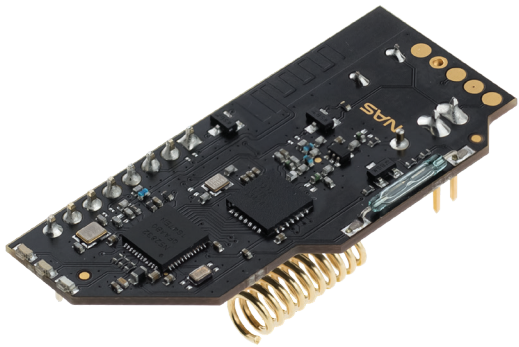


LoRaWAN™ QALCOSONIC MODULE IM3070



LoRaWAN™ Qalcosonic Module enables the acquisition of metering data from Qalcosonic E1 and F1 series meters and transmits it wirelessly to the available LoRaWAN™ network.

LoRaWAN™ Qalcosonic Module is meant to be attached to the existing meter as internal module.

OVERVIEW

Efficient

LoRaWAN™ Qalcosonic Module has bidirectional, long range transceiver with low power consumption.

Intelligent

Real-time consumption data is gathered wirelessly and processed automatically. Data is accessible from your LoRaWAN™ provider.

APPLICATIONS

Metering

Frequent reporting provides a detailed usage overview.

FEATURES

- Long range wireless data transmission
- Metering
- Configurable reporting interval
- Maintenance free - install & forget
- Easy installation
- Secure communication

SPECIFICATIONS

Width:	5.5 mm (1mm*)
Height:	50 mm
Length:	66.5 mm* (20mm*)
Weight:	g
Operating temperature:	-40°C ... +60°C
Communication range:	up to 15km**
Tx power:	up to +20dBm
Rx Sensitivity:	-140dBm
MAC Layer:	LoRaWAN™
Physical Layer:	LoRa®
IP Rating:	N/A
Communication:	LoRaWAN™
LoRa Device Class:	A

* Without antenna

** Communication range is dependent on the location of the sensor and nearest base station.

COMMUNICATION

Byte order:	LSB
Usage reporting:	Unconfirmed messages
Status reporting:	Confirmed messages

PORT LIST

fPort	Usage	Format	Uplink	Unit	Comment
24	Status		yes	-	Defined below
25	Consumption		yes	-	Defined below
50	Configuration		no	-	Defined below
99	Boot/Debug		yes	-	Defined below

fPort 24 Status Message

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11-26(max)	
LoRa Battery	Sensor RSSI	Volume			Meter error code				Register Map	Register payload		
uint8	int8	int32 - Liters FFFFFFFF - No connection to meter			Meter specific error codes FFFFFFFF - No connection to meter							

Register map				Payload
Bit #	Register	Unit	Value	
0	Heat energy	kWh	0 - not sent 1 - sent	int32
1	Cooling energy	kWh		int32
2	Pulse 1	L		int32
3	Pulse 2	L		int32
4	Flow rate	m ³ /h	0 - not sent with status message	n/a - not used with status message
5	Power	kW		
6	Temp 1	°C		
7	Temp 2	°C		

fPort 25 Usage message

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5-36(max)
Volume				Register Map	Register payload
int32 - Liters					

Register map				Payload
Bit #	Register	Unit	Value	
0	Heat energy	kWh	0 - not sent 1 - sent	int32
1	Cooling energy	kWh		int32
2	Pulse 1	L		int32
3	Pulse 2	L		int32
4	Flow rate	m ³ /h		float IEEE754 - 32bit
5	Power	kW		float IEEE754 - 32bit
6	Temp 1	°C		float IEEE754 - 32bit
7	Temp 2	°C		float IEEE754 - 32bit

fPort 50 Configuration Message

Byte0	Byte ...	Byte n
Header	Payload	

Different headers with their respective payloads are described below

Reporting

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8
Header	Usage interval (seconds)				Status interval (seconds)			
00	uint32* default - 3600				uint32** default - 86400			

* Can't be configured shorer than 600. When set to 0 disables usage packets. When there is no connection to the meter, the usage messages are replaced by status messages

** Can't be configured shorer than 600.

fPort 51 Update message

Byte 0
Header
FF

Activate update mode for BT update for 2 minutes. if nothing is done the device will reboot, join and resume working

NB! **Only** unconfirmed messages should be used for this message.

Message sample

Message goal: Set device to update mode

Header

Select Header HEX code

FF

Compile message for sending (HEX)

FF

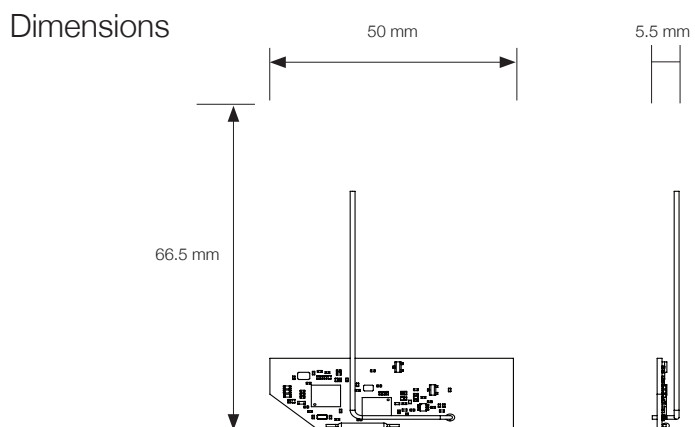
Control value in base64 to control after sending

/w==

fPort 99 Boot/Debug Message

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11
Header (HEX)	Payload										
0x00 Boot	Serial (HEX)				Firmware (HEX)			AXIS meter ID (HEX)			

DIMENSIONS / PACKAGING



COMPATIBILITY LIST

Qalcosonic F1, Qalcosonic E1

ORDERING INFORMATION

Article / SKU	Package qty	Frequency	Region
IM3070A#0001EU	1	868 MHz	EU
IM3070B#0001AU	1	922 MHz	AU
IM3070C#0001US	1	915 MHz	US
IM3070D#0001AS	1	923 MHz	AS
IM3070E#0001CN	1	780 MHz	CN
IM3070F#0001KR	1	922 MHz	KR
IM3070G#0001EU	1	433 MHz	EU
IM3070H#0001CN	1	470 MHz	CN
IM3070I#0001IN	1	866 MHz	IN

CONTACT INFORMATION

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REVISION HISTORY

0.1 First draft

All content contained herein is subject to change without notice. Nordic Automation Systems reserves the right to change or modify the content at any time.