASCII ASCII ASCII value for each Byte: Example Error L6A1 = Red Auto Fill Refill Timeout: Byte 80 = 6 Byte 81 = A Byte 81 = A Byte 82 = 1 9 NA 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 0 N/A 1 N/A 1 N/A 1 N/A 1 2 0 N/A 1 N/A 3 4 0 N/A 1 4 0 N/A 1 1 6 0 N/A 1 1 | | | | | | | | |
| 6 00100000 = Blue Tank Level Middle On 01000000 = Blue Tank Level High On 79. 0 1000000 = Blue Tank Level High On 79. 0 Fors requiring acknowledgment are presented on first in first out basis. The latest err currently in the error register in the CGM. The PLC must send back the exact ASCII was for the errors are sent to the CGM then the error codes exist, then the PLC must acknowledge them in to incorrect error. If multiple error codes exist, then the PLC must acknowledge them in to order the errors are sent to the PLC from the CGM. 81. ASCII Ode to errors are sent to the PLC from the CGM. 82 Not Used O 0 N/A Status: Byte 80 = 6 Byte 81 = A Byte 82 = 1 1 N/A 1 N/ | 78 | | Bit | | | | | |
| 7 0100000 = Blue Tank Level High On 79. Errors requiring acknowledgment are presented on first in first out basis. The latest error currently in the error register in the CGM. The PLC must send back the exact ASCII varies for the error to be acknowledged in the CGM. If an incorrect ASCII error code is sent t to the CGM then the error sull not clear and the CGM register will be overwritten with 1 incorrect error. If multiple error codes exist, then the PLC must acknowledge them in t order the errors are sent to the PLC from the CGM. 81. ASCII 82 0 0 N/A ASCII value for each Byte: Example Error L6A1 = Red Auto Fill Refill Timeout: Byte 80 = 6 Byte 80 = 6 Byte 81 = A Byte 81 = A Byte 82 = 1 Not Used 0 1 N/A 1 N/A 1 N/A 2 0 3 0 4 0 5 0 6 0 6 0 6 0 1 Ready 1 Ready 1 N/A 1 N/A < | | | | 00010000 | = Blue Tank Level Low On | | | |
| 79, 80, 81, 82 Errors requiring acknowledgment are presented on first in first out basis. The latest error currently in the error register in the CGM. The PLC must send back the exact ASCII variable to the CGM then the error will not clear and the CGM register will be overwritten with incorrect error. If multiple error codes exist, then the PLC must acknowledge them in to order the errors are sent to the PLC from the CGM. ASCII ASCII value for each Byte: Example Error L6A1 = Red Auto Fill Refill Timeout: Byte 79 = 1. Byte 80 = 6 Byte 81 = A Byte 82 = 1 0 N/A 1 0 1 Not Used 0 N/A 1 N/A 2 0 3 Bit 4 0 5 0 6 0 6 0 1 Ready 1 | | | | | | | | |
| 79, 80, 81, 82 ASCII currently in the error register in the CGM. If an incorrect ASCII error code is sent to for the error to be acknowledged in the CGM. If an incorrect ASCII error code is sent to the CGM then the error will not clear and the CGM register will be overwritten with in incorrect error. If multiple error codes exist, then the PLC must acknowledge them in to order the errors are sent to the PLC from the CGM. ASCII ASCII value for each Byte: Example Error L6A1 = Red Auto Fill Refill Timeout: Byte 79 = L Byte 80 = 6 Byte 81 = A Byte 82 = 1 0 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 2 N/A 3 Not Used 2 N/A 3 Not Used 3 0 4 Not Used 3 0 4 0 5 0 6 0 6 0 6 0 | | 1 | | | | | | |
| 81, 82 ASCII allow for each Byte: Example Error L6A1 = Red Auto Fill Refill Timeout: Byte 79 = L Byte 80 = 6 Byte 81 = A Byte 82 = 1 0 0 N/A 1 0 N/A 1 Not Used 0 0 0 N/A 1 NA 1 0 N/A 1 1 N/A 1 0 N/A 1 1 N/A 1 2 0 N/A 1 N/A 1 1 N/A 1 1 Power OFF 1 1 Power OFF 1 2 | | | | currently i for the err to the CG incorrect | n the error register in the CGM. The PLC must send back the exact ASCII value or to be acknowledged in the CGM. If an incorrect ASCII error code is sent back M then the error will not clear and the CGM register will be overwritten with the error. If multiple error codes exist, then the PLC must acknowledge them in the | | | |
| 62 Byte 79 = L Byte 80 = 6 Byte 81 = A Byte 82 = 1 0 Not Used 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 2 0 2 0 3 0 3 0 3 0 4 0 5 0 6 0 0 Not Ready 1 Ready 4 0 5 0 6 0 0 Not Ready 1 Ready 4 1 | | | ASCII | | | | | |
| Byte 80 = 6 Byte 81 = A Byte 82 = 1 Not Used 0 N/A 1 N/A 1 N/A 1 N/A 1 N/A 2 0 N/A 1 2 0 N/A 1 3 0 N/A 1 1 N/A Not Used 0 0 N/A 1 N/A 1 N/A Not Used 0 3 Bit Not Used 0 N/A 1 N/A Not Used 0 N/A 1 N/A Not Used 0 N/A 1 N/A Not Used 0 Not Used 3 0 N/A 1 N/A 4 O Power OFF 1 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 1 6 0 Not Ready 1 Ready 1 Ready 1 </td <td>82</td> <td></td> <td></td> <td></td> <td></td> | 82 | | | | | | | |
| Byte 82 = 1 0 Not Used 1 Not Used 1 N/A 1 N/A 1 0 1 N/A Not Used 0 1 N/A Not Used 0 3 0 83 Not Used 3 0 83 Not Used 3 0 83 Not Used 3 0 9 Not Used 1 N/A ADM Status: System Power Status 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 Not Ready | | | | | | | | |
