

Protocol TELENET Power



Status

Byte	#Bit	Field	Note
1	0	Application Error	
1	1	Device Status	Configured/NotConfigured
1	2	BatteryStatus	Alarm
1	3	Power Active threshold (P)	Alarm
1	4	Power Reactive threshold (Q)	Alarm
1	5	Fraud	Optional
1	6:7	FrameType	
2	0:3	ConfigurationType	
2	4:7	Version	

Application Error: Field used when sending downlink messages

Device Status: 1 = not configured; 0 = configured (scheduling active);

Battery Status: sub-threshold battery alarm (default 10% of the estimated level)

Power Active threshold (P): Active power threshold alarm (settable from 1W to 1MW) default = 1MW

Power Reactive threshold (Q): Reactive power threshold alarm * (settable from 1VAR to 1MVAR) default = 1MW

Fraud: fraud alarm, implemented according to customer specifications.

FrameType: type of frame

- b00 = 0 = A
- b01 = 1 = B
- b10 = 2 = C
- b11 = 3 = Response

Configuration Type: type of configuration

- b0000 = Schedule every 15 min - Observation window 1 min
- b0001 = Schedule every hour - Observation window 1 min

Version: Firmware version (allows you to manage frames in a discriminated manner following updates) - e.g. b1001 Ver 2.1

Frame A (sending instantaneous values - on reminder with magnet / button)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8		Byte 9	Byte 10	Byte 11	Byte 12
Status	Status	Batt	T5A	T4A	T3A	T2A	T1A	T5R	T4R	T3R	T2R	T1R

#Byte	#Bit	Field	Content	Value	Note
1	0	Status	Application Error		
1	1	Status	Device Status		
1	2	Status	Battery Status		
1	3	Status	Power Active threshold (P)		
1	4	Status	Power Reactive threshold (Q)		
1	5	Status	Fraud		Optional
1	6:7	Status	FrameType	00	PushA
2	0:3	Status	ConfigurationType		
2	4:7	Status	Version		
3	0:7	Battery Level			
4	0:7	T5A		MSB	Active Energy Totalizer
5	0:7	T4A			
6	0:7	T3A			
7	0:7	T2A			
8	4:7	T1A			
8	0:3	T5R		MSB	Active Energy Totalizer
9	0:7	T4R			
10	0:7	T3R			
11	0:7	T2R			
12	0:7	T1R		LSB	

Frame B (sending values at the end of the day)

Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8		Byte 9	Byte 10	Byte 11	Byte 12
Status	Status	Batt	T5ACD	T4ACD	T3ACD	T2ACD	T1ACD	T5RCD	T4RCD	T3RCD	T2RCD	T1RCD

#Byte	#Bit	Field	Content	Value	Note
1	0	Status	Application Error		
1	1	Status	Device Status		
1	2	Status	Battery Status		
1	3	Status	Power Active threshold (P)		
1	4	Status	Power Reactive threshold (Q)		
1	5	Status	Fraud		Optional
1	6:7	Status	FrameType	01	PushB
2	0:3	Status	ConfigurationType		
2	4:7	Status	Version		
3	0:7	Battery Level			
4	0:7	T5ACD		MSB	Active Energy Totalizer closing day
5	0:7	T4ACD			
6	0:7	T3ACD			
7	0:7	T2ACD			
8	4:7	T1ACD			
8	0:3	T5RCD		MSB	Active Energy Totalizer closing day
9	0:7	T4RCD			
10	0:7	T3RCD			
11	0:7	T2RCD			
12	0:7	T1RCD		LSB	

Frame C (sending peak values and increments on a scheduled basis)

#Byte	#Bit	Field	Content	Value	Note
1	0	Status	Application Error		
1	1	Status	Device Status		
1	2	Status	Battery Status		
1	3	Status	Power Active threshold (P)		
1	4	Status	Power Reactive threshold (Q)		
1	5	Status	Fraud		Optional
1	6:7	Status	FrameType	10	PushC
2	0:3	Status	ConfigurationType		
2	4:7	Status	Version		
3	0:7	P2A		MSB	Active Power Peak
4	0:7	P1A		LSB	
5	0:7	P2R		MSB	Reactive Power Peak
6	0:7	P1R		LSB	
7	4:7	TPA			Active Peak Time
7	3:0	TPR			Reactive Peak Time
8	0:7	I3A		MSB	Partial Active Energy
9	0:7	I2A			
10	4:7	I1A		LSB	
10	0:3	I3R		MSB	Partial Reactive Energy
11	0:7	I2R			
12	0:7	I1R		LSB	

Batt: estimate of the battery level expressed as a percentage in steps of $100 - [(100 - \text{Batt}) * 0.4]$

TA = active energy totalizer referred to the sending time (on reminder)

TR = reactive energy totalizer * referred to the sending time (on reminder)

TACD = active energy totalizer referred to the end of the day (on schedule)

TRCD = reactive energy totalizer * referred to day-end (on schedule)

PA = Active power peak on a window of 1 min

PR = Peak reactive power * on a window of 1 min

IA = Increase in active energy on an hourly basis

IR = Reactive energy increase * on an hourly basis

* The device has two identical data structures for active and reactive power / energy so the power sensor / reactive energy sensor can be used to manage a second meter.

Counter with 1000 imp / kWh

Examples Frame A

021000000000000000000000

Device not configured without active alarms

Ver 0.1

TA = 0

TR = 0

Examples Frame B

405000000003048000000510

Device configured without active alarms

Ver 1.1

TACD = $0x000003048 = 12360 = 12.360\text{KWh}$

TRCD $0x000000510 = 1296 = 1,296\text{KVARh}$

Examples Frame C

80500001F40000008FC00000

Device configured without active alarms

Ver 1.1

PA = $0x01F4 = 500 \text{ imp} / 1\text{min} \rightarrow (500/1) * 60 = 30000/1000 = 30\text{KW}$

IA = $0x008FC = 2300/1000 = 2,3\text{KWh}$

PB = 0

IR = 0

More info

maximum pulse frequency = 100Hz

Scheduling

The schedule is set during the production phase and includes:

25 daily consignments at hourly intervals, 24 Frame C and 1 Frame B at the end of the day (double message)

or

97 daily submissions at 15 min intervals, 96 Frame C and 1 Frame B at the end of the day (double message)