

Vehicle Computing

Extension Modules for Vehicles Computing Applications

PGN-750 User Manual

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About this Document

This manual describes the overview of the various functionalities of this product, and the information you need to get it ready for operation. It is intended for those who are:

- responsible for installing, administering and troubleshooting this system or Information Technology professionals.
- assumed to be qualified in the servicing of computer equipment, such as professional system integrators, or service personnel and technicians.

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Safety Guidelines

Follow these guidelines to ensure general safety:

- ▶ Keep the chassis area clear and dust-free during and after installation.
- ▶ Do not wear loose clothing or jewelry that could get caught in the chassis. Fasten your tie or scarf and roll up your sleeves.
- ▶ Wear safety glasses if you are working under any conditions that might be hazardous to your eyes.
- ▶ Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- ▶ Disconnect all power by turning off the power and unplugging the power cord before installing or removing a chassis or working near power supplies
- ▶ Do not work alone if potentially hazardous conditions exist.
- ▶ Never assume that power is disconnected from a circuit; always check the circuit.

Consignes de sécurité

Suivez ces consignes pour assurer la sécurité générale :

- ▶ Laissez la zone du châssis propre et sans poussière pendant et après l'installation.
- ▶ Ne portez pas de vêtements amples ou de bijoux qui pourraient être pris dans le châssis. Attachez votre cravate ou écharpe et remontez vos manches.
- ▶ Portez des lunettes de sécurité pour protéger vos yeux.
- ▶ N'effectuez aucune action qui pourrait créer un danger pour d'autres ou rendre l'équipement dangereux.
- ▶ Coupez complètement l'alimentation en éteignant l'alimentation et en débranchant le cordon d'alimentation avant d'installer ou de retirer un châssis ou de travailler à proximité de sources d'alimentation.
- ▶ Ne travaillez pas seul si des conditions dangereuses sont présentes.
- ▶ Ne considérez jamais que l'alimentation est coupée d'un circuit, vérifiez toujours le circuit. Cet appareil génère, utilise et émet une énergie radiofréquence et, s'il n'est pas installé et utilisé conformément aux instructions des fournisseurs de composants sans fil, il risque de provoquer des interférences dans les communications radio.

Operating Safety

- ▶ Electrical equipment generates heat. Ambient air temperature may not be adequate to cool equipment to acceptable operating temperatures without adequate circulation. Be sure that the room in which you choose to operate your system has adequate air circulation.
- ▶ Ensure that the chassis cover is secure. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
- ▶ Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD damage occurs when electronic components are improperly handled and can result in complete or intermittent failures. Be sure to follow ESD-prevention procedures when removing and replacing components to avoid these problems.
- ▶ Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. If no wrist strap is available, ground yourself by touching the metal part of the chassis.
- ▶ Periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms (Mohms).

Sécurité de fonctionnement

- ▶ L'équipement électrique génère de la chaleur. La température ambiante peut ne pas être adéquate pour refroidir l'équipement à une température de fonctionnement acceptable sans circulation adaptée. Vérifiez que votre site propose une circulation d'air adéquate.
- ▶ Vérifiez que le couvercle du châssis est bien fixé. La conception du châssis permet à l'air de refroidissement de bien circuler. Un châssis ouvert laisse l'air s'échapper, ce qui peut interrompre et rediriger le flux d'air frais destiné aux composants internes.
- ▶ Les décharges électrostatiques (ESD) peuvent endommager l'équipement et gêner les circuits électriques. Des dégâts d'ESD surviennent lorsque des composants électroniques sont mal manipulés et peuvent causer des pannes totales ou intermittentes. Suivez les procédures de prévention d'ESD lors du retrait et du remplacement de composants.
- ▶ Portez un bracelet anti-ESD et veillez à ce qu'il soit bien au contact de la peau. Si aucun bracelet n'est disponible, reliez votre corps à la terre en touchant la partie métallique du châssis.
- ▶ Vérifiez régulièrement la valeur de résistance du bracelet antistatique, qui doit être comprise entre 1 et 10 mégohms (Mohms).

