

**OPERATING INSTRUCTIONS MANUAL**codice: **81087B_06-2024 - ENG****ATTENTION!**

This manual must always be available to operators of the devices described here.

Always make sure that you have the latest version of the manual, which is available for free download from the GEFARAN website (www.gefran.com).

Installers and/or maintenance personnel are required to read this manual and to precisely follow the instructions contained in it and in its attachments.

GEFRAN will not be liable for any damage to persons and/or property, or to the product itself, caused by failure to follow the instructions and observe the warnings given below.



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REVISION DOCUMENTS

DATE	CODE	UPDATE	N. pages of the document

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INTRODUCTION

This guidelines are informations about G-Mation V45 and GF_Connect plugin modules and their accessories.

Described below you you will find how to recognize, install and configure the plugins and all their datasheet.

SAFETY GUIDE

The manual contains safety standards that must be respected for the personal safety and to avoid damage.
Indications of attention are divided into three levels of severity:



DANGER: indicates a failure to observe safety rules and such failure may cause death or serious injuries.



ATTENTION: indicates a failure to observe safety rules and that deficiency may cause damage.



CAUTION: indicates a failure to observe safety rules and that deficiency may cause defects to the equipment or inconsistencies.

1. PRODUCT IDENTIFICATION

GEFRAN		RoHS ✓	CE
MADE IN ITALY			
Gefran Soluzioni srl Via Sebina, 74 25050 Provaglio d'Iseo (BS) - ITALY		This product contains a battery. Dispose of the battery according to local regulations.	
GV_PLUG-3G			
CODE: F071520			
V.: 121112A090050A1			
Serial Number: AA0000225000000561AA			
		1816	

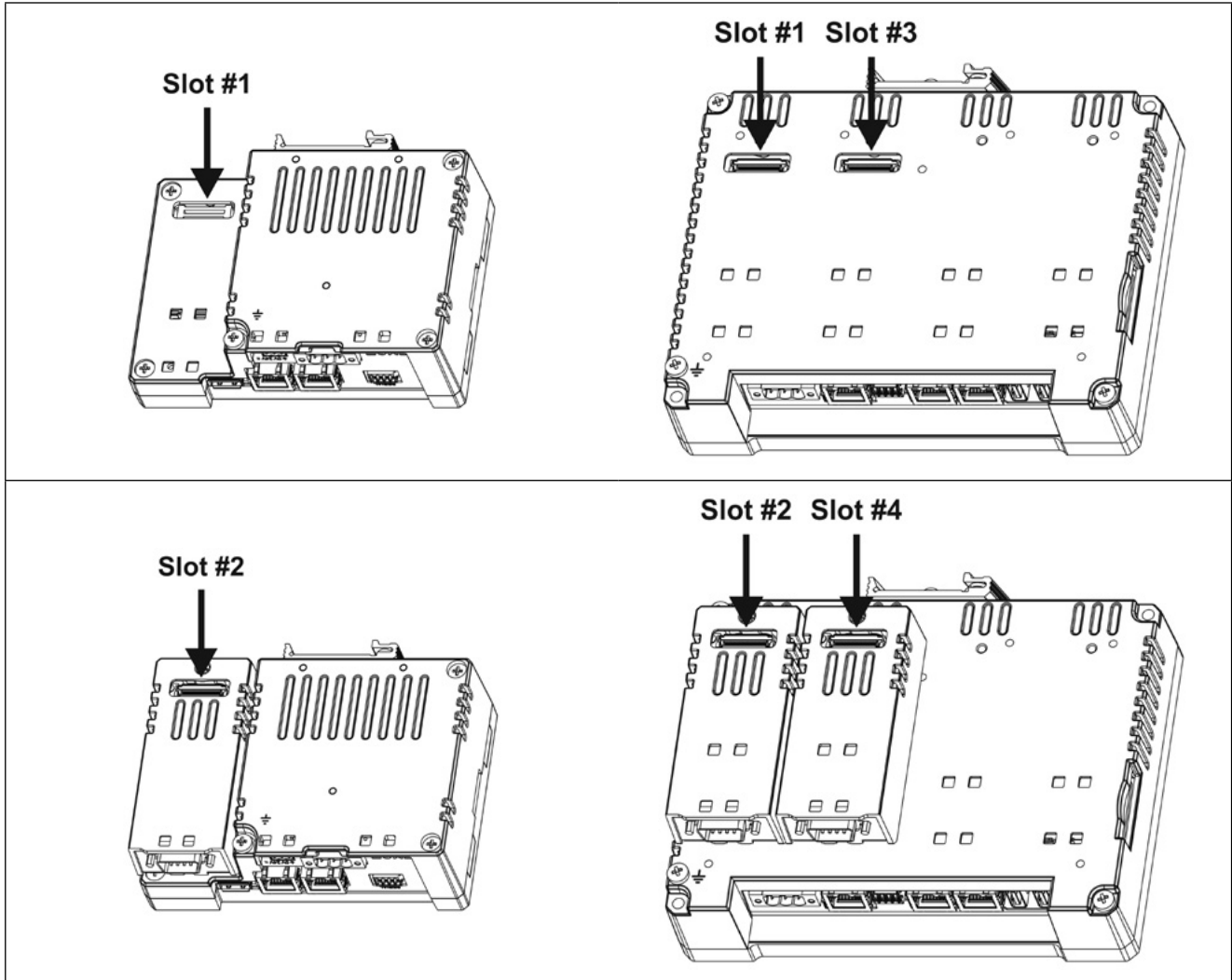
GEFRAN	GV_PLUG-3G
MADE IN ITALY	
V.: 121112A090050A1	
S.N.: AA0000225000000561AA	
1816	
CE RoHS ✓	
Gefran Soluzioni srl Via Sebina, 74 25050 Provaglio d'Iseo (BS) - ITALY	