| Not Used 0 N/A 1 Power OFF 1 Ready 1 Read | | | | | | | | |
| 0 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 1 N/A 2 0 N/A 1 N/A 0 N/A 1 N/A Not Used 0 1 N/A ADM Status: System Power Status 0 Power OFF 1 Power OFF 1 Power OFF 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready 0 Not Ready 1 | | | | - | = 1 | | | |
| 1 N/A 1 0 N/A 1 0 N/A 1 N/A 2 0 N/A 3 0 N/A 3 0 N/A 1 N/A Not Used 3 0 N/A 4 0 N/A 4 0 Power OFF 1 Power OFF 1 1 Power OFF 1 1 Ready ADM Status: Dispense System Ready to Dispense 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 1 Ready ADM Status: Dispense Active | | | | | N1/A | | | |
| 1 Not Used 1 N/A 1 N/A Not Used 0 2 0 N/A 1 N/A Not Used 0 3 0 N/A 1 N/A Not Used 0 0 N/A 1 N/A Not Used 0 0 N/A 1 N/A Not Used 0 0 N/A 1 N/A ADM Status: System Power Status 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready 1 Ready Dispense Valve Open, Dispense Active | | 0 | | - | | | | |
| 1 0 N/A 1 N/A Not Used 0 1 N/A Not Used 0 1 N/A ADM Status: System Power Status 0 Power OFF 1 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready 1 Ready 1 Ready 1 Ready Dispense Valve Open, Dispense Active | | 1 | | - | N/A | | | |
| 1 N/A 2 0 N/A 1 N/A 1 N/A 1 N/A Not Used 0 3 0 N/A 1 N/A Not Used 0 0 N/A 1 N/A ADM Status: System Power Status 0 Power OFF 1 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | | | Not Used | | | | |
| 2 Not Used 2 0 N/A 1 N/A Not Used 0 3 0 N/A 1 N/A 4 0 Power Status 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 6 0 0 Not Ready 1 Ready | | | | 0 | N/A | | | |
| 2 0 N/A 1 N/A Not Used 3 0 N/A 1 N/A 0 N/A 1 N/A ADM Status: System Power Status 0 Power OFF 1 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 ADM Status: Dispense System Ready to Dispense 6 0 ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Dispense Valve Open, Dispense Active | | | | 1 | N/A | | | |
| 83 1 N/A 83 0 N/A 1 N/A 4 0 N/A 4 0 Power OFF 1 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 6 0 1 Ready Dispense Valve Open, Dispense Active | | | | Not Used | | | | |
| 83 3 Not Used 83 0 N/A 1 N/A 4 0 Power Status 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 6 0 6 0 1 Ready Dispense Valve Open, Dispense Active | | 2 | | 0 | N/A | | | |
| 3 0 N/A 4 1 N/A 4 ADM Status: System Power Status 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 6 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready 1 Ready 1 Ready 1 Ready 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | | | 1 | N/A | | | |
| 83 Bit 1 N/A 4 ADM Status: System Power Status 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 6 0 1 Ready 1 Ready 1 Ready 1 Ready 1 Ready 1 Ready 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | | | Not Used | | | | |
| 83 Bit ADM Status: System Power Status 4 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 6 0 6 0 0 Not Ready 1 Ready ADM Status: Dispense System Ready to Dispense 6 0 1 Ready Dispense Valve Open, Dispense Active | | 3 | – Bit | 0 | N/A | | | |
| 4 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 6 0 1 Ready 1 Ready 1 Ready Dispense Valve Open, Dispense Active | | | | 1 | N/A | | | |
| 4 0 Power OFF 1 Power ON ADM Status: Dispense System Ready to Dispense 5 0 1 Ready 1 Ready ADM Status: Dispense System Ready for External Requests 6 0 Not Ready 1 Ready 0 Not Ready for External Requests 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | 83 | | | ADM Stat | us: System Power Status | | | |
| 5 ADM Status: Dispense System Ready to Dispense 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 6 0 Not Ready 1 Ready 1 Ready 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | 4 | | | - | | | |
| 5 0 Not Ready 1 Ready ADM Status: Dispense System Ready for External Requests 6 0 1 Ready 1 Ready 1 Ready 1 Ready 1 Ready 1 Ready Dispense Valve Open, Dispense Active | | | | 1 | Power ON | | | |
| 1 Ready ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready 1 Ready Dispense Valve Open, Dispense Active | | | | ADM Stat | us: Dispense System Ready to Dispense | | | |
| 6 ADM Status: Dispense System Ready for External Requests 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | 5 | | 0 | Not Ready | | | |
| 6 0 Not Ready 1 Ready Dispense Valve Open, Dispense Active | | | | 1 | Ready | | | |
| 1 Ready Dispense Valve Open, Dispense Active | | | | ADM Stat | us: Dispense System Ready for External Requests | | | |
| Dispense Valve Open, Dispense Active | | 6 | | 0 | Not Ready | | | |
| | | | - | 1 | Ready | | | |
| | | | | Dispense | Valve Open, Dispense Active | | | |
| Uspense valve Closed, Dispense Not Active | | 7 | | 0 | Dispense Valve Closed, Dispense Not Active | | | |
| 1 Dispense Valve Open, Dispense is Active | | | | 1 | Dispense Valve Open, Dispense is Active | | | |