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CHAPTER 1: PRODUCT OVERVIEW

Lanner PGN-750 (Pigeon-750) is a 5G Sub6 module, compatible with Lanner Vehicle Computers. PGN-750 supports a built-in 5G radio modem, backward compatible with 4G/LTE, in addition to SIM card readers, four 5G antenna jacks and indoor/outdoor omni-directional antenna/cable kit, in addition to a hot-swappable interface for maximum flexibility. The module is optimally designed for public safety, video surveillance and in-vehicle SD-WAN applications.

Packge Content

- ▶ 1x PGN-750 Caddy
- ▶ 4x External Omni-directional Antennas and Cables (by SKU)



Ordering Information

SKU No.	Main Features
PGN-750A	Swappable 5G Telit FN980 module with antenna/cable kit.
PGN-750B	Swappable 5G Quectel RM500Q-AE module with antenna/cable kit.
PGN-750C	Swappable 5G Thales MV31-W module with antenna/cable kit.
PGN-750D	PGN-750 Caddy without 5G module

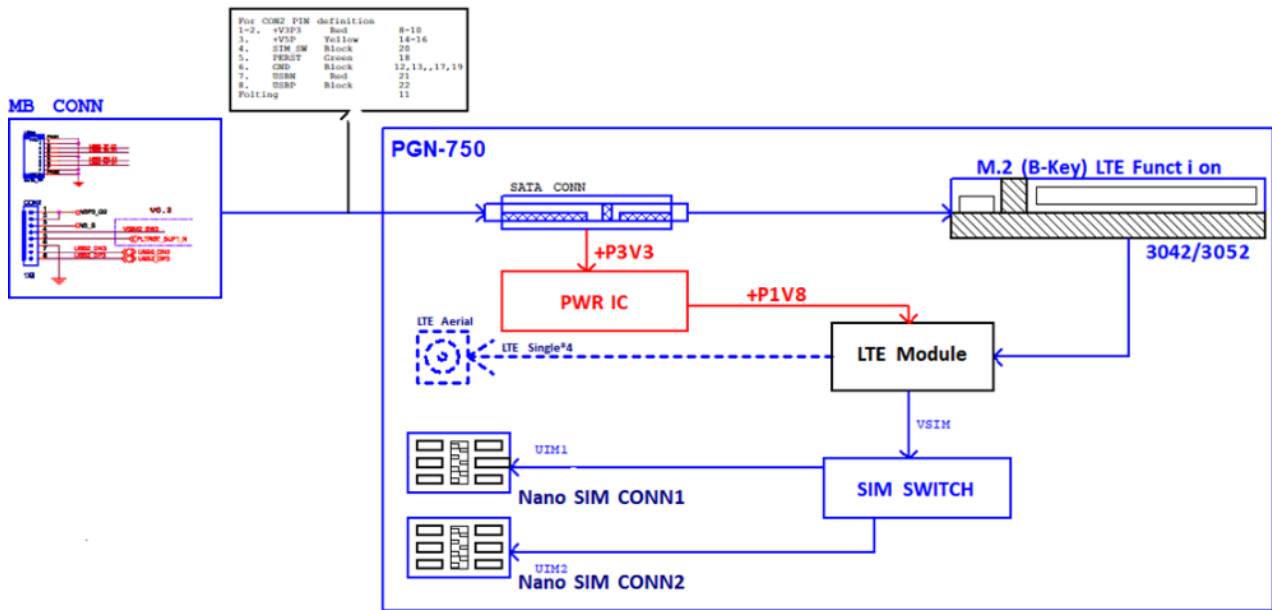
Additional Accessories

Product No.	Description
PSFB223-001	4x External Antennas and Cables Kit
0TZW000235000	2x External Omni-directional Antennas and Cables Kit