Product model name	GV_PLUG-3G
CODE:	F071520
Year/week of production	1816
Serial Number	AA0000225000000561AA
Version Id Of The Product	121112A090050A1
Manufacturer address	Gefran Soluzioni srl Via Sebina, 74 25050 Provaglio D'Iseo (Bs) - Italy

2. OPTIONAL MODULES

2.1. Optional plugin module installation rules

G-Mation V45 and GF_Connect have several optional plugin module, multiple modules configurations are possible.



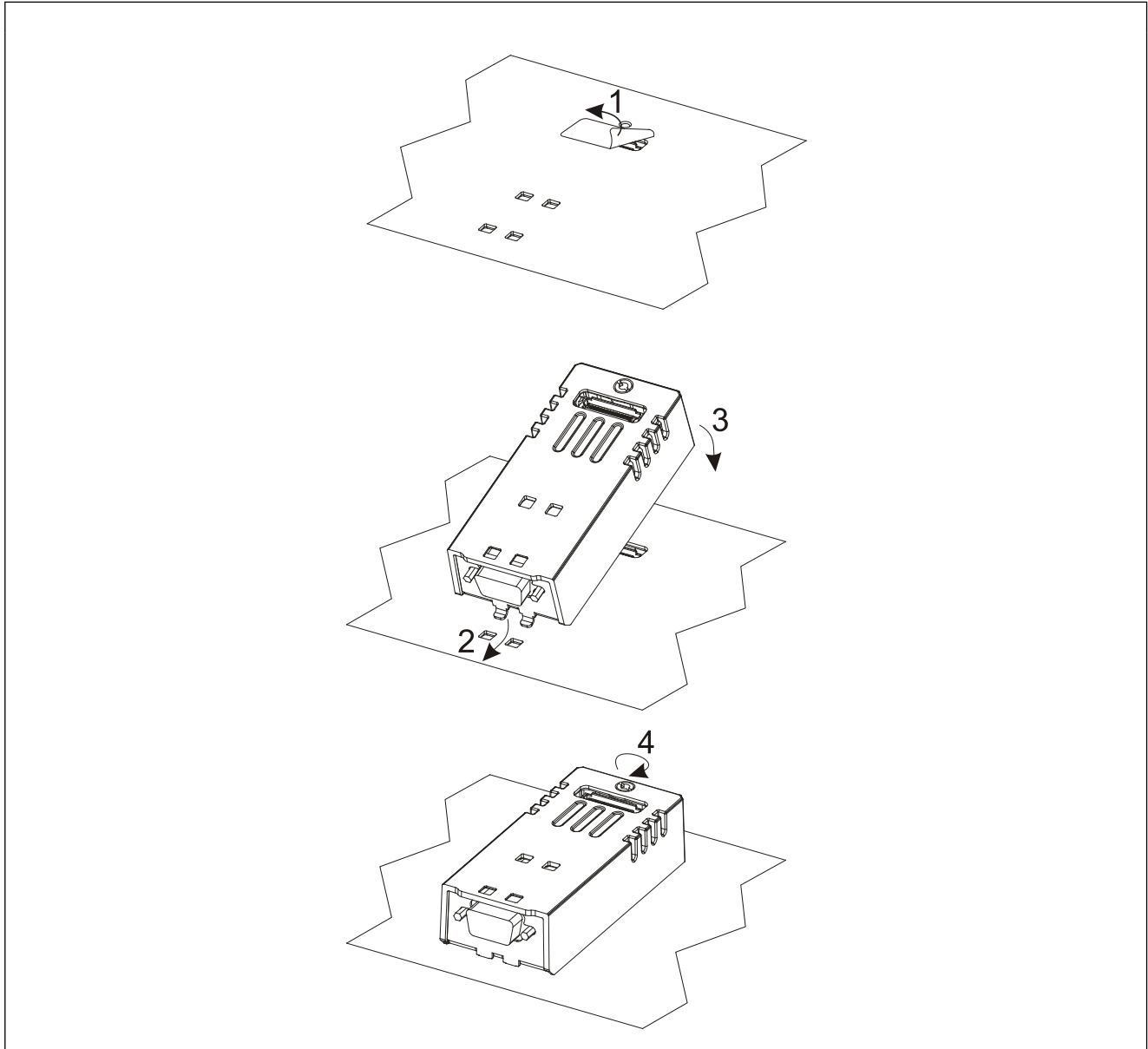
Slot#2 and Slot#4 are available only if plugin module has the “bus extension connector”.