PLC Outputs to CGM Inputs for PLC Control Descriptions

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | | |
|------|-----|--------------|---|---|--|--|
| | 0 | | Square Wave Heart Beat: CGM initiates a square wave that toggles every 3 sec. The PLC must follow the heartbeat. If the heart beat is lost from the PLC or CGM then the system will shutdown if the CGM/PLC is controlling the HFR. If the PLC does not detect the heartbeat then the PLC should cycle the PLC output bit HI/LO in attempt to establish the heartbeat from the CGM. | | | |
| | | | 0 | Heartbeat pulse off | | |
| | | | 1 | Heartbeat pulse on | | |
| | 1 | | pending o L-head sy other type | Status: Monitor Only: On Circulation systems, this indicates that a dispense is r in progress (or when pre-dispense timer is active and during a dispense).On an stem Dispense Valve is considered open until the end of the clean out cycle. On as of systems the bit will indicate a dispense is active. | | |
| | | | 0 | Dispense not active | | |
| | | | 1 | Dispense active | | |
| | 2 | | | Valve Position: Used for diagnostics only. Not to be used to control a dispensed command only works if the system is in standby mode. | | |
| | 2 | | 0 | Dispense valve closed | | |
| | | | 1 | Dispense valve open | | |
| | | | Not Used | | | |
| | 3 | | 0 | N/A | | |
| | | | 1 | N/A | | |
| 0 | 4 | Bit | pump sha | ked: Parking the pump involves moving the Red pump to the position which the ft is least exposed to the atmosphere. System must be in Standby mode. will dispense out of the dispense valve if it is not a circulating system. | | |
| | | | 0 | Not parked | | |
| | | | 1 | Parked | | |
| | 5 | | configure shot or se | Valve Lockout/Circulation Control: Used to lock out the dispense valve or circulation mode (if circulation valves are installed) when in standby, operator, quence modes only. If the PLC is controlling the dispense valve directly (P2/ option), operator mode only is available. | | |
| | | | 0 | Unlocked | | |
| | | | 1 | Locked out | | |
| | | | Mix Head | Cleanout: Used for L-Head systems cleanout /diagnostics only. | | |
| | 6 | | 0 | Cleanout is open | | |
| | | | 1 | Mis head cleanout closed | | |
| | 7 | | conditioni turned on temperatu manual di point. Set standby m only), sett | tartup Bit: Bit will initiate a controlled startup of the system. The temperature ng zones will be initiated when the bit is high. Low pressure recirculation is also when the bit is set in a full circulation system. Turning off this bit will turn off the are conditioning zones and circulation. For stall to pressure systems with a spense valve, setting this bit will configure the pumps to stall to the pressure set ting this bit is similar to pressing the mix head installed key when in night or nodes. If the PLC is controlling the dispense valve directly (P2 / Fusion DV option ing this bit is similar to pressing the green start key on the ADM. If the "Auto Between Dispenses" function is active, setting or clearing this bit will start or stop ation. | | |
| | | | | | | |
| | | | 1 | System startup is off | | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | |
|------|-----|--------------|--------------------------------------|--|---|
| | | | Not Used | | |
| | 0 | | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 1 | | 0 | N/A | |
| | | | 1 | N/A | |
| | 0 | | | ge: Only valid for HFR's with MCM Software, U82329. The system must be in Node to get into Base Purge Mode. | |
| | 2 | | 0 | N/A | |
| | | | 1 | N/A | |
| | 3 | Bit | | system wi pressure o user can r | atus: Valid for full circulation systems only. Indicates status of the pumping hen in circulation. If system is in low pressure recirc the pumps will shift to High circ and then start the pre-dispense time. When the pre-dispense time expires, request dispenses. After expiration of post-dispense time, the system will return ssure modes. Pre and post dispense times are settable on the ADM system-2 ns. |
| | | | 0 | Low pressure recirc on | |
| 1 | | | 1 | High pressure recirc on | |
| | | | Purge Ala | rm: Indicates the status up the purging routine. Monitor only. | |
