

Communications Gateway Module Installation Kit

3B0465B

EN

For use with Precision Shot Meter (PSM) systems to provide fieldbus communications abilities. For professional use only.

Not approved for use in explosive atmospheres or hazardous (classified) locations.



Important Safety Instructions

Read all warnings and instructions in this manual before using the equipment. Be familiar with the proper control and usage of the equipment. Save these instructions.



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Related manuals

Manual	Description
3B0404	PSM Instruction Manual
3B0405	PSM Repair-Parts Manual

Models

Part	Communication Protocol	For System	System Part No.
2005273	PROFINET	PSM	2009034, 2009035, 2008986, 2008987, 2008990, 2008992, 2009036, 2008988, 2008991, and 2008993
2000362	Ethernet/IP		

Safety Symbols

The following safety symbols appear throughout this manual and on warning labels. Read the table to understand what each symbol means.

Symbol	Meaning
	Burn Hazard
	Electric Shock Hazard
	Equipment Misuse Hazard
	Fire and Explosion Hazard
	Moving Parts Hazard
	Skin Injection Hazard
	Skin Injection Hazard
	Splash Hazard
	Toxic Fluid or Fumes Hazard

Symbol	Meaning
	Do Not Place Hands or Other Body Parts Near Fluid Outlet
	Do Not Stop Leaks with Hand, Body, Glove or Rag
	Eliminate Ignition Sources
	Follow Pressure Relief Procedure
	Ground Equipment
	Read Manual
	Ventilate Work Area
	Wear Personal Protective Equipment



Safety Alert Symbol

This symbol indicates: Attention! Become Alert! Look for this symbol throughout the manual to indicate important safety messages.

General Warnings

The following warnings apply throughout this manual. Read, understand, and follow the warnings before using this equipment. Failure to follow these warnings can result in serious injury.

 WARNING	
 	ELECTRIC SHOCK HAZARD This equipment must be grounded. Improper grounding, setup, or usage of the system can cause electric shock. • Turn off and disconnect all power before disconnecting any cables and before servicing or installing equipment. • Connect only to grounded power source. • All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.
    	SKIN INJECTION HAZARD High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment. • Do not point dispensing device at anyone or at any part of the body. • Do not put your hand over the fluid outlet. • Do not stop or deflect leaks with your hand, body, glove, or rag. • Follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing equipment. • Tighten all fluid connections before operating the equipment. • Check hoses and couplings daily. Replace worn or damaged parts immediately.



WARNING



FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. Paint or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:



- Use equipment only in well-ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See **Grounding** instructions in your PSM instruction manual.
- Never spray or flush solvent at high pressure.
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail. Do not use pail liners unless they are anti-static or conductive.
- **Stop operation immediately** if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.



EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.



- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Specifications** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Specifications** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** in your PSM instruction manual when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.



MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.



- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in your PSM instruction manual and disconnect all power sources.



TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read Safety Data Sheets (SDSs) to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.



WARNING

**BURN HAZARD**

Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

**PERSONAL PROTECTIVE EQUIPMENT**

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. Protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturer.

Overview

The Communications Gateway Module (CGM) provides a control link between the Precision Shot Meter (PSM) system and a selected fieldbus, which enables external automation systems to monitor and control reports.

This manual provides information and instructions for the CGM for the Precision Shot Meter (PSM) system with a Printed Circuit Board (PCB). The system supports communication protocols of PROFINET and Ethernet/IP. See **Models**, page 3, for details.

Typical Installation

FIG. 1, FIG. 2, and FIG. 3 are only a guide for identifying system components and for assisting in installation. Contact your Graco distributor or Graco China Customer Service for assistance in designing a system to suit your specific needs.

