

LoRaWAN™
ACM
CM3010

ELSTER/HONEYWELL



LoRaWAN™ Absolute Encoder Communication Module (ACM) enables the acquisition of gas consumption data from Elster/Honeywell Absolute Encoder AE2 and AE3 gas meters and transmits it wirelessly to the available LoRaWAN™ network.

LoRaWAN™ ACM is meant to be attached to the existing gas meter.

OVERVIEW

Efficient

LoRaWAN™ ACM has bidirectional, battery powered, long range transceiver with low power consumption.

Intelligent

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

APPLICATIONS

Gas metering

Frequent reporting provides a detailed usage overview.

FEATURES

- Long range wireless data transmission
- Absolute Encoder AE2 and AE3 reading
- Pre-installed long-life battery
- Gas metering
- Configurable reporting interval
- Maintenance free - install & forget
- Easy installation
- Average life 10 years*
- Secure communication

* Lifetime depends from the device location and reporting interval.

SPECIFICATIONS

Width:	47.0 mm
Height:	102.0 mm
Length:	123.0 mm
Weight:	200g
Operating temperature:	-20°C ... +65°C
Communication range:	up to 15km*
Tx power:	up to +20dBm
Rx Sensitivity:	-140dBm
MAC Layer:	LoRaWAN™
Physical Layer:	LoRa®
Body material:	PC
IP Rating:	54
Communication:	LoRaWAN™

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

COMMUNICATION

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

PORT LIST

fPort	Usage	Format	Uplink	Unit	Comment
16	Gas usage	uint64_t	yes	liters	Cumulative
24	Status		yes	-	Defined below
50	Configuration		no	-	Defined below
99	Boot/Debug		yes	-	Defined below

fPort16 gas usage

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Liters (uint64)							

Message sample

Message in base64

TikAAAAAAAAA=

Message decoded to hex

4E29000000000000

HEX message flip for MSB

0000000000000294E

HEX message converted to decimal

10574 (liters)

fPort 24 Status Message

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Usage counter (uint64)				Battery Offset (int8)	Temperature °C (int8)	Sensor RSSI dBm (int8)

Message sample

Message in base64

EQAAAE4kqgYE

Message decoded to hex

110000004E24AA0604

Usage counter 11000000 HEX message flip for MSB

00000011

HEX message converted to decimal

17 (liters)

Battery HEX message

4E

HEX message converted to decimal

78

Offset value converted to volts

2.974V (see volts conversion map)

Temperature HEX message

24

HEX message converted to decimal

36°C

Sensor RSSI HEX message

AA

HEX message converted to signed decimal

-42 dBm

fPort 50 Configuration Message

Byte1	Byte ...	Byte n
Header	Payload	

Value	Bit #	Parameter	Payload size	Type	Value	Unit	Comment
0: not sent 1: sent	0	Reporting interval	32bit	uint	3600	seconds	0 = disabled
	1	Reporting interval	32bit	uint	1000	liters	0 = disabled
	2	Status interval	32bit	uint	86400	seconds	0 = default
	3	RFU					
	4	RFU					
	5	RFU					
	6	RFU					
	7	RFU					

Message sample

Message goal: Configure reporting interval to 600 sec & reporting interval to 400 liters

Header

Function selection

```
1 : Reporting interval (seconds) - set
1 : Reporting interval (units) - set
0 : Status interval - not set
0 : Counter - not set
0 : Temperature threshold - not set
0 : RFU
0 : RFU
0 : Functions - not set
```

Selection converted to binary

00000011

Selection converted to HEX

03

Reporting interval (seconds)

Converting interval 600 to HEX

258

Flip interval for LSB

58020000

Reporting interval (units)

Converting interval 400 to HEX

190

Flip interval for LSB

90010000

Compile message for sending (HEX)

035802000090010000

Control value in base64 to control after sending

A1gCAACQAQAA

fPort 99 Boot/Debug Message

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11	Byte 12
Header (HEX)	Payload										
0x00 Boot	Serial (HEX)				Firmware (HEX)			Elster meter ID (uint32)			
0x01 Shutdown											

Message sample

Message in base64

ADoAAksAApiXyL8B

Message decoded to hex

003A00024B00029897C8BF01

Header HEX message

00

HEX translated to type

Boot

Serial HEX message

3A00024B

Flip HEX message for MSB

4B02003A

Firmware version

Major version in HEX

00

HEX value converted to decimal

0

Minor version in HEX

02

HEX value converted to decimal

2

Patch version in HEX

98

HEX value converted to decimal

152

Elster meter ID HEX message

97C8BF01

Flip HEX message for MSB

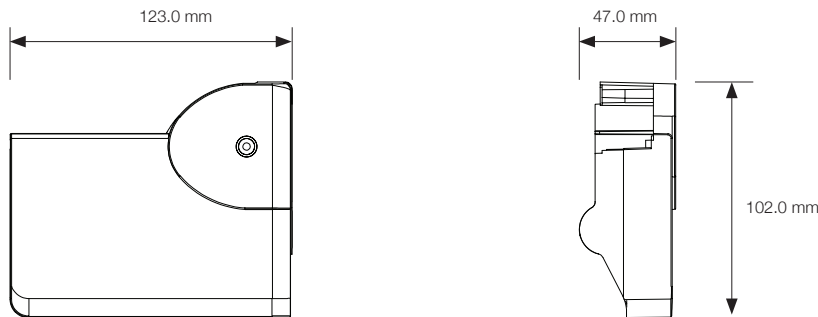
01BFC897

Convert HEX message to decimal

29345943

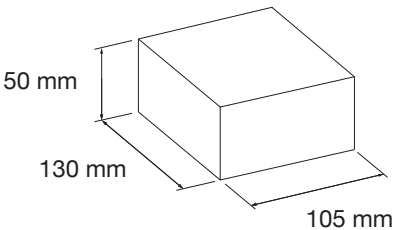
DIMENSIONS / PACKAGING

Dimensions



Packaging

1 pcs box



ORDERING INFORMATION

Article / SKU	Package qty	Frequency	Region
CM3010A#0001EU	1	868 MHz	EU
CM3010B#0001AU	1	922 MHz	AU
CM3010C#0001US	1	915 MHz	US
CM3010D#0001AS	1	923 MHz	AS
CM3010E#0001CN	1	780 MHz	CN
CM3010F#0001KR	1	922 MHz	KR
CM3010G#0001EU	1	433 MHz	EU
CM3010H#0001CN	1	470 MHz	CN
CM3010I#0001IN	1	866 MHz	IN

CONTACT INFORMATION

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REVISION HISTORY

- 1.0 - First version
- 1.1 - Added ordering details.
- 1.2 - Communication protocol & battery info added

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