DRY CONTACTS V2

Technical Reference Manual

868 EU - LoRaWAN / Sigfox

Applicable for APP versions >= 2.1.0

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NEW DOCUMENTATION / NOUVELLE DOCUMENTATION

	ENGLISH	FRANCAIS
USER GUIDE	• Dedicated to a product • Cautions & electrical warnings • Declaration of conformity • Product functionalities and modes • Casing dimensions • Characteristics (casing and electrical) • LED explanations • Specific wiring on terminal blocks	• Dédié à un produit • Recommandations et avertissements électriques • Déclaration de conformité • Fonctionnalités et modes du produit • Dimensions du boitier • Caractéristiques (boitier et électrique) • Explication des LED • Câblage sur bornier spécifique au produit
TECHNICAL REFERENCE MANUAL	• Dedicated to a product • Registers content • Frame explanations (uplink and downlink)	• Dédié à un produit • Contenu des registres • Explication des trames (uplink et downlink)
INSTALLATION GUIDE	• For all adeunis® products • Configuration of the products • Installation and fixing • Start-up of the products • Opening and closing the case • Replace battery	• Pour tous les produits adeunis® • Configuration des produits • Installation et fixation • Démarrage des produits • Ouvrir et fermer les boîtiers • Remplacer la batterie

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1 REGISTERS

1.1 Generic registers

Register	Size (bytes)	Base	Description	Default Value	Range (Min-Max)	Comments
304	2	10	PIN code	0 (deactivated)	0 - 9999	PIN code used with ATPIN command. Value 0 disables the PIN code.
306	1	10	Product mode	0	0: PARK 1: RUN	In PARK mode, product is not using Radio. In RUN mode, product will send/receive RF uplinks/downlinks.

1.2 Applicative registers

Register	Size (byte)	Base	Description	Default value	Min-Max Value	Comments
300	2	10	Keep alive period	8640 (24h)	2 ... 65535	X 10 seconds
301	2	10	Transmit period	0	0 ... 65535	X 10 seconds 0: no periodic transmission
308	4	16	LED activity	0x10007F	0-0xFFFFFFFF	Default: 10007F Eco: 100070 Other values: reserved
315	1	10	Time zone offset	0	-12 … 14	Defines the Time Zone offset from UTC (in hours). Must be defined for Daylight Saving Time management.
316	1	10	Daylight Saving Time management	0	0 … 1	Only applicable for European countries. 0: disabled 1: enabled
318	1	10	Time stamping	0	0 … 1	[LoRaWAN only] If enabled, adds a time stamp in data frames. 0: disabled 1: enabled
319	1	10	RTC calibration value	0	-100 … 100	Allows correcting a possible drift of the clock. In tenths of a second per day.
320	1	16	Channel 1 configuration	0x43	<7:4> Debounce duration 0: no debounce 1: 10 ms 2: 20 ms 3: 50 ms 4: 100 ms 5: 200 ms 6: 500 ms 7: 1 s 8: 2 s 9: 5 s A: 10 s B: 20 s C: 40 s D: 60 s E: 5 minutes F: 10 minutes	

					<3:0> Type 0 = Deactivated 1 = Input Event ON 2 = Input Event OFF 3 = Input ON/OFF 4 = Output	
321	1	16	Channel 2 configuration	0x43	See register 320	
322	1	16	Channel 3 configuration	0x43	See register 320	
323	1	16	Channel 4 configuration	0x43	See register 320	
324	2	10	Channel 1 event threshold	1	0 - 65535	Number of events detected before sending an UPLINK 0: deactivated
325	2	10	Channel 2 event threshold	1	0 - 65535	
326	2	10	Channel 3 event threshold	1	0 - 65535	
327	2	10	Channel 4 event threshold	1	0 - 65535	
328	2	10	Transmit period for time counting	0	0 - 65535	0: deactivated Otherwise: X 1 min This transmit period is independent from 301.
330	1	10	Channel 1 output state	0	0 - 1	If channel is configured as an output, this register determines its state. This register is not saved in EEPROM. Its value is therefore set to 0 if the product is not powered anymore
331	1	10	Channel 2 output state	0	0 - 1	
332	1	10	Channel 3 output state	0	0 - 1	
333	1	10	Channel 4 output state	0	0 - 1	
390	2	10	Global counter for channel 1	0	0 – 65535	In-RAM counter that stores all the detected events on the channel This register is not saved in EEPROM. Its value is therefore set to 0 if the product is not powered anymore
391	2	10	Global counter for channel 2	0	0 – 65535	
392	2	10	Global counter for channel 3	0	0 – 65535	
393	2	10	Global counter for channel 4	0	0 – 65535	
394	4	10	Total events time counter for channel 1	0	0 – 4294967295	In-RAM counter that accumulates the duration in seconds of the detected events on the channel This register is not saved in EEPROM. Its value is therefore set to 0 if the product is not powered anymore
395	4	10	Total events time counter for channel 2	0	0 – 4294967295	
396	4	10	Total events time counter for channel 3	0	0 – 4294967295	
397	4	10	Total events time counter for channel 4	0	0 – 4294967295	

