1. LORAWAN AND MODULE-SPECIFIC PARAMETERS (MODULE KEY: 0X2111) AND SUPERVISOR MODULE

This documentation applies to all sensors with a module key of 0x22XX or 0x2211.

The downlinks of the **LORA modules** are all executed on **port 4** and commands to be executed **(EXEC) on port 5**. These are marked with **"(EXEC)"** after the respective resource.

Module	Module key	Group	Group ID	Description
LoRa	0x2211	Network resources	0x00	DEVEUI of the device (read only)
LoRa	0x2211	Transmission settings	0x01	Transmission settings, such as adaptive data rate ADR, confirmed uplinks, etc.
LoRa	0x2211	Rejoin settings	0x02	Settings for network testing and automatic reconnection in case of connection loss.
LoRa	0x2211	GNSS group	0x03	Settings and timings for localization options (for sensors with tracking feature)
Supervisor	0x3211	System	0x00	Reset or restart device

Tables for cross-product modules can be found in the Generic NFC and Downlink documentation.

For more information on configuring sensor communication, refer to the respective generic LoRaWAN® or Mioty® documentation, depending on the version.

The current settings for a parameter can be queried by not sending a configuration value with the downlink. Example:
To read the current setting of the ADR parameter, the following downlink can be used:
11 22 11 01 02

This downlink queries the current ADR value without changing it.
The downlink must be sent to **port 6**. The sensor responds here on **port 3**.

LoRa: GROUP NETWORK RESOURCES 0x00								
Resources	Resource ID	Description	Key (NFC/BLE)	Min	Max	Factory setting	Unit	Module key
DEVEUI	0x00	READONLY Parameter: DEVEUI of the sensor. This parameter **cannot** be read via downlink.	dev_eui	16	16	16		22XX

LoRa: GROUP TRANSMISSION SETTINGS 0x01								
Resources	Resource ID	Description	Key (NFC/BLE)	Min	Max	Factory setting	Unit	Module key
CONFIRMED	0x00	Indicates whether the sensor is operating in confirmed mode: • 0: confirmed off = unconfirmed • 1: confirmed INFO messages (status uplinks) => currently not available • 2: Alarm uplinks confirmed • 3: Everything confirmed	conf	0	3	0		22XX
CONFIRMED RETRIES	0x01	Maximum number of retries in "CONFIRMED" mode	retry	1	5	3		22XX
ADR	0x02	ADR on/off: • 0: ADR off • 1: ADR on	adr	0	1	1	dr	22XX
DATA RATE	0x04	Fixed DATARATE (SF) if ADR is disabled	drmax	0	5	0	dr	22XX
ACTIVATE DOWNLINK RESPONSE	0x05	Specifies whether a downlink outside the "CONFIRMED" range is confirmed. In this case, the downlink triggers an uplink: • 0: off • 1: on	dresp	0	1	0		22XX

LoRa: GROUP REJOIN SETTINGS 0x02								
Resources	Resource ID	Description	Key (NFC/BLE)	Min	Max	Factory setting	Unit	Module key
REJOIN STRATEGY	0x0	Re-entry strategy • 0: Never rejoin • 1: All x transfers Link check • 2: All x transfers confirmed	rejstr	0	2	0		22XX
CONNECTION CHECK ALL	0x01	Determines the number x (for rejstr) after which a check is performed, either by confirmation with ACK or link check, depending on how specified in rejstr.	chkev	1	48	4		22XX
ERROR UNTIL REJOIN	0x02	Specifies after how many failed checks the sensor should be reconnected	rejaft	0	5	4	dr	22XX

LoRa GROUP: GNSS GROUP 0x03								
Resources	Resource ID	Description	Key (NFC/BLE)	Min	Max	Factory setting	Unit	Module key
GNSS MODE	0x00	Specifies the order of localization technologies • 0: Off • 1: GNSS scan • 2: WIFI SSIC scan • 3: GNSS scan followed by WIFI SSID scan • 4: Wi-Fi SSID scan followed by GNSS scan	lmode	0	4	0		22XX
GNSS UPDATE PERIOD	0x01	Update period for device localization in hours	gper	1	43200	1440	min	22XX
ALMANAC DATA DOWNLOAD	0x02	ALMANAC data is downloaded (increases power consumption but localization is faster and more accurate): • 0: No data is being downloaded • 1: Almanac data is downloaded	gnssal	0	1	0		22XX
GNSS IN MOBILE APPLICATIONS	0x03	Localization methods are optimized depending on the application: • 0: Optimized for static objects • 1: Optimized for moving objects	gnssmb	0	1	0		22XX

EXECUTE SCAN (EXEC)	0X04	Start scan: Example **downlink on port 5: 11 2211 03 04**						

SUPERVISOR: GROUP SYSTEM SETTINGS 0x00							
Resources	Resource ID	Description	Key (NFC/BLE)	Min	Max	Unit	Module key
REBOOT (EXEC)	0x00	Reboot the device: **settings are retained.** After the resource ID, 2 bytes must be added to the command. These specify the time after which the reboot will be performed. The time • is specified in seconds. • May be 0 • Must always be specified in 2 bytes (even for 0 => 00 00) • Minimum value 0, maximum value 43200	reboot	0	43200	s	32XX
RESET (EXEC)	0x01	Reset the device, settings are reset: After the resource ID, 2 bytes must be added to the command. These specify the time after which the reboot will be performed. The time • is specified in seconds. • May be 0 • Must always be specified in 2 bytes (even for 0 => 00 00) Minimum value 0, maximum value 43200	reset	0	43200	s	32XX

Example: Reboot the device after 0 seconds:

Port 5:

11 3211 00 00 00 00

If the 2 bytes are not appended, the downlink will fail!

2. EXAMPLE DOWNLINKS

Resource	Description	Downlink	
Reboot	Reboot the device after 10 seconds: **Settings are retained.**	**11 3211 00 00 00 0A**	
Perform scan	Perform GNSS scan	**11 2211 03 04**	
CONFIRMED	All uplinks should be executed as confirmed UPLINK.	**11 2211 01 00 00 00 00 03**	
ADR	Disable ADR	**11 2211 01 02 00 00 00**	