| | 4 | | 0 | Purge shot not active | |
| | | | 1 | Purge shot active | |
| | - | | | bles Dispensing: PLC enables / disables dispensing from the GCA controller, n or remote start via the MCM. | |
| | 5 | | 0 | Dispensing enabled | |
| | | | 1 | Dispensing disabled | |
| | 6 | | control of be able to When cor | rol: Monitor whether the PLC (CGM) has control of the system or the ADM has the system. If in PLC control, the ADM control keys will be disabled, user will not enter the setup screens, but system information will still be visible on the ADM. nmanded to PLC control, the user should navigate away from the main home en back for the screen to update. | |
| | | | 0 | ADM has control/CGM only monitors | |
| | | | 1 | CGM has control | |
| | | | Not Used | | |
| | 7 | | 0 | N/A | |
| | | | 1 | N/A | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | | |
|------|---|--------------|--|---|--|--|
| | System Mode Select (Operating Mode): Monitor the various modes of the di system. CGM feedbacks the status of the system to the PLC. Night mode is on standard HFRs with full circulation, or Semi-automatic circulation valves using a manually controlled dispense valve (P2/ Fusion DV Option), shot and modes are not available. | | | | | |
| | | | 1 | DISABLED Mode | | |
| 2 | | Integer | 2 | STANDBY Mode | | |
| | | | 3 | SHOT Mode | | |
| | | | 4 | SEQUENCE Mode | | |
| | | | 5 | OPERATOR Mode | | |
| | | | 6 | N/A | | |
| | | | 7 NIGHT Mode | | | |
| 3 | | Integer | (1-100). Ir | Shot/Sequence Position Number: In Shot Mode, , sets the active shot number a sequence mode, sets the active sequence position number (1-20). The selected ber or sequence position has to contain valid data before the HFR will accept the | | |
| | | | 1-100 | Shot Mode | | |
| | | | 1-20 | Sequence Mode | | |
| 4 | | Integer | Selected sequence: In Sequence mode, set the active sequence (1-26 for sequences A- Z). The selected sequence needs to contain a sequence of shot numbers programmed into the ADM screen before the HFR will accept the selected sequence number. This register is ignored in other modes. | | | |
| | | | 1-26 | Active Sequence | | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | | |
|------|-----|--------------|-----------------------------------|---|--|--|
| | | | Enable/Di | sable Red Tank Heater | | |
| | 0 | | 0 | Disable red tank heater | | |
| | | | 1 | Enable red tank heater | | |
| | | | Enable/Di | sable Blue Tank Heater | | |
| | 1 | | 0 | Disable blue tank heater | | |
| | | | 1 | Enable blue tank heater | | |
| | | | Enable/Di | sable Red Inline Heater | | |
| | 2 | | 0 | Disable red inline heater | | |
| | | | 1 | Enable red inline heater | | |
| | | | Enable/Disable Blue Inline Heater | | | |
| | 3 | Bit | 0 | Disable blue inline heater | | |
| 5 | | | 1 | Enable blue inline heater | | |
| 5 | | Dit | Enable/Di | sable Red Hose Heater | | |
| | 4 | 4 | 0 | Disable red hose heater | | |
| | | | 1 | Enable red hose heater | | |
| | | | Enable/Di | sable Blue Hose Heater | | |
| | 5 | | 0 | Disable blue hose heater | | |
| | | | 1 | Enable blue hose heater | | |
| | | | Enable/Di | sable Red Chiller | | |
| | 6 | | 0 | Disable red chiller | | |
| | | | 1 | Enable red chiller | | |
| | | | Enable/Di | sable Blue Chiller | | |
| | 7 | | 0 | Disable blue chiller | | |
| | | | 1 | Enable blue chiller | | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description |
|------|-----|--------------|--|---|
| | 0 | | an auto fil the high le GCA will c | Fill: Initiates a fill valve open. This bit can be used to initiate a manual fill cycle or I cycle if the auto fill mode is selected. The tank fill valve will close upon reaching evel switch. See Byte 78 for tank level status. If the Tank fill bit is maintained the close the valve when the tank is full. Will time out and alarm if the High level is not vithin a preset time. Set blue tank fill to inactive |
| | | | 1 | Begin filling blue tank |
| | | | Not Used | |