1.3 Radio registers

1.3.1 LoRaWAN Network Registers

Register	Description	Encoding	Details
201	Spreading Factor (SF) by default	Decimal	Default: 12 Min/max: 4 to 12 Unit: None
204	Reserved	Hexadecimal	Do not use
214	LORA APP-EUI (first part – MSB)	Hexadecimal	Default: 0 Key encoded on 16 characters. Each register contains a part of the key. Used during the JOIN phase in OTAA mode E.g.: APP-EUI = 0018B244 41524632 • S214 = 0018B244 • S215 = 41524632
215	LORA APP-EUI (second part – MSB)	Hexadecimal	
216	LORA APP-KEY (first part – MSB)	Hexadecimal	Default: 0 Key encoded on 32-byte characters. Each of the 4 registers contains 8 characters. Used during the JOIN phase in OTAA mode E.g.: APP-KEY = 0018B244 41524632 0018B200 00000912 • S216 = 0018B244 • S217= 41524632 • S218=0018B200 • S219= 00000912
217	LORA APP-KEY (second part – MID MSB)	Hexadecimal	
218	LORA APP-KEY (third part – MID LSB)	Hexadecimal	
219	LORA APP-KEY (fourth part – LSB)	Hexadecimal	
220	LoRaWAN Options	Hexadecimal	Default: 5 Bit 0: Activation of the ADR ON (1)/OFF (0) Bit 1: Reserved Bit 2: DUTYCYCLE ON (1) / DUTYCYCLE OFF (0) Bits 3 & 4: Reserved Bit 5: CLASS A Bits 6 to 7: Reserved CAUTION: Deactivation of the Duty Cycle may result in a violation of the conditions of use of the frequency band, depending on the use of the device, thus violating the regulations in force. In the case of disabling the Duty Cycle, liability is transferred to the user.
221	Mode of activation	Decimal	Default: 1 Choice: (see NOTE 1 after the table) • 0: ABP • 1: OTAA
222	LORA NWK_SKEY (first part – MSB)	Hexadecimal	Default: 0 Parameter encoded on 16 bytes. Each of the 4 registers contains 4 bytes.
223	LORA NWK_SKEY (second part - MID MSB)	Hexadecimal	
224	LORA NWK_SKEY (third part - MID LSB)	Hexadecimal	
225	LORA NWK_SKEY (fourth part – LSB)	Hexadecimal	
226	LORA APP_SKEY (first part – MSB)	Hexadecimal	Default: 0 Parameter encoded on 16 bytes. Each of the 4 registers contains 4 bytes.

227	LORA APP_SKEY (second part - MID MSB)	Hexadecimal	
228	LORA APP_SKEY (third part - MID LSB)	Hexadecimal	
229	LORA APP_SKEY (fourth part – LSB)	Hexadecimal	
257	Configuration RX2	Decimal	Default: 1 0: Channel disabled 1: Default configuration: LoRaWAN Other: User configuration
260	Reserved	Decimal	Do not use
261	Reserved	Decimal	Do not use
280	NETWORK ID	Hexadecimal	Default: 0 *Read only*
281	DEVICE ADDRESS	Hexadecimal	Default: 0

NOTE 1: The “Over The Air Activation” (OTAA) mode uses a JOIN phase before being able to transmit on the network. This mode uses the APP_ EUI (S214 and S215) and APP_KEY (S216 to S219) codes during this phase to create the keys for network communication. Once this phase is completed, the codes APP_sKEY, NWK_sKEY and DEVICE ADDRESS will be present in the corresponding registers. A new JOIN phase is started every time the device exits Command mode, a reset is performed, or the device is turned on.
Codes:
• APP_EUI identifier for global use (provided by default by adeunis®)
• APP_KEY device application key (provided by default by adeunis®)
The “Activation by personalization” (ABP) mode has no JOIN phase; it transmits directly on the network using the codes NWK_sKEY (S222 to S225), APP_sKEY (S226 to S229) and DEVICE ADDRESS (S281) to communicate.
Codes:
• NWK_sKEY network session key (provided by default by adeunis®)
• APP_KEY applicative session key (provided by default by adeunis®)
• DEVICE ADDRESS Address of the device in the network (provided by default by adeunis®)