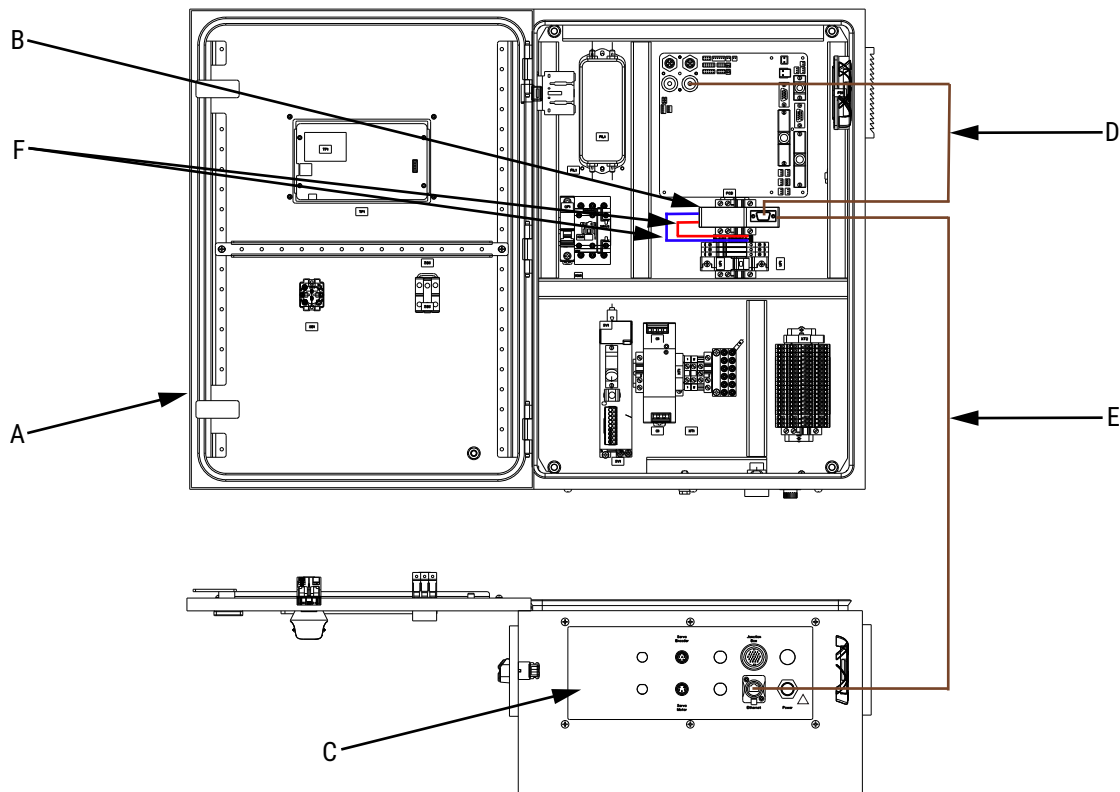


FIG. 1: CGM Typical Installation

Key:

- A PSM Control Unit
- B Communication Gateway Module (CGM)
- C PSM Control Unit Connection Plate
- D Modbus RTU Communication Cable
- E RJ45 Cable
- F Power Cables

Component Identification

Communication Gateway Module (CGM)

