Product Change Notification (PCN) Announcement

Title	AntzerTech Series GNSS Module will be upgraded to the u-blox NEO-M9V	Date	2024/Oct/30	Ref No.	E240030
Models	ANNA/GADN Series				
Level	○ Critical				
Description					
This PCN is being issued to address that The GNSS module in Antzer Tech's series will be upgraded to the u-blox NEO-M9V.					

Affected Component Table			
Model	Current Part Number	New Part Number	
EA2-ANNA-	EA2-ANNA-F00U0	N/A	
EA2-ANNA-	EA2-ANNA-F00L1	N/A	
EA2-ANNA-	EA2-ANNA-F00L1C	N/A	
EA2-ANNA-	EA2-ANNA-M01L1	N/A	
EA2-ANNA-	EA2-ANNA-M01L1C	N/A	
EA2-GADN-	EA2-GADN-FG7U0	N/A	
EA2-GADN-	EA2-GADN-FG7U0C	N/A	
EA2-GADN-	EA2-GADN-FG7L0	N/A	
EA2-GADN-	EA2-GADN-FG7L0C	N/A	
EA2-GADN-	EA2-GADN-FD7L0	N/A	
EA2-GADN-	EA2-GADN-MD7L0	N/A	

Desc. Note

Innodisk anticipates no negative impact to customer's application.

There is no functional implication to customer's application but improve reliability, and qualification of these changes may not be necessary.

Summary of Change

- Due to the discontinuation of NEO-M8U-0-10 and NEO-M8L-04B-00 modules by u-blox, we are planning to upgrade our product to a newer model as NEO-M9V.
- The official text from u-blox recommend to use NEO-M9V to replace NEO-M8U/L as screenshot below in attached"NEO-M9V-IP_IN_UBX-22002823.pdf". Another presentation file has detail about what function improvement in NEO-M9V for your reference.

4 Customer impact and recommended action

The relevant product documentation is published on our website. See the related documentation listed below for details.

We again recommend customers with NEO-M8U or NEO-M8L (professional grades) in current designs to start designing in NEO-M9V. Although the former products are not officially phased out yet, the new product is recommended for performance and availability reasons.

Related documentation 5

[1] NEO-M9V product summary, UBX-21032008

• The Compariosn M8 UDR/ADR vs. M9 MDR. M9V MDR can cover the functionalities of the N8 UDR/ADR.

Comparison M8 UDR/ADR vs. M9 MDR



Features

	NEO- M9V	NEO- M8L	NEO- M8U
ADR	I	I	
UDR	•	0	١
Automotive model	•	I	١
Motorcycle model	•	١	١
Micromobility model	•		
Dual GNSS+DR PVT output	I		
Automatic calibration	•	•	•
Automatic alignment	•	•	١
Advanced calibration handling	•		

NEO- M9V	NEO- M8L	NEO- M8U
•		
0		
0		
0		
I	•	١
0		
	NEO- M9V 0 0 0	NEO- M9V NEO- M8L 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -

• Available O Partially available or future release

• The table below provides a comparison of our products before and after.

Before	After
Model name:	
EA2-ANNA-F00U0 / EA2-GADN-FG7U0 / EA2-GADN-FG7U0C	Model name will keep the same.
	Pblox [®] Pb e4 NEO-M9V-20B-01



u-blox NEO-M8U-0-10



u-blox NEO-M9V-20B-01

Model name:

EA2-ANNA-F00L1 / EA2-ANNA-F00L1C / EA2-ANNA-M01L1 / EA2-ANNA-M01L1C | Model name will keep the same. / EA2-GADN-FG7L0 / EA2-GADN-FG7L0C / EA2-GADN-FD7L0 / EA2-GADN-MD7L0





Note

No response from customers will be deemed as acceptance of the change and the change will be implemented pursuant to the key milestones. Innodisk apologizes for any inconvenience caused by this and appreciate your understanding.

Innodisk promises that new items deliver quality and reliability for your application. If you have any further inquiry of our products or if you have any question about the specification of it, please contact Innodisk sales person.

Thank you for your confidence in Innodisk in the past and looking forward to serving you in the near future.

Key Milestone Dates		
Effective Date	2024/Nov/01	
Last Purchase Date	2025/Jan/30	
Last Shipment Date	2025/Apr/30	
<u>*Recommend action:</u> ○ Call back ○ All stock rework Running change ○ Cut in Effective date		

Customer Impact of Change and Recommended Action

Please review the content and provide specific recommendation based on this document. Innodisk anticipates no negative impact to customer's application. There is no functional implication to customer's application but improve reliability, and qualification of these changes may not be necessary.