Register	Size (bytes)	Base	Description	Default Value	Range (Min-Max)	Minimum required Application version	Comments
303	1	10	LoRaWAN Confirmed mode	0	0-1	V1.2.0	LoRaWAN only – activation or deactivation of the confirmed mode 0: deactivation 1: activation
312	4	10	Maximum delay between 2 authentication attempts	43200 (12h)	60-2592000	V2.1.0	X 1 second ⇨ Period : 1 minute to 30 days
313	2	10	Weighting factor for initial authentication attempts	1	1-65535	V2.1.0	
314	1	10	Number of tries for each authentication attempt	10	1-255	V2.1.0	

1.3.2 Sigfox Network Registers

Register	Size (bytes)	Base	Description	Default Value	Range (Min-Max)	Minimum required Application version	Comments
307	2	10	Sigfox Downlink period	1440 (24h)	0-65535	>= V2.0.0	X 1 minute ⇨ Period: 1 min to 45 days
317	1	10	Sigfox Duty Cycle	1	0-1	V1.2.0	0: duty cycle activated 1: duty cycle deactivated Not displayed anymore in LoRaWAN since 2.0.0

2 RADIO PROTOCOL

Data with size greater than 1 byte will be transmitted MSB first.
In LoRaWAN, frames are sent on port 1.

2.1 Status byte

All frames sent by the product contain a status byte. Its format is identical for all IoT Adeunis products.

Alarm Status	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	Frame Counter			AppFlag2	AppFlag1	Timestamp	Low Bat	Config
No Error	0x00 to 0x07			0	0	0	0	0
Configuration done				0	0	0	0	1
Low bat				0	0	0	1	0
Timestamp				0	0	1	0	0
AppFlag1				0	1	0	0	0
AppFlag2				1	0	0	0	0

The status byte provides two bits reserved for a specific use of each product (AppFlag1 and AppFlag2).
For this product:

- AppFlag1: not used
- AppFlag2: not used

2.2 Uplink Frame format

2.2.1 Product configuration (0x10)

This frame is sent following the reception of a frame with code 0x01, or at the start of the product.

Offset (in byte)	Data	Description
0	0x10	Frame code
1	Status	Status byte
2-3	S300	Transmission period of the Keep Alive frame
4-5	S301	Transmission period of the periodic frame
6	S320	Channel 1 configuration
7	S321	Channel 2 configuration
8	S322	Channel 3 configuration
9	S323	Channel 4 configuration

Decoding example:

Offset (in byte)	Data	Description
0	0x10	Frame code
1	0x00	Frame counter: 0 Bit1@0: no LowBat
2-3	0x21C0	8640 => 8640 x 10s = 86400s = 24h
4-5	0x0000	0: no periodic transmission
6	0x43	EVENT ON/OFF, debound@100ms
7	0x43	EVENT ON/OFF, debound@100ms
8	0x43	EVENT ON/OFF, debound@100ms
9	0x43	EVENT ON/OFF, debound@100ms

2.2.2 Network configuration (0x20)

This frame is sent following the reception of a frame with code 0x02, or at the start of the product.

1.3.2.1 LoRaWAN 868

Offset (in byte)	Data	Description
0	0x20	Frame code
1	Status	Status byte
2	S220	LoRaWAN options Bit 0: Activation of the ADR ON (1)/ OFF (0) Bit 1: Reserved Bit 2: DUTYCYCLE ON (1)/ DUTYCYCLE OFF (0) Bits 3 & 4: Reserved Bit 5: CLASS A (0) / Reserved (1) Bits 6 to 7: Reserved
3	S221	Provisioning mode (0: ABP, 1: OTAA)

Decoding example:

Offset (in byte)	Data	Description
0	0x20	Frame code
1	0x20	Frame counter: 1 Bit1@0: no LowBat
2	0x05	CLASS A Duty cycle activated
3	0x01	OTAA

1.3.2.2 Sigfox 868

Offset (in byte)	Data	Description
0	0x20	Frame code
1	Status	Status byte
2	S202	Retry count
3-4	S307	Downlink period

Decoding example:

Offset (in byte)	Data	Description
0	0x20	Frame code
1	0x20	Frame counter: 1 Bit1@0: no LowBat
2	0x02	2 retries
3-4	0x05A0	1440 (24h)

2.2.3 Set state or pulse ACK (0x2F)

This uplink is sent when a downlink 0x06 (set output state) or 0x07 (generate pulse) is received and its payload requests an ACK.

