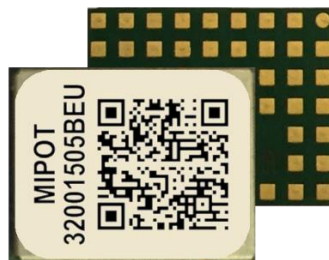


Wireless Protocol Modules MiP Series Dual Stack

Command Reference



Description

This document provides list of commands that dual stack modules implement and the description of their use.

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1. Communication protocol

1.1. Byte Order

Multiple byte values are transmitted in little endian order with least significant byte first (LSB).

1.2. Message Structure

The structure of the messages is the following:

HEADER	CMD	LENGTH	PAYLOAD (n Bytes)	CHECKSUM
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Where:

- HEADER** = 0xAA
- CMD** = Command code to the module (32001505) / to the radio stack (32001506) , see the following table
- LENGTH** = Payload length
- CHECKSUM** = 2's complement on one byte of the sum of all preceding bytes

Each command from the host invokes an answer from the module (32001505)/from the radio stack (32001506) in the same format.

The answer to the host has the CMD field equal to host request OR 0x80.

1.3. Message Types

There are three types of messages:

Commands: sent from the host to the module to request an information or an action (32001505 case).

sent from the user application running on the M4 core to the radio stack running on the M0+ core to request an information or an action (32001506 case).

Replies: sent from the module to the host as direct reply to a command, their command code is equal to the host request (<cmd> OR 0x80) (32001505 case).

sent from the radio stack to the user application as direct reply to a command, their command code is equal to the host request (<cmd> OR 0x80) (32001506 case).

Indications: messages sent from the module to the host that are sent without prior action from the host, triggered by events on the radio interface. (e.g.: a received transmission) (32001505 case).

messages sent from the radio stack to the user application that are sent without prior action from the host, triggered by events on the radio interface. (E.g.: a received transmission) (32001506 case).

2. Command Set Description

Current document describes only commands needed to move between stacks loaded into dual stack modules.

To get information about stack specific commands please refer to their own reference guides as listed below:

FEU/FUS	
Stack	Document
LoRaModem	3200150xDxx_Command_Reference
LoRaWAN	3200150xBxx_Command_Reference

GEU/GUS	
Stack	Document
wM-Bus	wMbus_Command_Reference
LoRaWAN	3200150xBxx_Command_Reference

List of the implemented commands:

Command (CMD)	Value	Description
CHANGE_STACK_CMD	0x2A	Select the working stack without saving
GET_STACK_CMD	0x2B	Get currently used stack
CHG_STACK_SAVE_CMD	0x32	Select stack and save parameter in EEPROM
GET_SAVED_STACK_CMD	0x33	Reads saved stack value

2.1. CHANGE_STACK_CMD (0x2A)

This command performs a ‘runtime’ stack change without saving the new setting.

Host: 0xAA, 0x2A, 0x01, Stack, cks
 Reply: 0xAA, 0xAA, 0x01, Status, cks

Stack: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">FEU/FUS</td> <td style="padding: 2px;">0x00: LoRaModem 0x01: LoRaWAN</td> </tr> </table>	FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">GEU/GUS</td> <td style="padding: 2px;">0x01: LoRaWAN 0x03: wM-Bus</td> </tr> </table>	GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus
FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN				
GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus				
Status: 0x00: Success 0xFF: Fail					

2.2. GET_STACK_CMD (0x2B)

This command retrieves the code of the currently used stack.

Host: 0xAA, 0x2B, 0x00, 0x2B
 Reply: 0xAA, 0xAB, Length, Status, Stack, cks

Stack: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">FEU/FUS</td> <td style="padding: 2px;">0x00: LoRaModem 0x01: LoRaWAN</td> </tr> </table>	FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">GEU/GUS</td> <td style="padding: 2px;">0x01: LoRaWAN 0x03: wM-Bus</td> </tr> </table>	GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus
FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN				
GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus				
Status: 0x00: Success 0xFF: Fail					

If Status is Fail then Length is 0x01 and Stack is omitted.

2.3. CHG_STACK_SAVE_CMD (0x32)

This command performs a stack change and saves the new setting in EEPROM.

Host: 0xAA, 0x32, 0x02, 0x90, Stack, cks
 Reply: 0xAA, 0xB2, 0x01, Status, cks

Stack: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">FEU/FUS</td> <td style="padding: 2px;">0x00: LoRaModem 0x01: LoRaWAN</td> </tr> </table>	FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">GEU/GUS</td> <td style="padding: 2px;">0x01: LoRaWAN 0x03: wM-Bus</td> </tr> </table>	GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus
FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN				
GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus				
Status: 0x00: Success 0xFF: Fail					

2.4. GET_SAVED_STACK_CMD (0x33)

This commands reads from EEPROM the stored code of the stack to be used at startup. It may differ from the currently used stack.

Host: 0xAA, 0x33, 0x02, 0x90, 0x01, 0x90
 Reply: 0xAA, 0xB3, 0x02, Status, Stack, cks

Stack: <table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">FEU/FUS</td> <td style="padding: 2px;">0x00: LoRaModem 0x01: LoRaWAN</td> </tr> </table>	FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="background-color: #cccccc; padding: 2px;">GEU/GUS</td> <td style="padding: 2px;">0x01: LoRaWAN 0x03: wM-Bus</td> </tr> </table>	GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus
FEU/FUS	0x00: LoRaModem 0x01: LoRaWAN				
GEU/GUS	0x01: LoRaWAN 0x03: wM-Bus				
Status: 0x00: Success 0xFF: Fail					

3. Module Configuration

3.1. Module parameters

Parameter	Description	Address	Stack	Default	Notes
Stack	Code of the stack to be used at startup	0x90	FEU/FUS	0x00	0x00 – LoRaModem 0x01 – LoRaWAN
			GEU/GUS	0x03	0x01 – LoRaWAN 0x03 – wM-Bus

4. Revision History

Revision	Date	Description
0.1	19.03.2025	First version
0.2	15.05.2026	Updated command reference document name for wM-Bus