System Specifications

5G Modem Card	PGN-750A	• 5G NR Sub-6 Bands: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79 • LTE Bands: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B30, B34, B38, B39, B40, B41, B42, B43, B48, B66, B71
	PGN-750B	• 5G NR Sub-6 Bands: n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n48, n66, n71, n77, n78, n79 • LTE Bands: B1, B2, B3, B4, B5, B7, B8, B9, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71, B34, B38, B39, B40, B41, B42, B43, B46, B48, B1, B2, B3, B4, B5, B6, B8, B19
	PGN-750C	• 5G NR Sub-6 Bands: n1, n2, n3, n5, n7, n8, n12, n20, n28, n66, n71, n38, n41, n77, n78, n79 • LTE Bands: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B66, B71, B34, B38, B39, B41, B42, B48, B46
Interface	Connector	SATA connector with USB 3.0 signal
	M.2	1x M.2 3042/50/52 B-Key socket with dual-SIM card reader
System Compatibility	Lanner Vehicle PC V3S, V6S, ISD-V330, LEC-2290, EAI-V330	
Environmental Parameters	Temperature	-40~70°C Operating, -40~85°C Non-Operating
	Humidity (RH)	5%~90% RH, Non-condensing
Mechanical	Size (WxDxH)	75 x 115.97 x 145mm
	Weight	0.4kg

Block Diagram



CHAPTER 2: HARDWARE SETUP

To reduce the risk of personal injury, electric shock, or damage to the system, please remove all power connections and wear ESD protection gloves when handling the installation steps.

Setting up the PGN Module

SKU A/B/C PGN Module may contain the following items:

- ▶ 1x PGN Caddy
- ▶ 5G Module Card
- ▶ 4x External Omni-directional Antennas



5G Module



PGN-750 Caddy



4x Omni-directional Antennas

SKU D PGN Module will contain the following items:

- ▶ 1x PGN Caddy



PGN-750 Caddy

With the option to add an additional antenna kit, containing:

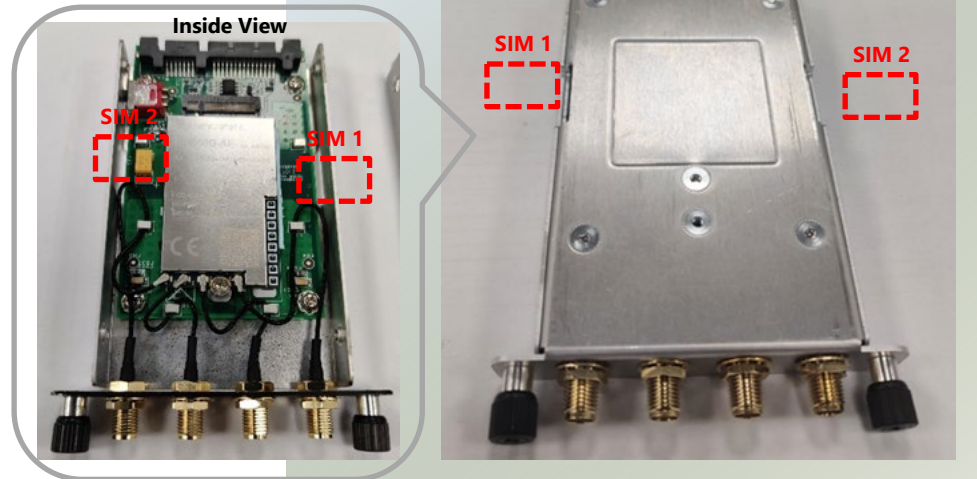
- ▶ 4x Antennas & Antennas Stands



4x Antennas

Installing SIM Cards

1. Locate the SIM card holder on the bottom sides (one right, one left) of the PGN module.



2. Insert and push the SIM card all the way in until it clicks into place.



3. To remove the SIM card, push the card once, and the card will automatically eject.

Switch Pin Coordination



SKU No.	5G Model No.	Switch Pin
PGN-750A	FN980	1
PGN-750B	RM500Q-AE	1
PGN-750C	MV-31W	1
PGN-750D	N/A	1

