GRACO®

Communications Gateway Module
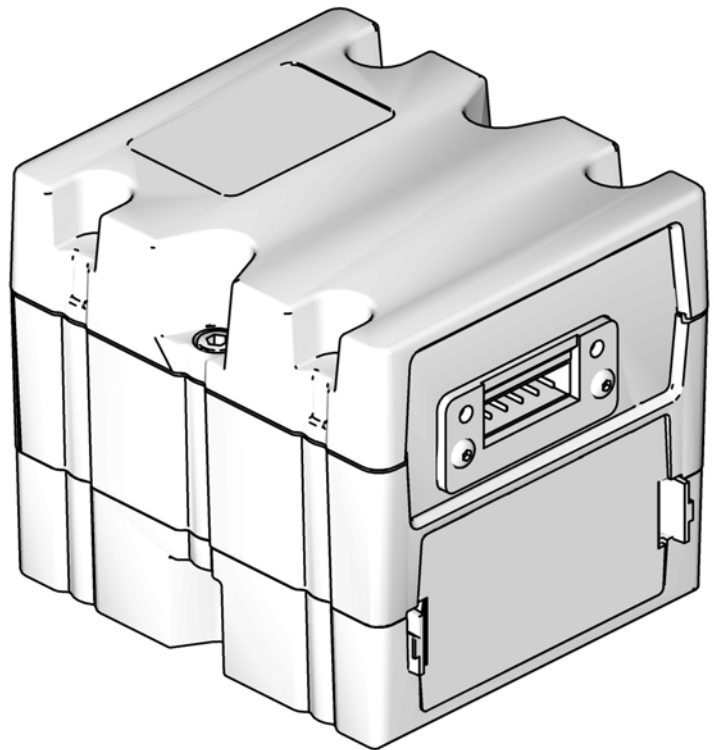
312864B

For use with Graco Control Architecture based systems to provide fieldbus communications capabilities.

Important Safety Instructions
Read all warnings and instructions in the system operation manual. Save these instructions.

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ETL LISTED
C   US

Intertek
4003764
Conforms to
UL Std. 508
Certified to CAN/CSA Std.
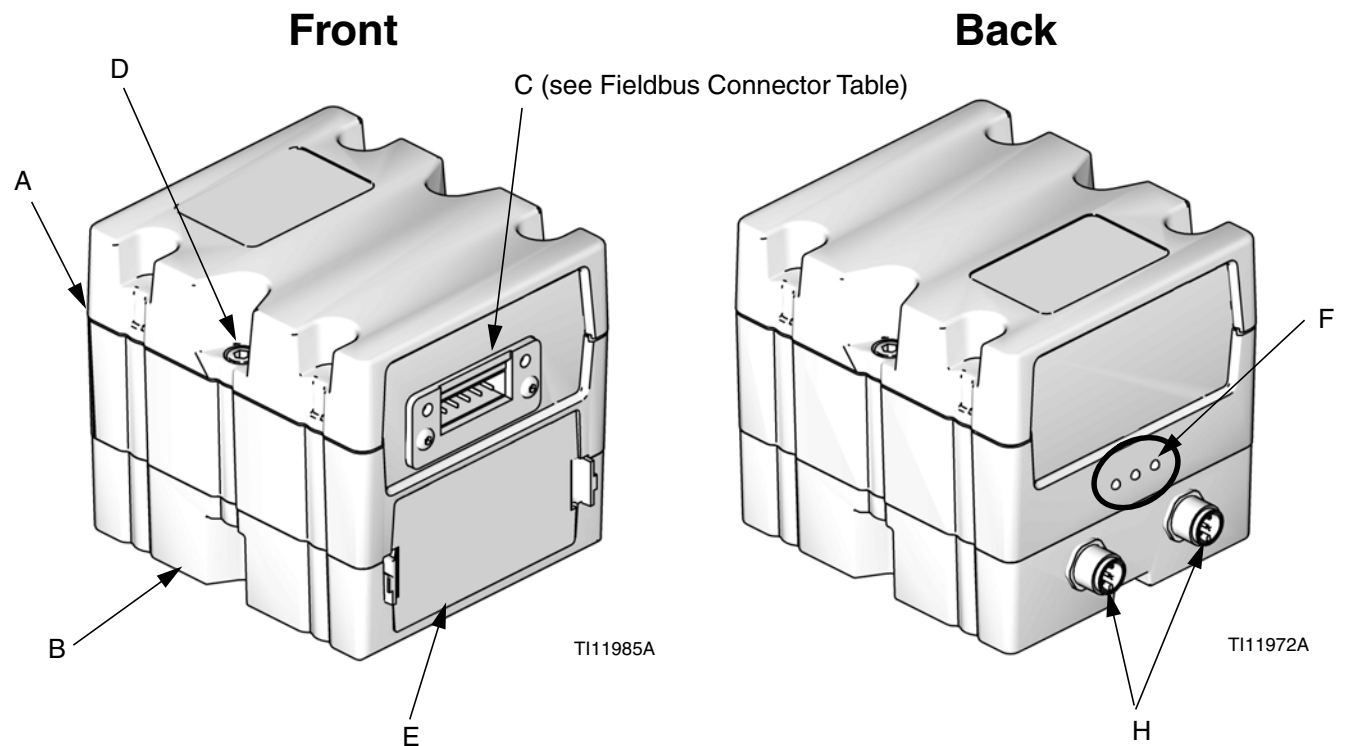C22.2 No. 14