Each slot carries three communication channels:

- 1 serial interface
- 1 CAN interface
- 1 3G o LTE interface

Note: It is not possible to stack two modules that are using the same type of interface.

2.2. Optional plugin module installation procedure



Below you can find relation between modules and max number of modules that can be used into G-Mation V45 and GF_Connect series devices, based on their Interface Type:

Module	Application	Max Modules	Interface Type	Bus Extension connector
GV_PLUG-CAN	CAN	2	CAN	Yes
GV_PLUG-232	Serial 232	2	Serial	Yes
GV_PLUG-485	Serial 485	2	Serial	Yes
GV_PLUG-3G	3G modem	1	-	Yes
GV_PLUG-LTE_GNSS_WIFI	4G/LTE+GNSS+WIFI	1	-	Yes

Max modules refers to max number of modules can be plugged into the devices (all slots).

If you are planning to use GV_PLUG-232 and GV_PLUG-485 (additional serial ports) you will obtain following “COM - Slot#” association:

- a module plugged in Slot#1 or into Slot#2 will be COM2,
- a module plugged in Slot#3 or into Slot#4 will be COM3.

If you are planning to use two GV_PLUG-CAN (CAN interface) you will obtain following Slot# association:

- a module plugged in Slot#1 or into Slot#2 will be the CanPort 0,
- a module plugged in Slot#3 or into Slot#4 will be the CanPort 1.

2.3. Optional plugin module data sheet

Below are listed the technical specifications of each module.

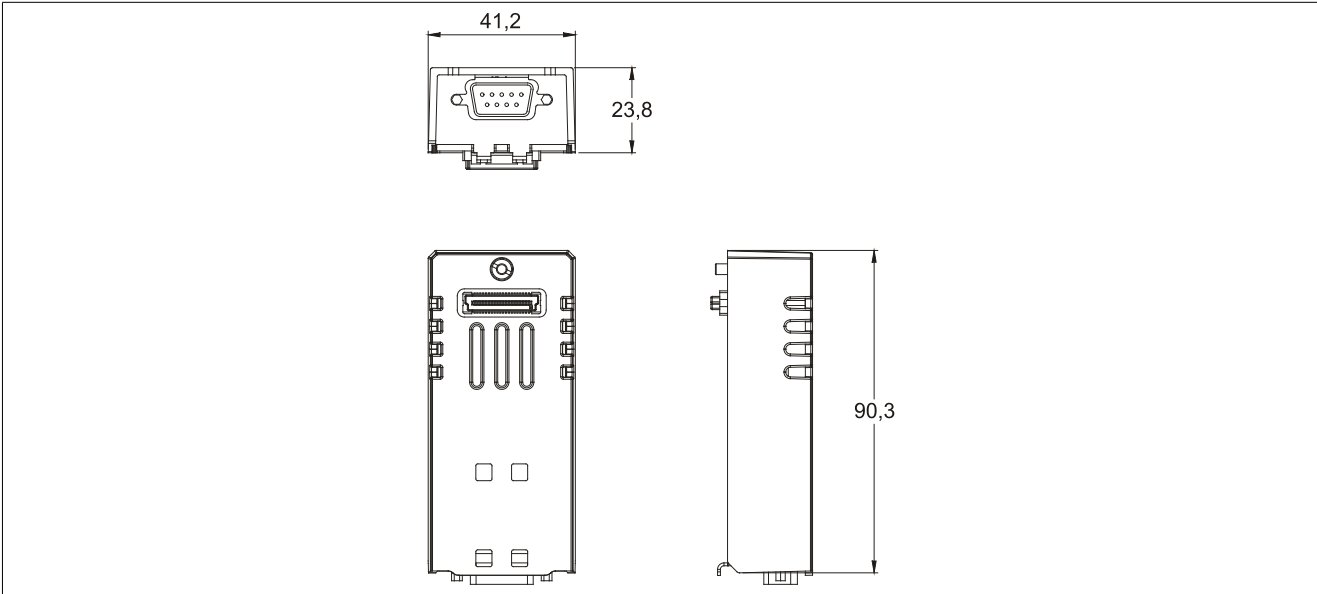
2.3.1. GV_PLUG-CAN - Plug-in module CAN



GV_PLUG-CAN is a plug-in module for use in all cases when CAN communication is required as fieldbus or for other communication.