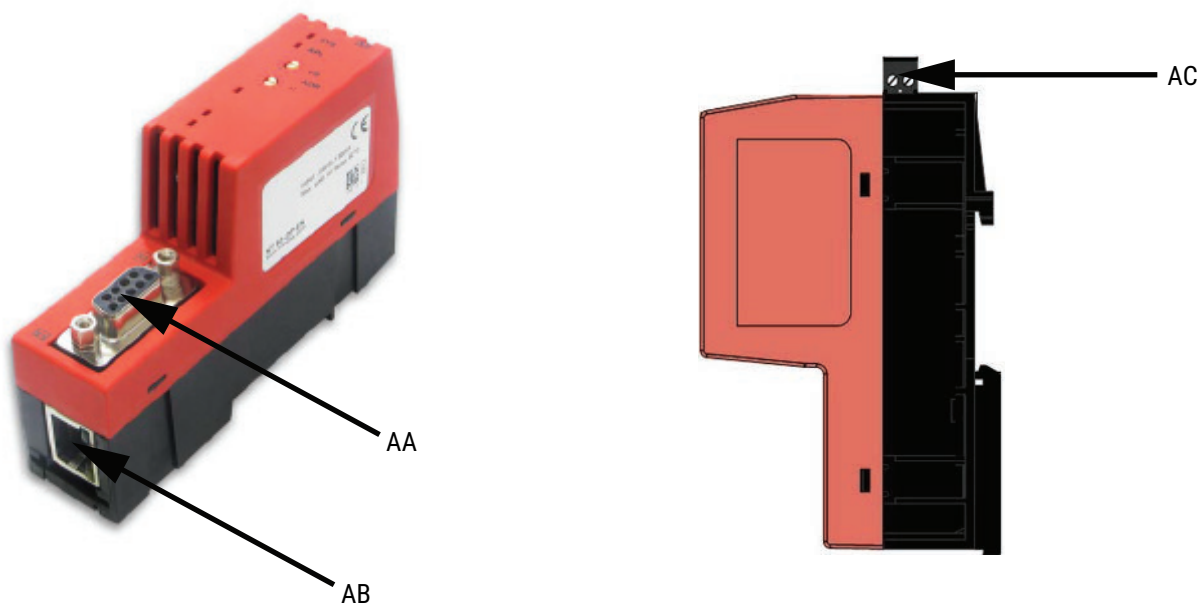


FIG. 2: PSM Metering Unit, Ambient

Key:

- AA X2 Interface
- AB X3 Interface
- AC CGM Power Interface

PSM Control Unit

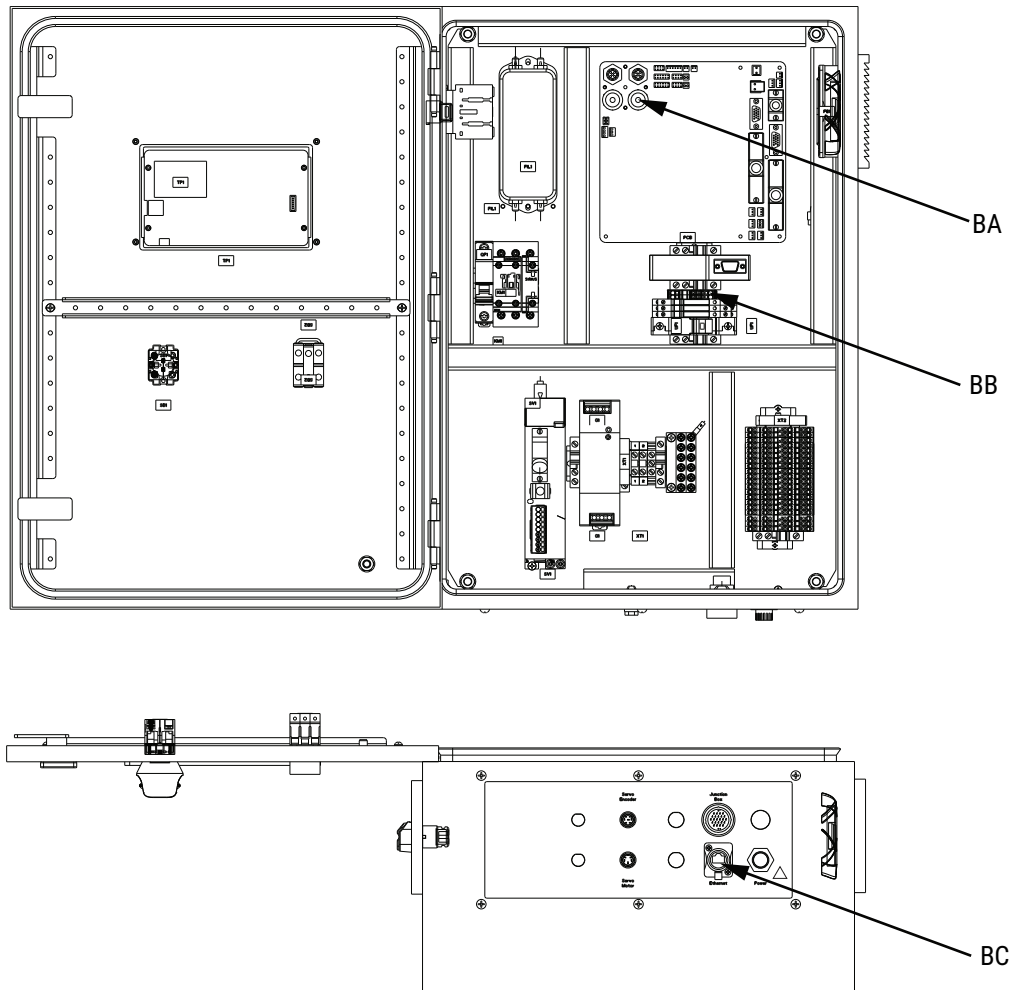


Fig. 3: PSM Metering Unit, Ambient

Key:

BA CON1 Connector

BB Power Interface

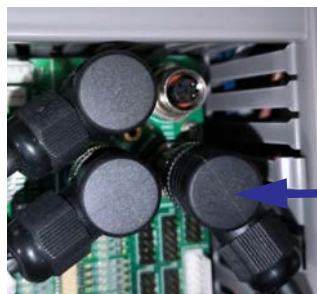
BC Ethernet Port

Installation

1. Make sure the power of the control unit is off.
2. Install the Communication Gateway Module (B, page 8) onto the lower guide rail of the control board.
3. Using the Modbus RTU Communication Cable (D, page 8), insert the DB9 connector at one end of the cable to the communication module X2 Interface (AA, page 9), and the M12 4-core plug at the other end into the control board CON1 (BA, page 10).
4. Install the RJ45 panel mount connector to the designed cutout for Ethernet Port (BC, page 10) inside the PSM Control Unit Connection Plate (C, page 8).
5. Using the RJ45 Cable (E, page 8), connect one end to the X3 Interface (AB, page 9) at the bottom of the CGM, and the other end to the Ethernet Port (BC, page 10) inside the PSM Control Unit Connection Plate (C, page 8).
6. Install Power Cables (F, page 8) to the CGM Power Interface (AC, page 9).
7. Turn on the control box and wait for it to start up.
8. If necessary, use the Ethernet Port (BC, page 10) on the connection plate outside the cabinet for further configuration.



DB9 Connector



M12 4-core plug

Available Internal Data

Gateway Map, PCB

Controller Input from PLC Output

Name	Units	Byte	Description
GATE_IN_CMD_BIT0-15	0 Job Start	1-2	Used to start job, normal
	1 Dispense		Used to start dispensing in bead mode or shot mode
	2 Reload		Used to start reloading material
	3 Purge		Used to start purge
	4 Alarm Reset		Used to reset error
	5 Mode Select		Used to set working mode in automatic 0 means shot mode 1 means bead mode
	6 Pressure Relief		Used to open dispense valve and relieve pressure in metering system
	7 Precharge Start		--
	8 Spare		--
	9 Spare		--
	10 Spare		--
	11 Spare		--
	12 Spare		--
	13 Spare		--
	14 Spare		--
	15 Heartbeat Feedback		--
GATE_IN_SHOT_NO		3-4	0-39, to select shot
GATE_IN_JOB_STYLE_NO		5-6	0-39, to select job style
GATE_IN_RATE_CMD		7-8	0-5000, to control the dispense flow rate