Offset (in byte)	Data	Description
0	0x2F	Frame code
1	Status	Status byte
2	Downlink Frame code	Indicate which downlink has generated this uplink
3	Request status	- 0x00: N/A - 0x01: success - 0x02: error - generic - 0x03: error – wrong state - 0x04: error – invalid request - Other: reserved for future

Decoding example:

Offset (in byte)	Data	Description
0	0x2F	Frame code
1	0x20	Frame counter: 1 Bit1@0: no LowBat
2	0x06	This ACK concerns last received 0x06 request
3	0x01	success

2.2.4 Keep alive frame (0x30)

This frame is sent:
- after an amount of time determined by S300 register
- following the reception of a frame with code 0x05
- when the magnet detected for 3 seconds

Offset (in byte)	Data	Description
0	0x30	Frame code
1	Status	Status byte
2-3	Channel 1 info	If configured in input mode: global event counter
4-5	Channel 2 info	
6-7	Channel 3 info	
8-9	Channel 4 info	
10	Details	Define precisely the input/output state (ON/CLOSED: 1, OFF/OPEN: 0) • <0> Channel1 current state • <1> Channel2 current state • <2> Channel3 current state • <3> Channel4 current state
11-14	Timestamp	Only for LoRaWAN product with timestamping enabled. Timestamp of the frame in EPOCH 2013 format

Decoding example (all channels in INPUT mode):

Offset (in byte)	Data	Description
0	0x30	Frame code
1	0xE2	Frame counter: 7 Bit1@1: LowBat detected
2-3	0x0001	1 event detected on CH1
4-5	0x0100	256 events detected on CH2
6-7	0x0000	0 event detected on CH3
8-9	0xFFFF	65535 events detected on CH4
10	0x0A	Channel1 current state @ OFF Channel2 current state @ ON Channel3 current state @ OFF Channel4 current state @ ON

2.2.5 Data frame (0x40)

Offset (in byte)	Data	Description
0	0x40	Frame code
1	Status	**Erreur ! Source du renvoi introuvable.**Status byte
2-3	Channel 1 info	If configured in input mode: event counter If configured in output mode: current output state (ON/CLOSED : 1, OFF/OPEN : 0)
4-5	Channel 2 info	
6-7	Channel 3 info	
8-9	Channel 4 info	
10	Details	Define precisely the input/output state (ON/CLOSED : 1, OFF/OPEN : 0) • <0> Channel1 current state • <1> Channel1 state when sending the previous frame • <2> Channel2 current state • <3> Channel2 state when sending the previous frame • <4> Channel3 current state • <5> Channel3 state when sending the previous frame • <6> Channel4 current state • <7> Channel4 state when sending the previous frame
11-14	Timestamp	Only for LoRaWAN product with timestamping enabled. Timestamp of the last input/output state change in EPOCH 2013 format.

Decoding example (CH1/2@INPUT CH3/4@OUTPUT):

Offset (in byte)	Data	Description
0	0x40	Frame code
1	0x40	Frame counter: 2 Bit1@0: no LowBat
2-3	0x0001	1 event detected on CH1
4-5	0x0100	256 events detected on CH2
6-7	0x0000	CH3 output @OFF
8-9	0x0001	CH4 output @ON
10	0x46	Channel1 current state @ OFF, last state @ ON Channel2 current state @ ON, last state @ OFF Channel3 current state @ OFF, last state @ OFF Channel4 current state @ ON, last state @ OFF

Note: to count simultaneous events on several channels, when it detects an event on a channel, it waits 1 second to include the other events which could be detected on the other channels.
For each frame sent (periodic or event) the **counters are reset for all the inputs**.