- CAN interface (V2.0A and V2.0B)
- Max speed 1 Mb
- Optical isolation
- Plug-in bus extender (selected models)
- DB9 connector

Environmental Conditions	
Operating temperature	-20° to +60°C
Storage temperature	-20° to+ 70°C
Operating and storage humidity	5 - 85 % relative humidity, non-condensing
Protection class	IP20
Approvals	
CE	Emission EN 61000-6-4, Immunity EN 61000-6-2 for installation in industrial environments, Emission EN 61000-6-3, Immunity EN 61000-6-1 for installation in residential environments
UL	cULus: UL508
UL	cULus: Class I Div. 2
ATEX	Yes
IECEX	Yes
DNV-GL	Yes
LR	Yes
EUMR	Yes
RCM	Yes



Ordering information:

F086949	GV_PLUG-CAN	Plug-in module CAN
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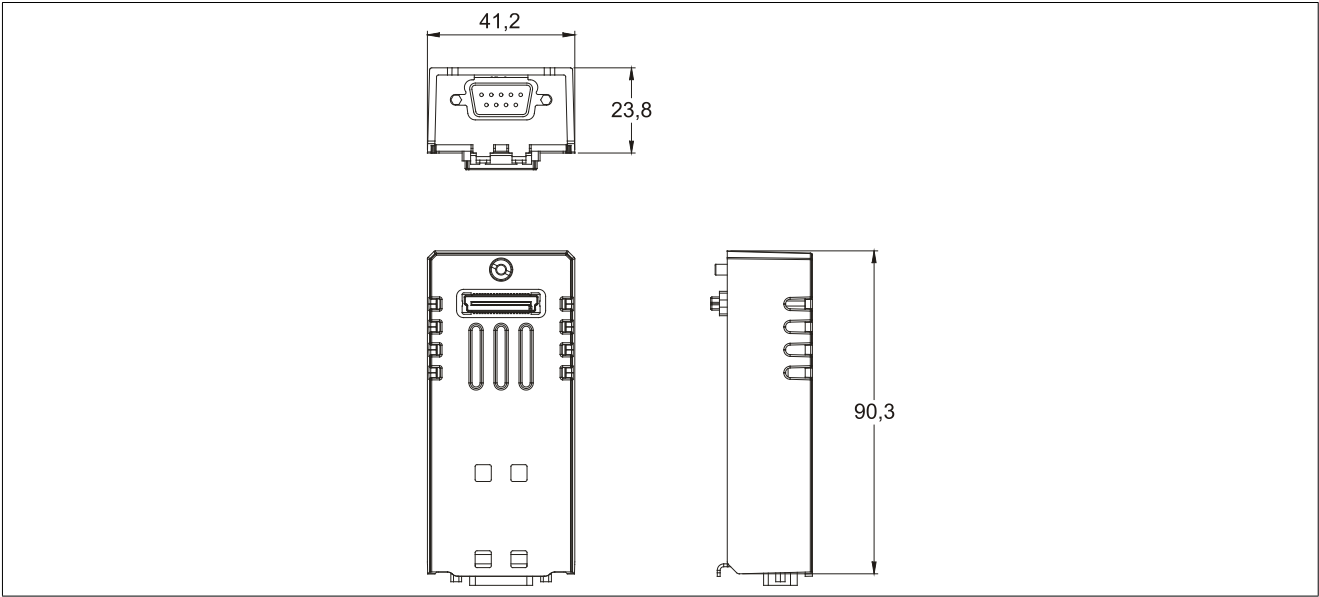
2.3.2. GV_PLUG-232 - Plug-in module RS-232



GV_PLUG-232 is a plug-in module for use in all cases when an additional serial communication port is required.

- RS-232 interface
- Plug-in bus extender

Environmental Conditions	
Operating temperature	-20 to +60 C
Storage temperature	-20 to +70 C
Operating and storage humidity	5 – 85 % relative humidity, non-condensing
Protection class	IP20
Approvals	
CE	Emission EN 61000-6-4, Immunity EN 61000-6-2 for installation in industrial environments, Emission EN 60945, Immunity EN 60945 for marine environments
UL	cULus: UL508
RCM	Yes



Ordering information:

F086951	GV_PLUG-232	Plug-in module RS-232
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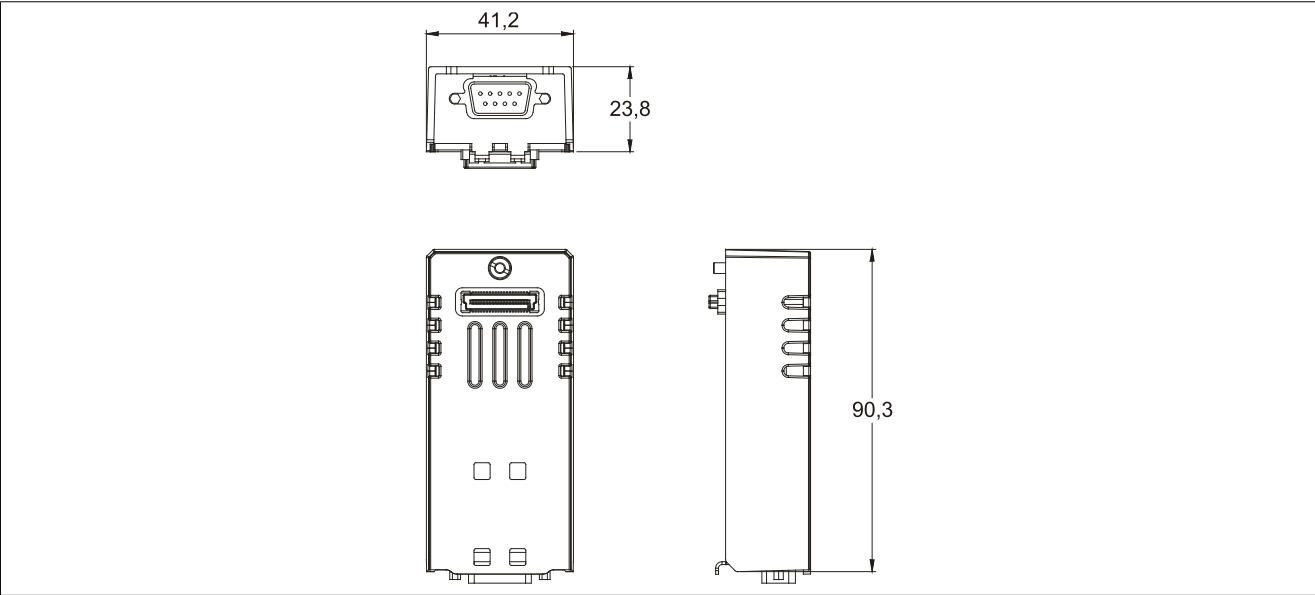
2.3.3. GV_PLUG-485 - Plug-in module RS-422/RS-485



GV_PLUG-485 is a plug-in module for use in all cases when an additional serial communication port is required.

- RS-422/RS-485 interface
- Optical isolation
- Plug-in bus extender

Environmental Conditions	
Operating temperature	-20 to +60 C
Storage temperature	-20 to +70 C
Operating and storage humidity	5 – 85 % relative humidity, non-condensing
Protection class	IP20
Approvals	
CE	Emission EN 61000-6-4, Immunity EN 61000-6-2 for installation in industrial environments, Emission EN 60945, Immunity EN 60945 for marine environments
LR	cULus: UL508
RCM	Yes



Ordering information:

F086953	GV_PLUG-485	Plug-in module RS-422/485 with Optical isolation
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2.3.4. GV_PLUG-3G – 3G modem plug-in

GV_PLUG-3G is a compact and robust plug-in module designed to add Internet connectivity to systems based on GF Connect or G-Mation V45.



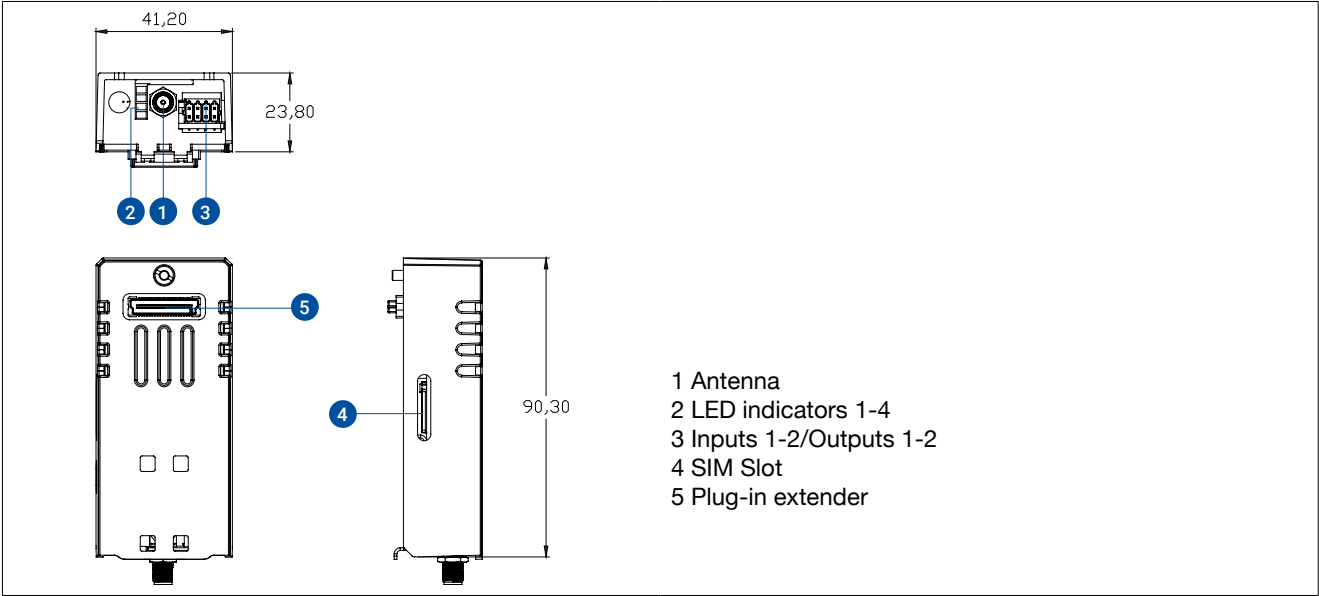
GV_PLUG-3G is a compact and robust plug-in module designed to add Internet connectivity to systems based on GF Connect. It is a 2G/3G wireless modem supporting GSM/GPRS/EDGE and UMTS/HSDPA/HSUPA cellular networks. The device is compatible with operation of Gefran Cloud secure service.