PROVEN QUALITY. LEADING TECHNOLOGY.

Contents

Models

Communications Gateway Module Part No.	Fieldbus
CGMDN0	DeviceNet
CGMEP0	EtherNet/IP
CGMPB0	PROFIBUS
CGMPN0	PROFINET

To order replacement parts, see **Parts** on page 11.

To order installation kits for a Graco Control Architecture based system, see the system operation manual.

Component Identification

Front

D

A

C (see Fieldbus Connector Table)

B

TI11985A

E

Back

F

TI11972A

H

Fieldbus Connectors Table (C)

PROFINET or EtherNet/IP	DeviceNet	PROFIBUS
G	G	G
TI11814A	TI11815A	TI11816A

Fɪɢ. 1:

Key:
A   Communications Gateway Module
B   Base
C   Fieldbus Connector
D   Module Connection Screws
E   Access Cover
F   Module Status LEDs
G   Fieldbus Status LEDs (see descriptions on page 6)
H   CAN Connectors

Overview

Module Description

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

Data provided by the CGM to the fieldbus depends on which Graco Control Architecture based system and fieldbus are connected. A data map supplied on a map token is defined for this pairing. Once the data map has been loaded into the CGM, it is stored internally, and the map token is no longer required for operation.

Data Exchange

Data is available by block transfer, cyclic transfer, change of state triggered, and explicit access to individual attributes as defined by the fieldbus specification.

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
*   SDML: PROFINET fieldbus networks

Module Status LED Signals

Signal	Description
Green on	System is powered up
Yellow	Internal communication in progress
Red Solid	CGM hardware failure
*Red (7 flashes)	Data map load failure
	Incorrect data map for fieldbus type
	No data map loaded

*The red LED (F) will flash a code, pause, then repeat. See **Diagnostic Information** on page 10.

NOTE:
Verify that you are using the correct token for your system and reinstall token. If fails, order new token.

Module Requirements

Power Supply

The CGM requires a 12-30 VDC @ 0.2 A power supply. Refer to the system manual for system level power supply guidelines.

Environment Conditions

Refer to the system manual for guidelines regarding environment conditions for the CGM.

Installation

The CGM is available for use with all Graco Control Architecture based systems that have compatible design. Each CGM requires the following to operate in a system:

*   Mounting hardware
*   Map token
*   Fieldbus files

If your system is compatible for use with a CGM, install the supplied CGM as explained in the system operation manual or installation kit manual.

If the CGM is offered only as an accessory for your system, see **Accessories** in the system operation manual for available CGM kits.

Connect Cables

If your system is supplied with the CGM and required components, connect cables as explained in the system operation manual.

If the CGM is offered as an accessory for your system, connect cables as explained in the CGM mounting kit manual.

NOTICE
Route cables to avoid interference with moving parts.

Setup

Install or Update Data Map

NOTE:

The fieldbus connection is temporarily disabled during the installation or update of a map token.

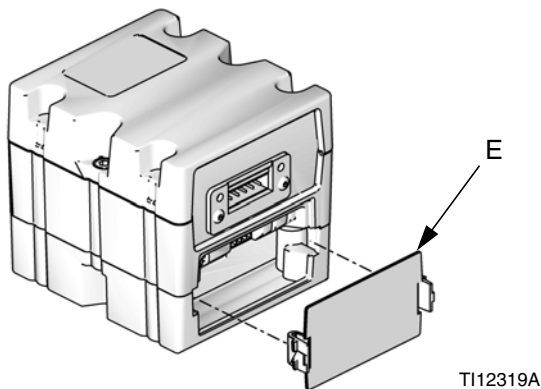1. Ensure system is inactive.