Revision History			
Date of Revision:	Revision Number:	Remark:	
2024/Oct/30	E240030	Rev. v1.0	



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NEO-M9V Product presentation

September 2024

Mathias Vetter

Product Strategy

Consumer and Industrial Tracking

1 u-blox AG - UBX-21031866 - C1-Public

GNSS accuracy and availability in urban area



The main challenge when using GNSS products



Micromobility

Need for good position accuracy even under difficult conditions

Miniaturized antenna and/or unfavorable integration of it

NEO-M9V Key highlights





Product selection by technology



How to make the right selection



Dead reckoning? How does it work?



McNish knows!



Technology, terminology and misconceptions



Dead reckoning for industrial markets



Industrial u-blox M9 product portfolio



Technology options



NEO-M9V product overview



Everything is included, except the antenna



Benefits

- Fast time to market ٠
- Low design risk ٠

SAW/LNA integrated for fast and easy RF design and good tolerance against RF interference

through hardware or software interface

host is in sleep mode

The IMU data with 100 Hz update rate is made available to the host

Dual-band L1/L5 or single-band L1 with DR?



Both address the urban position accuracy challenge!?



UDR improvements

Most common unexpected behavior is mitigated now

- Mitigation of fly-aways
- Improved urban use cases







UDR improvements

Outstanding UDR behavior with missing GNSS reception

Speed bumps are managed well in • underground parking nowadays

Different levels in multi-level parking







Advanced calibration handling

Get into sensor fusion mode after every startup





With advanced calibration handling:



Who benefits?

- Customer without backup supply (battery)
- Customer who cannot anticipate sudden power drop (and cannot use the saveon-shutdown feature)

How?

•

When the first calibration is completed, the data can be continuously polled and saved by the host

Wake-on-motion

Keep host in sleep mode and detect motion with IMU in module

- Detect accident when • vehicle is parked
- Detect towing away or • stealing
- Detect vandalism with ٠ e-scooters







Dealing with spoofing and jamming

DR products provide the best protection

Spoofing detection in u-blox M9/M10 works on 3 different levels:

- Analysis of raw GNSS data + signal levels and validation between them
- 2. Check authenticity of GNSS messages (Galileo OS-NMA starting from 2022)
- 3. DR products only: Perform consistency checks between GNSS and other data, mitigation possible



Gap between the data sheet and reality?



Improved accuracy with weak signal compensation feature

Antenna



- Poor antenna location
- Low antenna gain
 - Small antenna
 - Limited ground plane

location enabled scenario accuracy M9 vs M8 Similar In-car Urban >25% better Open sky Similar >25% better Roof-top Urban >25% better >25% better Open sky >25% better >25% better

Feature

Position

Takeaway

The weak signal compensation feature improves GNSS position/speed accuracy by >25%

Read our blog for more details:

https://www.u-blox.com/blogs/tech/gnss-receiver-accuracy-closing-gap-between-datasheet-and-reality

Road

Industrial DR product portfolio



Generation view



Migration from other u-blox products



Get the latest GNSS and dead reckoning technology



	NEO- M9V	NEO- M9N	NEO- M8L	NEO- M8U
Chip	M9	M9	M8	M8
Oscillator	ТСХО	тсхо	XTAL	XTAL
GNSS	4	4	3	3
DR	•		•	•
IMU	•		•	•
LNA	•	•		
SAW filter	•	•		

Comparison M8 UDR/ADR vs. M9 MDR



Features

	NEO- M9V	NEO- M8L	NEO- M8U
ADR	•	•	
UDR	•	0	•
Automotive model	•	•	•
Motorcycle model	•	•	●
Micromobility model	•		
Dual GNSS+DR PVT output	•		
Automatic calibration	•	•	•
Automatic alignment	•	•	•
Advanced calibration handling	•		

	NEO- M9V	NEO- M8L	NEO- M8U
Wake-on motion	•		
Galileo OS-NMA	0		
Sensor-based spoofing detection	0		
Sensor-based spoofing and jamming mitigation	0		
Weak signal compensation	•	•	•
Protection level (95%)	0		

• Available O Partially available or future release

EVK-M9DR: Improved EVK design

Quick UDR evaluation with ADR option included



- Improved serial interface
 - Better retention force (USB Type-C)
- Backup power supply
 - No need to open the EVK
 - Supercap instead of internal battery
 - Separate connector (µUSB) for backup supply or charging the supercap
- EVK-M9DR covering both automotive and professional use cases



Firmware overview



MDR based on UDR with continued numbering

Version	Schedule*	Planned features*
UDR 1.50	available	Baseline, existing firmware for NEO-M8U
MDR 2.16	available	 New dynamic models e-scooters UDR improvements Advanced calibration handling Wake-on motion

* Subject to change



Thank you for your attention