In combination with Gefran Cloud services you can easily implement basic IIoT functions and establish a VPN to protect access to your devices, streamline connection to cloud services or sending/receiving SMS messages.

- Designed for GF Connect product families.
- Compatible with operation of Gefran Cloud secure service
- 2G/3G wireless communication module
- Worldwide connectivity
- Supports GSM/GPRS/EDGE and UMTS/HSDPA/HSUPA cellular networks
- 2 digital inputs/2 digital outputs (SSR) with optical isolation
- 4 LED indicators (module status and network status)
- microSIM slot accessible by user
- Powered via plug-in connection.
- Plug-in extension connector

CELLULAR TECHNOLOGY	
Frequency Bands	GSM 4-band: 850/900/1800/1900MHz
	UMTS 5-band: 800/850/900/1900/2100MHz
Transmission Data	HSDPA category 8: Max 7.2Mbps
	HSUPA category 6: Max 5.76Mbps
	UMTS: Max 384kbps (DL)/Max 384kbps (UL)
	EDGE: Max 296kbps (DL)/Max 236.8kbps (UL)
	GPRS: Max 107kbps (DL)/Max 85.6kbps (UL)
	CSD: 14.4kbps
Transmitting Power	Class 4 (33dBm±2dB) for GSM850 and EGSM900
	Class 1 (30dBm±2dB) for DCS1800 and PCS1900
	Class E2 (27dBm±3dB) for GSM850 and EGSM900 8-PSK
	Class E2 (26dBm±3dB) for DCS1800 and PCS1900 8-PSK
	Class 3 (24dBm+1.7/-3.7dB) for UMTS 800/850/900/1900/21
INTERFACE	
Antenna	GSM/UMTS antenna, 50Ω, SMA-F Female connector
Digital inputs	2x 24Vdc with optical isolation
Digital outputs	2x SSR with optical isolation
LED indicators	4
SIM slot	microSIM
Plug-in extender	yes
ENVIRONMENT CONDITIONS	
Operating Temp	-20°C to +60°C
Storage Temp	-20°C to +70°C
Operating / Storage Humidity	5 - 85% RH, non condensing

Protection Class	IP20
DIMENSIONS AND WEIGHTS	
WxHxL	41.20x23.80x90.30 mm
Weight	0.2 Kg
APPROVALS	
CE	EN 61000-6-4, EN 61000-6-2
	EN 61000-6-3, EN 61000-6-1
	EN 60945
	ETSI EN 301 489-1, ETSI EN 301 489-52
	EN 301 511
	ETSI EN 301 908-1, ETSI EN 301 908-2
	EN 62311
	EN 60950-1
UL	cULus: UL61010-1 / UL61010-2-201



Ordering information:

F071520	GV_PLUG-3G	3G modem Plugin module
F081120	GV_PLUG-3G-EXT	RF antenna extension

2.3.5. GV_PLUG-LTE_GNSS_WIFI 2 - Plug-in module 4G modem+WIFI+GNSS



GV_PLUG-LTE_GNSS_WIFI is a compact and robust plug-in module designed to add IoT M2M connectivity to systems based on G-Mation V45 and GF_Connect series.

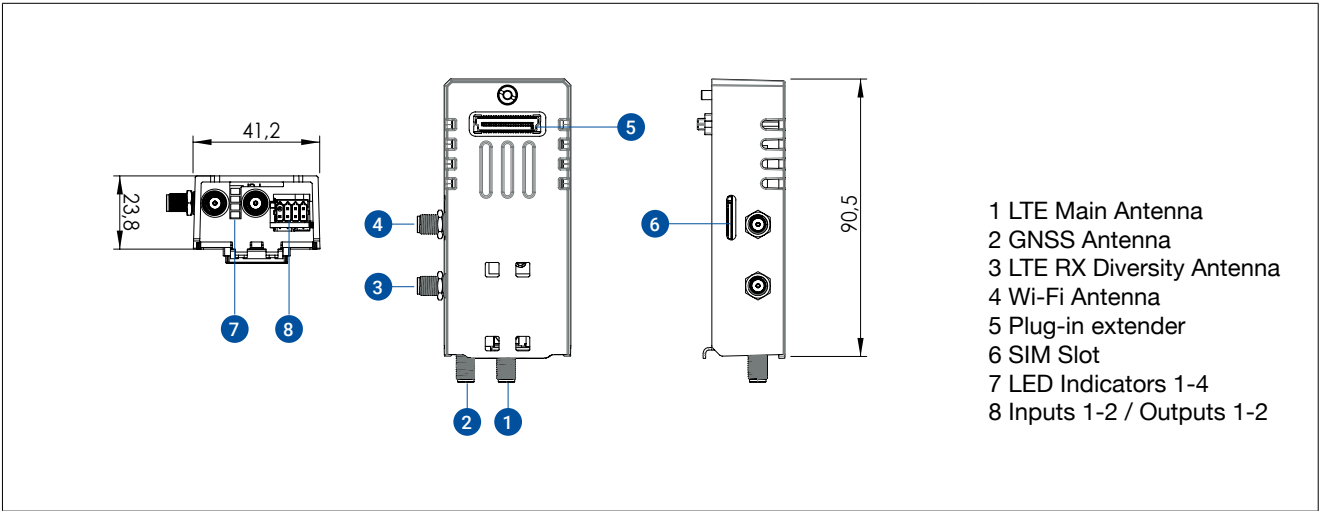
The device is a 4G wireless modem supporting LTE cat. 4 cellular networks and offers Internet connectivity to systems. The microSIM slot accessible by user .