| | 1 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 2 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| 6 | 3 | Bit | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 4 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 5 | | 0 | N/A |
| | | | 1 | N/A |
| | | | Not Used | |
| | 6 | | 0 | N/A |
| | | | 1 | N/A |
| | 7 | | Not Used | N/A |
| | 7 | | 0 | N/A |
| | | | 1 | N/A |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | |
|--------|-----|--------------|--|--|--|
| | 0 | | Red Tank Fill: Initiates a fill valve open. This bit can be used to initiate a manual fill cycle or an auto fill cycle if the auto fill mode is selected. The tank fill valve will close upon reaching the high level switch. See Byte 78 for tank level status. If the Tank fill bit is maintained the GCA will close the valve when the tank is full. Will time out and alarm if the High level is not reached within a preset time. | | |
| | | | 0 | Set red tank fill to inactive | |
| | | | 1 | Begin filling red tank | |
| | | | Not Used | | |
| | 1 | | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 2 | | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| 7 | 3 | Bit | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 4 | | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 5 | _ | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 6 | | 0 | N/A | |
| | | | 1 | N/A | |
| | | | Not Used | | |
| | 7 | | 0 | N/A | |
| | | | 1 | N/A | |
| 8, 9, | | ASCII | currently for the err to the CG incorrect | uiring acknowledgment are presented on first in first out basis. The latest error is n the error register in the CGM. The PLC must send back the exact ASCII value or to be acknowledged in the CGM. If an incorrect ASCII error code is sent back M then the error will not clear and the CGM register will be overwritten with the error. If multiple error codes exist, then the PLC must acknowledge them in the errors are sent to the PLC from the CGM. | |
| 10, 11 | | | | = U = C | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | | | |
|-------------------|------------|-------------------|--|--|--|--|--|
| 12, 13, 14, | | Double Integer | Change Flow Rate or Pressure Set Point: Changes the flow or pressure set point if in operator mode, or the flow or pressure set point for the selected shot number if in shot mode. The set point change is either pressure or flow depending if the HFR is configured to constant pressure or flow mode. This register is for only setting the rate (flow or pressure) when dispensing. It can not be used to set the flow rate if the HFR is circulating material. | | | | |
| 15 | | | The PLC value to the CGM is an integer and must be multiplied by 1000 for the requested flow rate to be in system units. Example: Flow Rate desired is 17.125 cc/sec. Send double word 14 = 17125 (unit chosen is cc/sec) | | | | |
| 16, 17, | | Double | amount (s | hispense Amount Set Point: Changes the current shot selected to a new dispense shot size). The value sent to the CGM must be an integer. Units depend on what is the system setup. | | | |
| 18, 19 | 18, Intege | | The PLC value to the CGM is an integer and must be multiplied by 1000 for the requested flow rate to be in system units. Example: Dispense Amount desired is 150 grams. Send double word 18 = 150000 (unit chosen is grams) | | | | |
| 20 | | Byte | Not Used | | | | |
| 20 | | Byto | | N/A | | | |
| 21 | | Byte | Not Used | | | | |
| | | | | N/A | | | |
| 22, 23 | | Integer | value sen the syster low alarm requested | The Temperature Set Point: Changes zone selected to a temperature in °C. The to the CGM must be an integer. Units are °C regardless of the units chosen in m setup. Note the temperature set points are limited by the temperature high and values. The alarm set points must be greater than 10 degrees from the set point. If the alarm is closer than 10 degrees the requested set point will be Note these bytes are combined with bytes 24,25 (zone to change). | | | |
| | | | value mus Example: | value is xx.x and must be multiplied by 10 prior to being sent to the CGM. The st be in °C. Change Red Hose Temperature to 102°F. Send 238 (23.8°C) to the CGM along one (see bytes 24,25) | | | |