2. Remove access cover (E).

FIG. 2

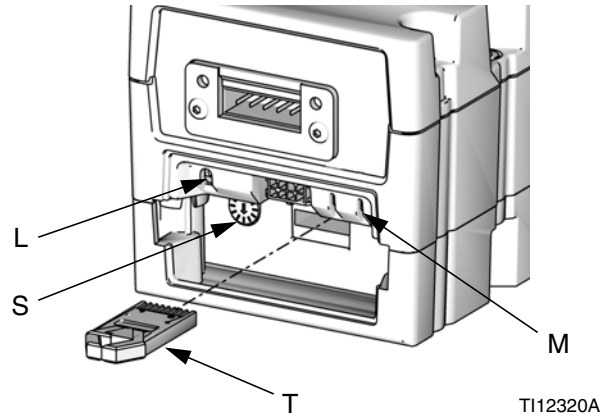3. Insert and press map token (T) firmly into slot.

FIG. 3

4. Press and hold the map upload push button (M) for three seconds. The red LED (L) will flash twice, pause, and repeat once after the data map is successfully uploaded. This may take up to 10 seconds.

NOTE:

The rotary switch (S) has no function for the CGM.

5. Remove token (T). Store in a safe place.

6. Replace access cover (E).

Fieldbus Connectors
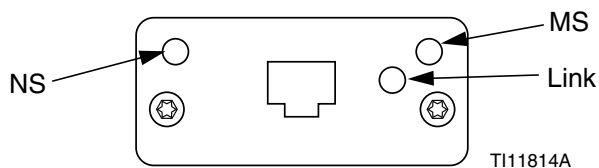
PROFINET

F<small>IG</small>. 4

The Ethernet interface operates at 100Mbit, full duplex, as required by PROFINET. The Ethernet interface is auto polarity sensing and auto-crossover capable.

Network Status (NS)

State	Description	Comments
Off	Offline	- No power - No connection with IO Controller
Green	On-line, (RUN)	- Connection with IO Controller established - IO Controller with RUN state
Flashing Green	On-line, (STOP)	- Connection with IO Controller established - IO Controller in STOP state

Module Status (MS)

State	Description	Comments
Off	Not initialized	No power or module in "SETUP" or "NW_INIT" state
Green	Normal operation	Diagnostic event(s) present
Flashing Green	Initialized, diagnostic event(s) present	Used by engineering tools to identify node on network
Red	Exception error	Module in state "EXCEPTION"
Red (1 flash)	Configuration error	Expected Identification differs from Real Identification
Red (2 flashes)	IP Address not set	Set IP address via system monitor or DNS server
Red (3 flashes)	Station Name not set	Set Station Name via system monitor
Red (4 flashes)	Major Internal Error	Cycle system power; replace module

Link/Activity (Link)

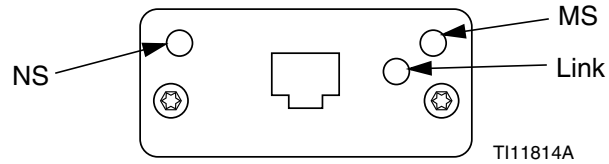| State	Description
Off	No Link, no communication present
Green	Link established, no communication present
Green, flashing	Link established, communication present

EtherNet/IP

FIG. 5

The Ethernet interface operates at 100Mbit, full duplex, as required by PROFINET. The Ethernet interface is auto polarity sensing and auto-crossover capable.

Network Status (NS)

State	Description
Off	No power or no IP address
Green	On-line, one or more connections established (CIP Class 1 or 3)
Flashing Green	On-line, no connections established
Red	Duplicate IP address, FATAL error
Flashing Red	One or more connections timed out (CIP Class 1 or 3)

Module Status (MS)

State	Description
Off	No power
Green	Controlled by a Scanner in Run state
Flashing Green	Not configured, or Scanner in Idle state
Red	Major fault (EXCEPTION-state, FATAL error etc.)
Flashing Red	Recoverable fault(s)

LINK/Activity (Link)

State	Description
Off	No link, no activity
Green	Link established
Flashing Green	Activity

DeviceNet
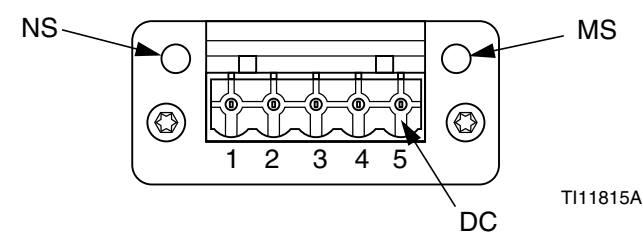

FIG. 6

Network Status (NS)

State	Description
Off	Not online / No power
Green	On-line, one or more connections are established
Flashing Green (1 Hz)	On-line, no connections established
Red	Critical link failure
Flashing Red (1 Hz)	One or more connections timed-out
Alternating Red/Green	Self test

Module Status (MS)