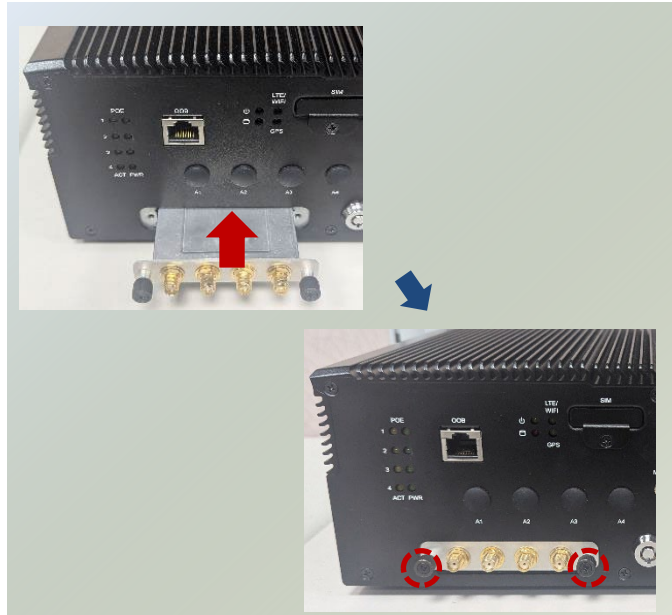
Note: When PGN-750D is installed with 5G EM9291 Module, please use Switch Pin 3.
When PGN-750D is installed with LTE EM7590 Module, please use Switch Pin 3.

Installing PGN Module

1. Locate the PGN module slot on the front panel of the system. Unscrew the two (2) screws securing the cover. (Placement of the module slot will be different based on the system.)



2. Insert the PGN module. (Image is for reference only.)
3. Once the module is firmly seated, secure with two (2) lock-screws.



4. Secure the four (4) antennas and antenna stands on the front side of the PGN module.



5. Depending on antenna kit, or secure the four (4) omni-directional antennas on the front side of the PGN module.



6. Installation has now been completed.

Mounting Omni Antennas

PGN-750 comes with 4x omni-directional dipole antennas and cable kit that can be mounted indoors or outdoors on a mast/pole (SKU A/B/C Only).