GV_PLUG-LTE_GNSS_WIFI streamlines connection to PaaS cloud services on cloud.

- 4G wireless communication module
- Supports LTE cat. 4 Global, UMTS/DC-HS DPA/HSUPA/ WCDMA, GSM/GPRS/EDGE
- Worldwide connectivity
- Location tracking with Global Navigation Satellite System (GNSS)
- WIFI capabilities for simple connection or as Hot Spot

Cellular Technology	
Frequency Bands	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B26/B28
	TDD: B38/B39/B40/B41
	WCDMA: B1/B2/B4/B5/B8/B6/B19
	GSM: B2/B3/B5/B8
Transmission Data	LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)
	LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL)
	UMTS: DC-HSDPA: Max 42Mbps (DL)
	UMTS: HSUPA: Max 5.76Mbps (UL)
	UMTS: WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)
	GSM: EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)
	GSM: GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
Power output	Class 3 (23dBm±2dB) for LTE FDD
	Class 3 (23dBm±2dB) for LTE TDD
	Class 3 (24dBm+1/-3dB) for TD-SCDMA
	Class 3 (24dBm+1/-3dB) for WCDMA
	Class E2 (27dBm±3dB) for EDGE 850/900MHz
	Class E2 (26dBm+3/-4dB) for EDGE 1800/1900MHz
	Class 4 (33dBm±2dB) for GSM 850/900MHz
	Class 1 (30dBm±2dB) for GSM 1800/1900MHz
Interface	
Antenna	50Ω, SMA-F Female connector
Digital inputs	2x 24Vdc with optical isolation
Digital outputs	2x SSR with optical isolation
LED indicators	4
SIM slot	microSIM
Plug-in extender	Yes
Wi-Fi	Requires appropriate hardware revision of hosting device. Check Installation Guide for details. IEEE 802.11a/b/g
GNSS	Requires appropriate hardware revision of hosting device. Check Installation Guide for details. GPS, GLONASS, BeiDou/Compass, Galileo, QZSS

Environment Conditions	
Operating Temp	-20°C to +60°C
Storage Temp	-20°C to +70°C
Operating / Storage Humidity	5 - 85% RH, non condensing
Protection Class	IP20
Dimensions and Weights	
WxHxL	41.2x23.8x90.5 mm
Weight	0.2 Kg
Approvals	
CE	Directive 2014/53/EU (RED)
FCC	Part 15, Class A
UL	cULus: UL61010-1 / UL61010-2-201
UL	cULus: Class 1 Div 2
RCM	Currently being defined



Ordering information:

F089429	GV_PLUG-LTE_GNSS_WIFI	Pugin Module LTE/4G+WIFI+GNSS
F089430	GV_PLUG-WIFI_ANT	ANTENNA WIFI 2.4GHZ/5.5GHZ RP-SMA
F089431	GV_PLUG-LTE_ANT	ANTENNA 4G-LTE SMA

2.3.6. GV_PLUG-LTE

GV_PLUG-LTE is a compact and robust plug-in module designed to add Internet connectivity to systems based on GF Connect or G-Mation V45.



GV_PLUG-LTE is a 4G wireless modem supporting UMTS/DC-HS DPA/HSUPA/WCDMA, GSM/GPRS/EDGE cellular networks.

The device is compatible with operation of Gefran Cloud secure service.