| Byte | Bit | Data Type | State or Range | PLC Outputs to CGM Inputs for PLC Control Description | | |
|--------|-----|--------------|---|--|--|--|
| 24, 25 | | Integer | changed. Note these bytes are combined with bytes 22,23 (temperature to change). When changing a heat zone, select the appropriate zone number which will enable the CGM to write a new temperature set point to the heat zone selected. Only 1 heat zone can be selected at a time. Bytes 24,25 (MSW) + 22,23 (LSW) are combined to form a double word from the PLC output to CGM input. 0 = Red Tank Heater 1 = Blue Tank Heater 2 = Red Inline Heater 3 = Blue Inline Heater 4 = Red Hose Heater 5 = Blue Hose Heater 6 = Red Chiller 7 = Blue Chiller 8 = Blue Inline Heater High Temperature Limit 9 = Blue Inline Low Temperature Limit 10 = Red Inline High temperature Limit 11 = Red Inline Low Temperature Limit 11 = Red Inline Low Temperature Iimit Example: Change Red Hose Temperature to 102°F. Send integer "4" to word 24 and combine with integer "238" in word 22 (23.8°C) to the CGM (see bytes 22,23). | | | |
| 26 | | Integer | byte. Syst when the To turn the | stem Power: Turn the system OFF or ON by changing the existing value in this em power is ON when the ADM is in any active mode. System power is OFF power LED is in the yellow state. See Input Bit 83.4 for System Power Status. e System power ON or OFF, write a different value to the System Power byte. | | |
| | | | Example: | the value will toggle the state from ON to OFF or OFF to ON. If the power is ON sending word 26 a "5" will turn the power OFF. To turn the ck ON, Send any value other than a "5". | | |