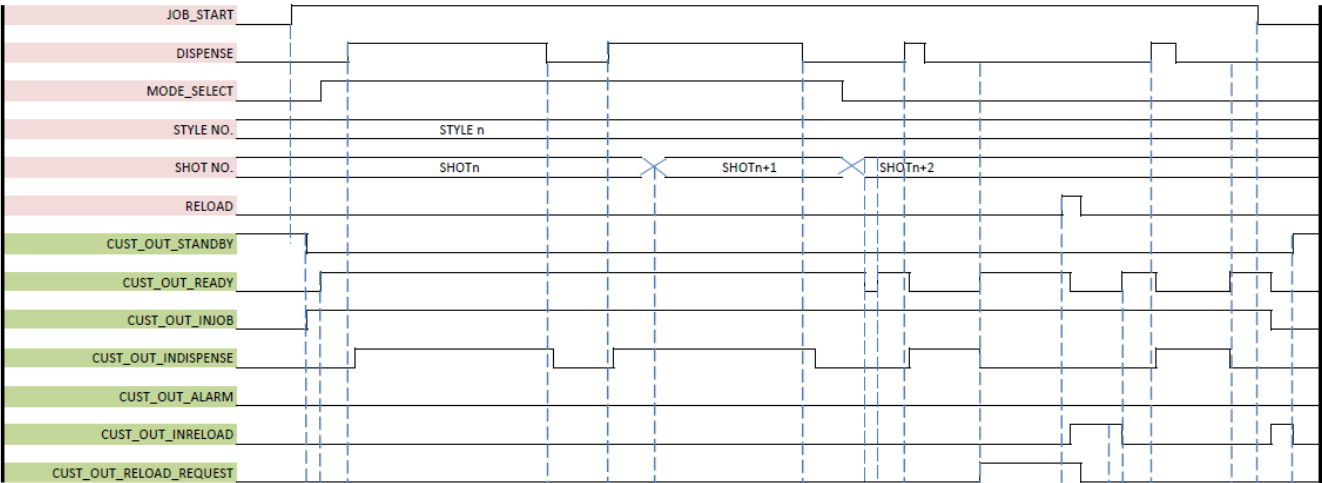
Controller Output to PLC Input

Name	Units	Byte	Description
GATE_OUT_STATUS	0 Ready	1-2	--
	1 In Dispense		--
	2 Completed		--
	3 In Reload		--
	4 Purge Request		--
	5 Reload Request		--
	6 Alarm		--
	7 Standby		--
	8 In Job		--
	9 In Purge		--
	15 Heart Beat		--
GATE_OUT_ERR_CODE		3-4	--
GATE_OUT_JOB_VOL		5-6	Integer, should multiply by 0.1, unit is CC
GATE_OUT_DISP_RATE		7-8	Integer, should multiply by 0.01, unit is CC/s
GATE_OUT_PRESS		9-10	Integer, unit is PSI
GATE_OUT_MTR_TRQ		11-12	Integer, should multiply by 0.001, unit is NM
GATE_OUT_JOB_DURATION		13-14	Integer, unit is s
GATE_OUT_DISP_TIMES		15-16	Dispense times in a job
GATE_OUT_TOF_STATUS_0 (only for PSM Warm Melt)	0 TOFA HEAT ON/OFF	17	--
	1 TOFA HEAT READY		--
	2 TOFA PUMP ON		--
	3		--
	4 TOFA NO ERR		--
	5 TOFA DRUM LOW		--
	6 TOFA DRUM EMPTY		--
	7 TOFA ALARM		--
GATE_OUT_TOF_STATUS_1 (only for PSM Warm Melt)	0 TOFB HEAT ON/OFF	18	--
	1 TOFB HEAT READY		--
	2 TOFB PUMP ON		--
	3		--
	4 TOFB NO ERR		--
	5 TOFB DRUM LOW		--
	6 TOFB DRUM EMPTY		--
	7 TOFB ALARM		--