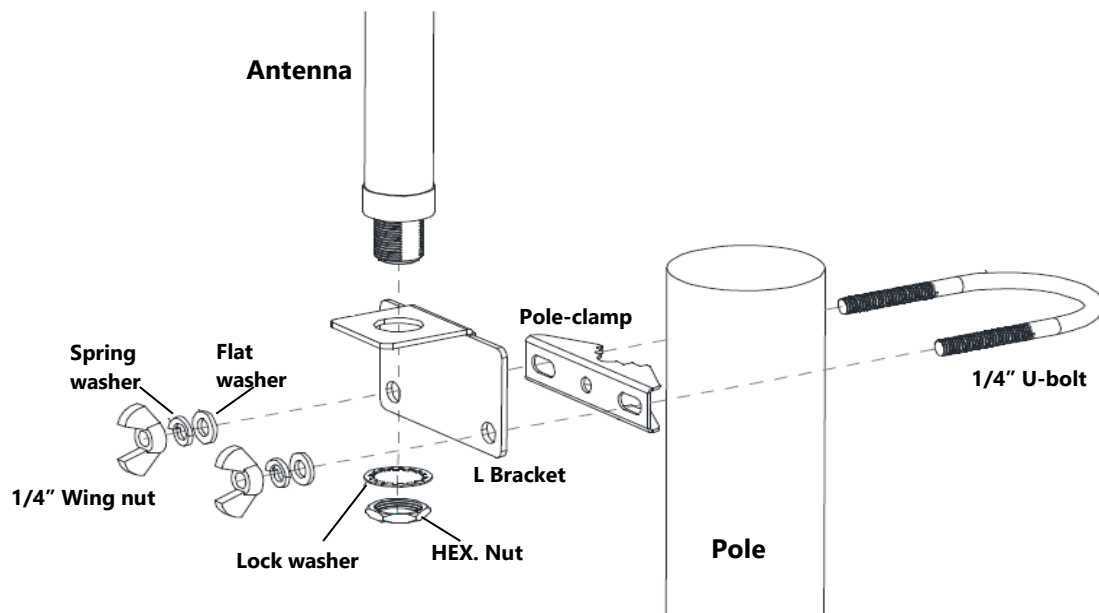
Specification

Usage Environment	Indoor / Outdoor
Frequency Range	3300~ 4800 MHz
Impedance	50 Ohms
Type/Polarization	Dipole, Vertical
Cable Length	2000mm
Antenna Dimensions (HxW)	231mm x 23mm
Operating Temperature Range	-40°C ~ 70°C
Mounting	Mast/Pole, Pole diameter: 1.5"~2.0" max

Each antenna mounting kit contains the following items:

- ▶ 1x Omni Antenna & Cable
- ▶ 1x Surge Arrester
- ▶ 1x L Bracket
- ▶ 1x Pole-clamp
- ▶ 1x 1/4" U-bolt
- ▶ 2x Flat washer
- ▶ 2x Spring washer
- ▶ 2x 1/4" Wing nut
- ▶ 1x Lock washer
- ▶ 1x HEX. Nut

Installing Omni Antenna



APPENDIX A: TERMS AND CONDITIONS

Warranty Policy

1. All products are under warranty against defects in materials and workmanship for a period of one year from the date of purchase.
2. The buyer will bear the return freight charges for goods returned for repair within the warranty period; whereas the manufacturer will bear the after-service freight charges for goods returned to the user.
3. The buyer will pay for repair (for replaced components plus service time) and transportation charges (both ways) for items after the expiration of the warranty period.
4. If the RMA Service Request Form does not meet the stated requirement as listed on "RMA Service," RMA goods will be returned at customer's expense.
5. The following conditions are excluded from this warranty:
 - ▶ Improper or inadequate maintenance by the customer
 - ▶ Unauthorized modification, misuse, or reversed engineering of the product
 - ▶ Operation outside of the environmental specifications for the product.

RMA Service

Requesting an RMA#

1. To obtain an RMA number, simply fill out and fax the "RMA Request Form" to your supplier.
2. The customer is required to fill out the problem code as listed. If your problem is not among the codes listed, please write the symptom description in the remarks box.
3. Ship the defective unit(s) on freight prepaid terms. Use the original packing materials when possible.
4. Mark the RMA# clearly on the box.



Note: Customer is responsible for shipping damage(s) resulting from inadequate/loose packing of the defective unit(s). All RMA# are valid for 30 days only; RMA goods received after the effective RMA# period will be rejected.

RMA Service Request Form

When requesting RMA service, please fill out the following form. Without this form enclosed, your RMA cannot be processed.

RMA No:		Reasons to Return: ☐ Repair(Please include failure details)	
		☐ Testing Purpose	
Company:		Contact Person:	
Phone No.		Purchased Date:	
Fax No.:		Applied Date:	
Return Shipping Address: _____			
Shipping by: ☐ Air Freight ☐ Sea ☐ Express _____			
☐ Others: _____			
Item	Model Name	Serial Number	Configuration

Item	Problem Code	Failure Status

***Problem Code:**

01: D.O.A.	07: BIOS Problem	13: SCSI	19: DIO
02: Second Time R.M.A.	08: Keyboard Controller Fail	14: LPT Port	20: Buzzer
03: CMOS Data Lost	09: Cache RMA Problem	15: PS2	21: Shut Down
04: FDC Fail	10: Memory Socket Bad	16: LAN	22: Panel Fail
05: HDC Fail	11: Hang Up Software	17: COM Port	23: CRT Fail
06: Bad Slot	12: Out Look Damage	18: Watchdog Timer	24: Others (Pls specify)

Request Party

Confirmed By Supplier

Authorized Signature / Date

Authorized Signature / Date