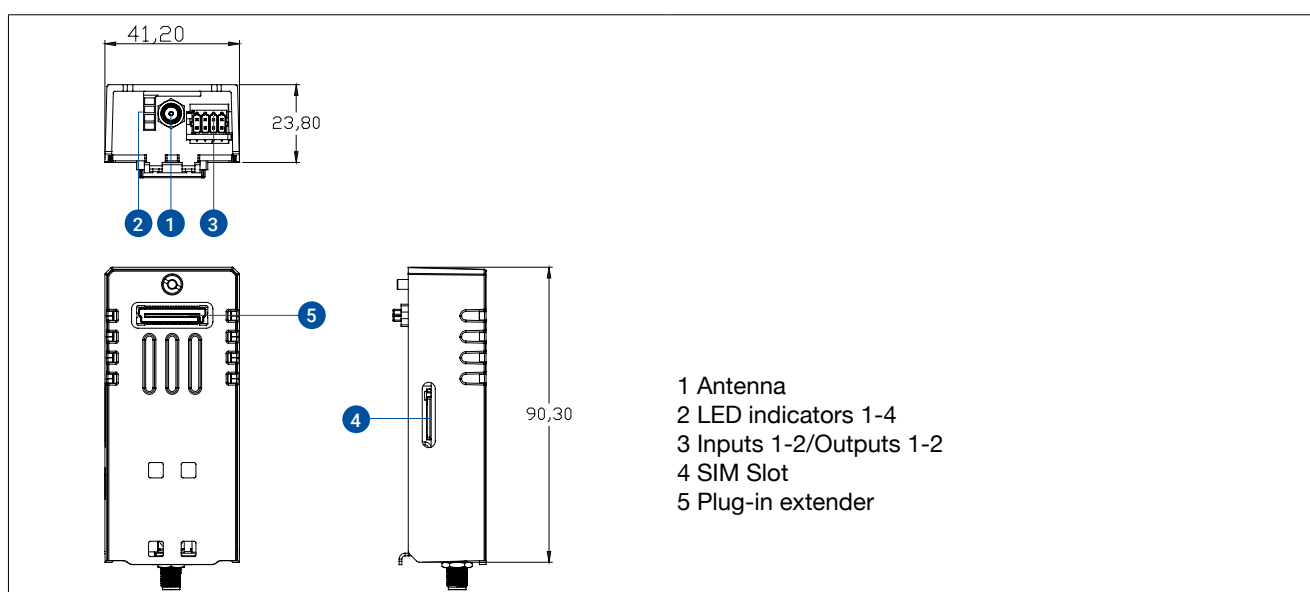
In combination with Gefran Cloud services you can easily implement basic IIoT functions and establish a VPN to protect access to your field devices, streamline connection to cloud services.

- Designed for GF Connect e G-Mation V45 product families.
- Compatible with operation of Gefran Cloud secure service
- 4G wireless communication module
- Worldwide connectivity
- Supports UMTS/DC-HS DPA/HSUPA/ WCDMA, GSM/GPRS/ EDGE cellular networks
- 2 digital inputs/2 digital outputs (SSR) with optical isolation
- 4 LED indicators (module status and network status)
- microSIM slot accessible by user
- Powered via plug-in connection.
- Plug-in extension connector

CELLULAR TECHNOLOGY	
Frequency Bands	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B26/B28
	TDD: B38/B39/B40/B41
	WCDMA: B1/B2/B4/B5/B8/B6/B19
	GSM: B2/B3/B5/B8
Transmission Data	LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)
	LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL)
	UMTS: DC-HSDPA: Max 42Mbps (DL)
	UMTS: HSUPA: Max 5.76Mbps (UL)
	UMTS: WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)
	GSM: EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)
	GSM: GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)
Transmitting Power	Class 3 (23dBm $\pm$ 2dB) for LTE FDD
	Class 3 (23dBm $\pm$ 2dB) for LTE TDD
	Class 3 (24dBm+1/-3dB) for TD-SCDMA
	Class 3 (24dBm+1/-3dB) for WCDMA
	Class E2 (27dBm $\pm$ 3dB) for EDGE 850/900MHz
	Class E2 (26dBm+3/-4dB) for EDGE 1800/1900MHz
	Class 4 (33dBm $\pm$ 2dB) for GSM 850/900MHz
	Class 1 (30dBm $\pm$ 2dB) for GSM 1800/1900MHz
INTERFACE	
Antenna	50 Ω , SMA-F Female connector
Digital inputs	2x 24Vdc with optical isolation
Digital outputs	2x SSR with optical isolation
LED indicators	4
SIM slot	microSIM
Plug-in extender	yes

ENVIRONMENT CONDITIONS	
Operating Temp	-20°C to +60°C
Storage Temp	-20°C to +70°C
Operating / Storage Humidity	5 - 85% RH, non condensing
Protection Class	IP20
DIMENSIONS AND WEIGHTS	
WxHxL	41.20x23.80x90.30 mm
Weight	0.2 Kg
APPROVALS	
CE	Directive 2014/53/EU (RED)
FCC	Part 15, Class A
UL	cULus: UL61010-1 / UL61010-2-201
UL*	cULus: Class 1 Div 2
RCM	Yes

* Scheduled within 2022



Ordering information:

F093066	GV_PLUG-LTE	Modulo plug-in modem 4G
F081120	GV_PLUG-3G-EXT	RF antenna extension
F089431	GV_PLUG-LTE_ANT	ANTENNA 4G-LTE SMA

NOTE

[illegible]

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