Timing Chart, PCB

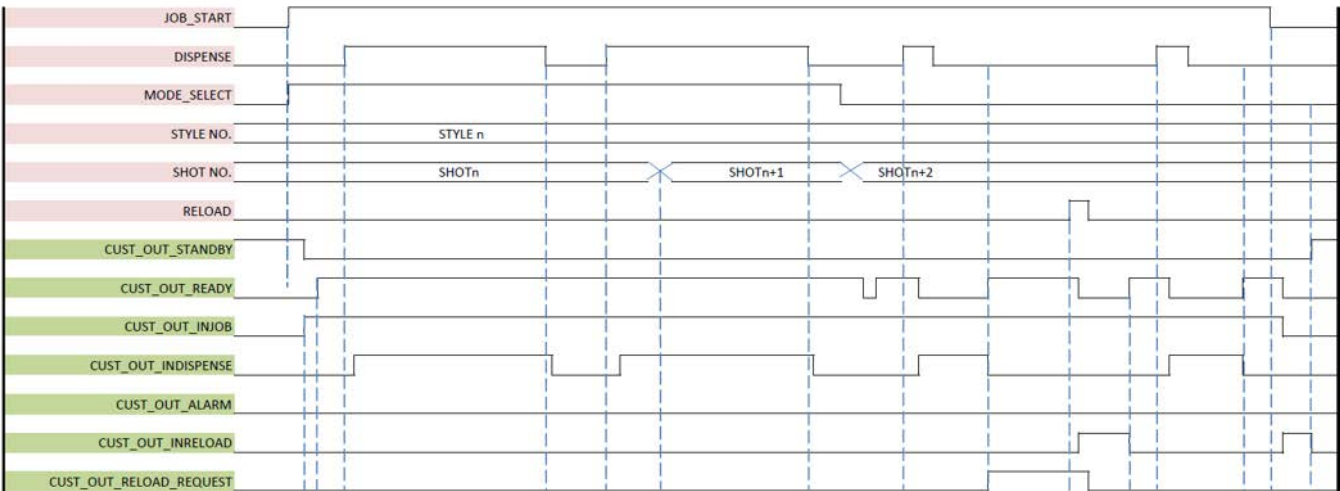
Set Always Precharge and Reload After Each Job

The timing charts describe standard shot application sequence when Pre-charge trigger is set as Always, and Auto reload setup is set as Reload after each job.



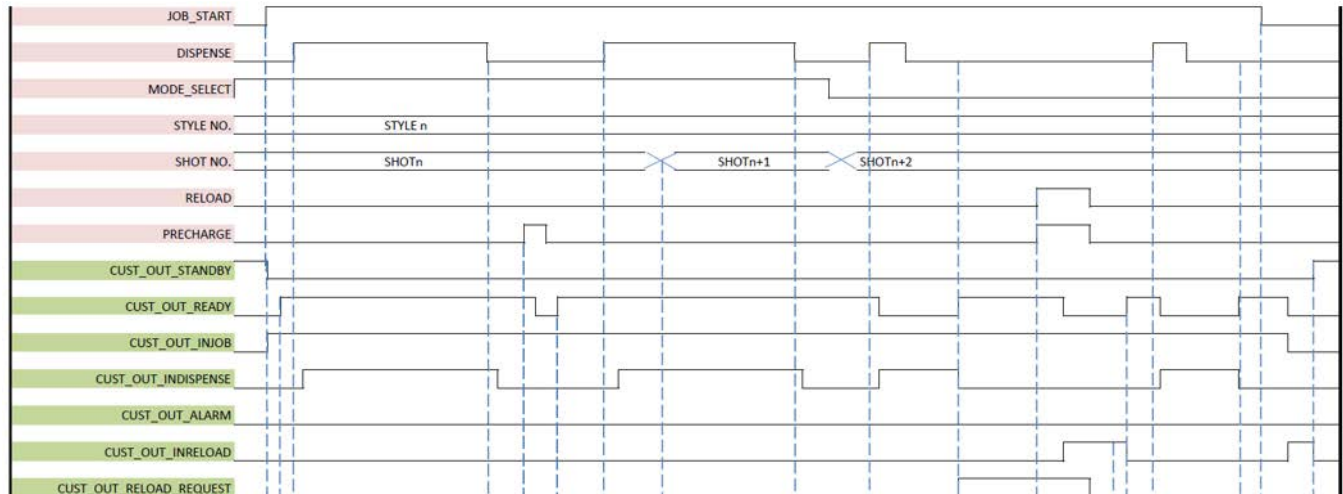
Set None Precharge and Reload After Each Job

The timing charts describe standard shot application sequence when Pre-charge trigger is set as None, and Auto reload setup is set as Reload after each job.