Controlling Device

CGM Control and Night Mode

When the controlling device sets the HFR into night mode using the CGM, the controlling device will be responsible for turning on and off the pumps accordingly (by setting or clearing the "SYSTEM STARTUP BIT", or bit 7 bytes 1-2) when the "CGM Control Enabled" bit is set (Bit 14, bytes 1-2). Any active night mode periodic or time of day timer will be over-ridden by the controlling device when the corresponding timer expires within the Advanced Display Module (ADM). If the controlling device clears the "CGM Control Enabled" bit after setting the HFR into night mode, the night mode timers will operate properly and condition the dispense material accordingly.

CGM Control and Parking the Pumps

After the HFR is set to Standby mode, the controlling device (and user by pressing the footswitch) will have the option to park the pumps. When the pumps are parked, the red material pump shaft will be immersed into the red material, hence preventing exposure of the shaft and red material on the shaft to the atmosphere.

If the system is a full circulation based system, the controller device will need to have the pumps cycling in low pressure mode (by setting the "SYSTEM STARTUP BIT", or bit 7 bytes 1-2) prior to setting the "Pump Parked" bit (bit 4, bytes 1-2). For a standard HFR, the user will have to remove the "SYSTEM STARTUP BIT" immediately after the pump reaches the parked position. For a recirculation type system, the pump will remain in the park position, and ignore an active "SYS-TEM STARTUP BIT" request. For a recirculation type system, to exit a parked state, the controlling device will need to clear the "Pump Parked" bit, then set the "SYSTEM STARTUP BIT" from a cleared state. When this occurs, the pumps will start cycling in the last low pressure flow rate executed.

If the system is a stall to pressure type system, the controlling device simply needs to set the "Pump Parked" bit from an idle state, then the pumps will move to the parked position. If the system has a manual dispense valve, the user will need to ensure the pump pressures are less than approximately 391 psi (2.7 MPa, 27 bar) prior to setting the "Pump Parked" bit, and ensure either the dispense valve is opened, or the material is diverted out of the pressure relief valves at the material manifold.

ADM Screen Information when CGM Control is Started or ended

When the user or controlling device sets or clears the "CGM Control Enabled" bit, information provided on the ADM display may or may not be current. If the user navigates away, then back to the main home run screen, the information provided will be current.