State	Description
Off	No power or not initialized
Green	Initialized
Flashing Green (1 Hz)	Missing or incomplete configuration, device needs commissioning
Red	Unrecoverable Fault(s)
Flashing Red (1 Hz)	Recoverable Fault(s)
Alternating Red/Green	Self test

DeviceNet Connector (DC)

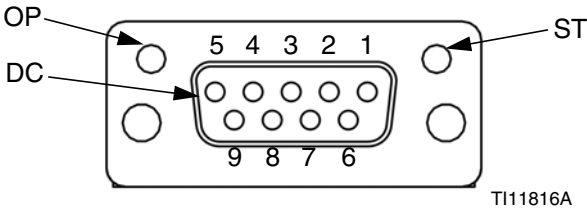| Pin	Signal	Description
1	V-	Negative bus supply voltage
2	CAN_L	CAN low bus line
3	SHEILD	Cable shield
4	CAN_H	CAN high bus line
5	V+	Positive bus supply voltage

PROFIBUS

OP
DC
ST
5 4 3 2 1
9 8 7 6

TI11816A

FIG. 7

Operation Mode (OP)

State	Description
Off	Not online / No power
Green	On-line, data exchange
Flashing Green	On-line, clear
Flashing Red (1 flash)	Parameterization error
Flashing Red (2 flashes)	PROFIBUS Configuration error

Status Mode (ST)

State	Description
Off	No power or not initialized
Green	Initialized
Flashing Green	Initialized, diagnostic event(s) present
Red	Exception error

PROFIBUS Connector (DC)

Pin	Signal	Description
1	-	-
2	-	-
3	B Line	Positive RxD/TxD, RS485 level
4	RTS	Request to send
5	GND Bus	Ground (isolated)
6	+5V Bus Output	+5V termination power (isolated)
7	-	-
8	A Line	Negative RxD/TxD, RS485 level
9	-	-
Housing	Cable Shield	Internally connected to the Anybus protective earth via cable shield filters according to the PROFIBS standard.

Troubleshooting

Diagnostic Information

Module Status LED Signal	Diagnosis	Solution
Red (7 flashes)	Data map load failure	Verify that you are using the correct token for your system type and rein-stall token. If installation fails, order new token.
	Incorrect data map for fieldbus type	
	No data map loaded	

The red LED (F) will flash a code, pause, then repeat.

Parts

CGMPB0, CGMPN0, CGMEP0, CGMDN0
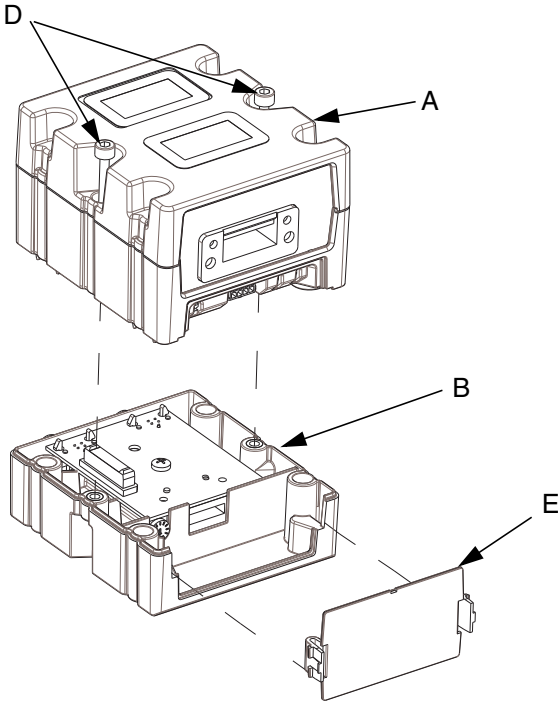
Parts

Ref	Part No.	Description	Qty.
A	15V759	MODULE, Gateway, DeviceNet; CGMDN0 only	1
	15V760	MODULE, Gateway, EtherNet/IP; CGMEP0 only	1
	15V761	MODULE, Gateway, PROFIBUS; CGMPB0 only	1
	15V762	MODULE, Gateway, PROFINET; CGMPN0 only	1
B	289697	Base	1
D	114135	SCREW, mounting, module connection	2
E	277674	COVER, access	1

Technical Data

Category	Data
Power requirements	12-30 VDC @ 0.2 A
Weight	12.8 oz.
Dimensions	4.3 in. x 3.8 in. x 3.8 in.

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.

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Graco Information

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Phone: 612-623-6921 **or Toll Free:** 1-800-328-0211 **Fax:** 612-378-3505

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PARA REMITIR UN PEDIDO O SOLICITAR SERVICIO, póngase en contacto con el distribuidor de Graco.