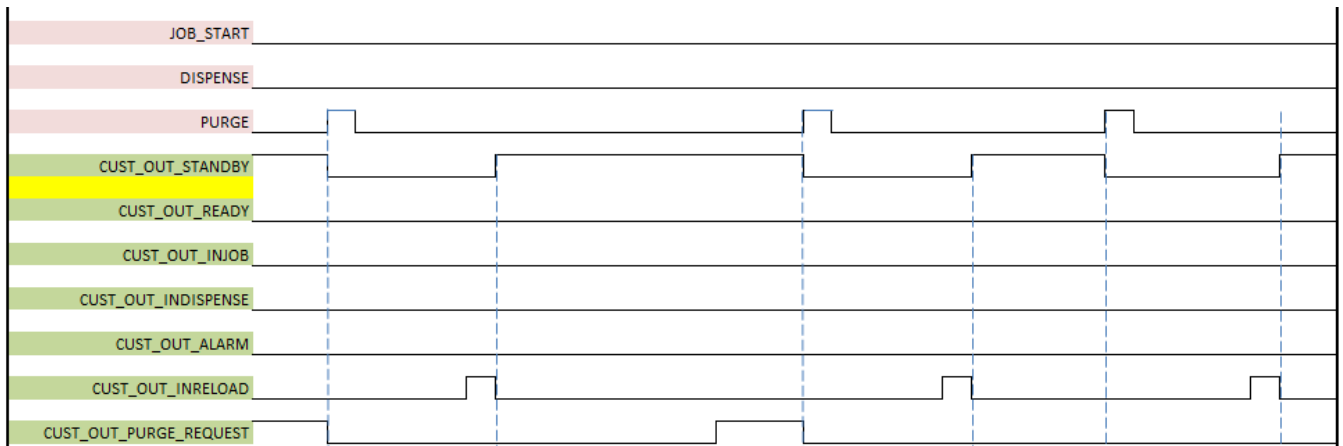
Set IO or Gateway Precharge and Reload After Each Job

The timing charts describe standard shot application sequence when Pre-charge trigger is set as I/O or Gateway, and Auto reload setup is set as Reload after each job.



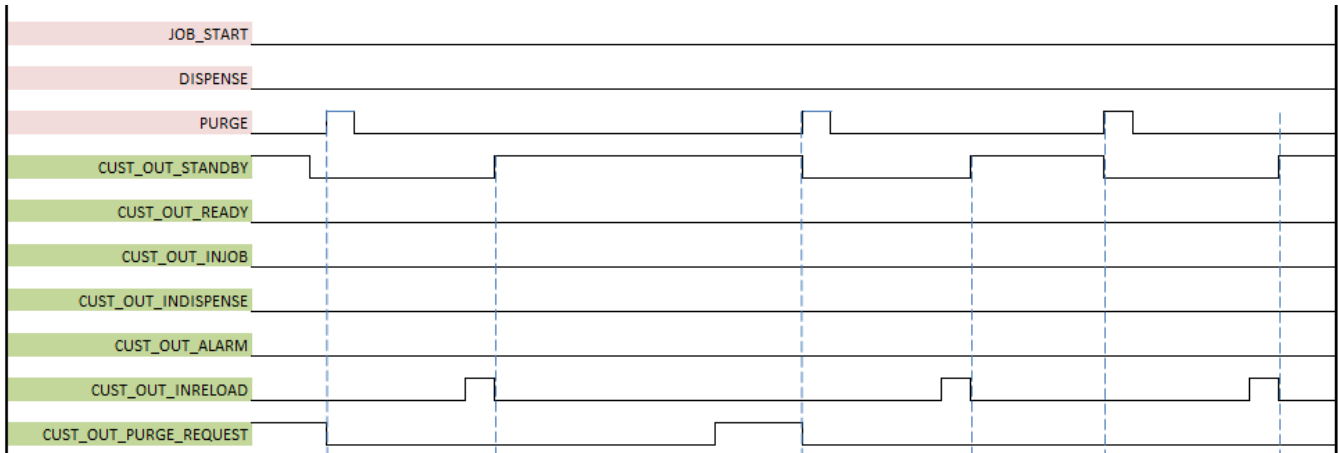
Enable Auto Reload After Purging

The timing charts describe standard shot application sequence when Auto reload after purging is enabled.