Timing Diagrams

The following diagrams show the signal sequence of the CGM communication.

Heart Beat Timing Diagram

| Heart Beat | CGM Input Bytes /Bit | CGM Out- put | |
|-----------------|-------------------------|-----------------|--|
| CGM HB - Normal | I/O | | |
| PLC HB - Normal | | I/O | |

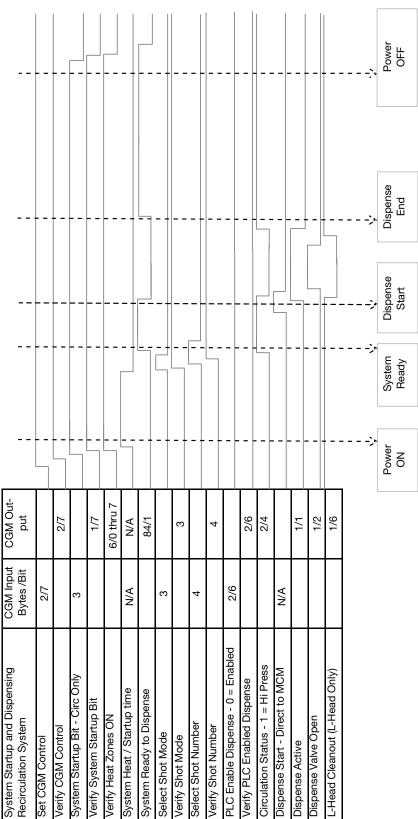
System Power Bit Diagram

| System Power Bit | CGM Input Bytes /Bit | CGM Out- put | |
|------------------------|-------------------------|-----------------|--|
| Set CGM Control | 2/7 | | |
| Verify CGM Control | | 2/7 | |
| System Power ON | 27 | | |
| Verify System Power ON | | 84/0 | |

Shot Setup - Change Diagram

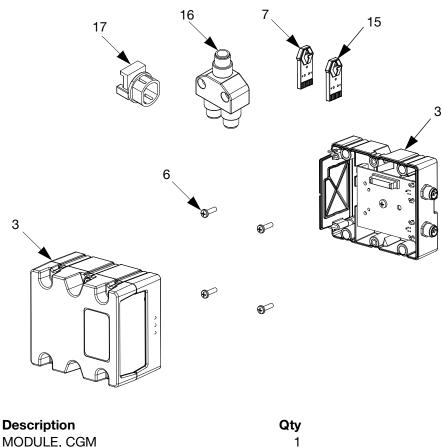
| Shot Setup - Change | CGM Input Bytes /Bit | CGM Out- put | |
|---------------------|-------------------------|-----------------|--|
| Select Shot Mode | 3 | | |
| Verify Shot Mode | | 3 | |
| Select Shot Number | 4 | | |
| Verify Shot Number | | 4 | |
| Set Flow Rate | 13-16 | | |
| Verify Flow Rate | | 13-16 | |
| Set Shot Size | 17-20 | | |
| Verify Shot Size | | 19-22 | |

System Startup and Dispensing Recirculation Diagram



Parts

Model 24J415



| Ref | Part | Description | Qt |
|-----|--------|-----------------------------------|----|
| 3† | CGMxx0 | MODULE, CGM | |
| 6 | 114984 | SCREW, tapping, phillips pan head | |
| 7 | 16J526 | TOKEN, map | |
| 12 | 121000 | CABLE, CAN, female / female 0.5 m | |
| 13 | 121901 | SUPPRESSOR, box snap, ferrite | |
| 15 | 16H821 | TOKEN, GCA, upgrade, ADM32 | |
| 16 | 121807 | CONNECTOR, splitter | |
| 17 | 124005 | BUSHING, strain relief | |

† Not included in kit. See **Kits** on page 2 for available CGM modules. See the Communications Gateway Module manual 312864 for CGM parts list.

California Proposition 65

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Original instructions. This manual contains English. MM 3A1704

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