Enable Auto Relief After Purging

The timing charts describe standard shot application sequence when Auto relief after purging is enabled.



Recycling and Disposal

End of Product Life

At the end of the product's useful life, dismantle and recycle it in a responsible manner.

- Perform the **Pressure Relief Procedure** in your PSM instruction manual.
- Drain and dispose of fluids according to applicable regulations. Refer to the material manufacturer's Safety Data Sheet.
- Remove motors, circuit boards, LCDs (liquid crystal displays), and other electronic components. Recycle according to applicable regulations.
- Do not dispose of electronic components with household or commercial waste. 
- Deliver remaining product to a recycling facility.

Technical Specifications

PSM System		
	US	Metric
Maximum Inlet Fluid Pressure	3000 psi	20.7 MPa, 207 bar
Maximum Working Fluid Pressure	3000 psi	20.7 MPa, 207 bar
Maximum Air Pressure	100 psi	0.7 MPa, 7 bar
Electrical Power	200–240 VAC, 50/60 Hz, 10 A	
Viscosity Range	20–1,000,000 cps	
Wetted Parts	304 Stainless Steel, 7075-T651, Ceramic, FKM, FFKM, Hard Chrome, PEEK, PH17-4, Ethylene Propylene, Parker PolyMyte™, Tungsten Carbide, UHMWPE	
Shot Size Range ⁽¹⁾	25 cc: 0.1–25cc 50 cc: 0.2–50 cc 100 cc: 0.5–100 cc 200 cc: 0.5–200cc	
Shot Size Repeatability	1%	
Maximum Flowrate ⁽²⁾	25 cc: 12 cc/s 50 cc: 15 cc/s 100 cc: 15 cc/s 200 cc: 15 cc/s	
Maximum Working Temperature	158°F	70°C
Inlet / Outlet Sizes		
Air Inlet Size	1/4 in.	6 mm
Fluid Inlet Size	1/4 in. npt (f)	
Fluid Outlet	iQ valve: 1.7mm tip size 1K valve: 1/4 in. npt(f)	
Weight		
PSM Metering Unit	25 cc: 40.8 lb 50 cc: 40.8 lb 100 cc: 43.0 lb 200 cc: 48.5 lb	25 cc: 18.5 kg 50 cc: 18.5 kg 100 cc: 19.5 kg 200 cc: 22 kg
PSM Warm Melt Metering Unit (with warm melt module)	25 cc: 45.2 lb 50 cc: 45.2 lb 100 cc: 49.6 lb 200 cc: 52.9 lb	25 cc: 20.5 kg 50 cc: 20.5 kg 100 cc: 22.5 kg 200 cc: 24 kg
Warm Melt Module	6.1 lb	2.75 kg
PSM Control Unit	70.5 lb	32 kg
Notes		
All trademarks or registered trademarks are the property of their respective owners.		
⁽¹⁾ Minimum shot size varies based on the material type and the customer tolerance requirements.		
⁽²⁾ Maximum flowrate varies based on the material viscosity.		

California Proposition 65

CALIFORNIA RESIDENTS

 **WARNING:** Cancer and reproductive harm – www.P65warnings.ca.gov.

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Information

Sealant and Adhesive Dispensing Equipment

For the latest information about Graco products, visit www.graco.com.

For patent information, see www.graco.com/patents.

TO PLACE AN ORDER, contact your Graco distributor, go to www.graco.com, or call to identify the nearest distributor.

If calling from the USA: 1-800-746-1334

If calling from Asia Pacific: 00-86-512-6260-5711 or 00-86-21-2310-6198

If calling from Europe: 00-32-89-770-862

*All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.*

Original instructions. This manual contains English. MM 3B0465

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