2.2.6 Time counting frame (0x59)

Frame sent only if S328 != 0

- LoRaWAN 868: Up to 4 counters per frame
- Sigfox RC1: Up to 2 counters per frame

Offset (in byte)	Data	Description
0	0x59	Frame code
1	Status	Status byte
2	Channels	Bit field of the time counters included in the frame ♦ <0> channel 1 ♦ <1> channel 2 ♦ <2> channel 3 ♦ <3> channel 4
3-6	1st Time counter	Total events time counter (in seconds)
7-10	2nd Time counter	
11-14	3rd Time counter	
15-18	4th Time counter	
19-22	Timestamp	Only for LoRaWAN product with timestamping enabled. Timestamp of the frame in EPOCH 2013 format

Decoding example (2 counters):

Offset (in byte)	Data	Description
0	0x59	Frame code
1	0xA4	Frame counter: 5 Bit1@0: no LowBat Bit4@1: timestamp
2	0x05	channel 1 & 3 included in the frame
3-6	0x012345	Channel 1 time counter : 74565 s
7-10	0x001100	Channel 3 time counter : 4352 s
11-14	0x126B94F9	Timestamp : 2022-10-17 20:32:57

2.2.7 Response to Get register request (0x31)

Following reception of a downlink frame with the code 0x40, the frame 0x31 is transmitted. It contains all the values of the registers requested in the downlink frame 0x40.

Offset (in byte)	Data	Description
0	0x31	Frame code
1	Status	Status byte
2-3	Value 1	If value 1 is a 2-byte register
4	Value 2	If value 2 is a 1-byte register
5-8	Value 3	If value 3 is a 4-byte register
…		

If an error is detected in the request, the returned 0x31 frame will be empty.

Note: the size of the data registers is variable depending on the register number. Refer to the list of registers to determine the size of each one and to deduce the total size of the data returned by the 0x31 frame.

Decoding example:

Offset (in byte)	Data	Description
0	0x31	Frame code
1	0x80	Frame counter: 4 Bit1@0: LowBat not detected
2-3	0x1234	4660 (considering that value 1 is a 2-byte register)
4	0xFF	255 (considering that value 2 is a 1-byte register)
5-8	0x00000000	0 (considering that value 3 is a 4-byte register)
…		

2.2.8 Response to Set register request (0x33)

Following reception of a downlink frame with the code 0x41, the frame 0x33 is transmitted. It shows whether the downlink frame (0x41) has been received and gives information on the support status of the latter.

Offset (in byte)	Data	Description
0	0x33	Frame code
1	Status	Status byte
2	Request status	- 0x00 : N/A - 0x01 : success - 0x02 : success – no update (value to set is the current register value) - 0x03 : error – coherency - 0x04 : error – invalid register - 0x05 : error – invalid value - 0x06 : error – truncated value - 0x07 : error – access not allowed - 0x08 : error – other reason
3-4	Register Id	Indicates to the user the register that caused the error (only if “Request Status” is different from 0x01).

CAUTION: if the request 0x41 concerns several registers, the device will stop the analysis of the Downlink request at the first error and will send the Status frame with the reason and the identifier of the register concerned.
In the event of an error, if a partial reconfiguration has taken place before the error was detected, the device restarts and returns to its last valid configuration. As a result, you will have to configure the device again with the new data.
Decoding example:

Offset (in byte)	Data	Description
0	0x33	Frame code
1	0x80	Frame counter: 4 Bit1@0: LowBat not detected
2	0x04	invalid register
3-4	0x0140	320: register S320 does not exist (should be S3XX)

2.2.9 Transmit conditions

Frame code	Description	Sending conditions
0x10	Status (configuration)	• Product start up • Exit configuration mode (AT command) • Reception of frame 0x01 (get product config)
0x20	Network status	• Product start up • Exit configuration mode (AT command) • Reception of frame 0x02 (get network config)
0x30	Keep alive	• Always sent even if we are in periodic mode in order to provide global counters • Magnet detected for 3 seconds • Reception of frame 0x05 (get value)
0x40	Dry Contact states	• Product start up • Event on input channels configured in "Events" mode • End of period on input configured in "Periodic" mode
0x59	Time counting	• S328 period has occurred • One of the channel's counter has reached 65535 seconds

2.3 Downlink Frame format

2.3.1 Get applicative configuration (0x01)

Offset (in byte)	Data	Description
0	0x01	Frame code

When the device receives the downlink, it will generate a product configuration frame (0x10).

2.3.2 Get network configuration (0x02)

Offset (in byte)	Data	Description
0	0x02	Frame code

When the device receives the downlink, it will generate a network configuration frame (0x20).

2.3.3 Get value (0x05)

Offset (in byte)	Data	Description
0	0x05	Frame code

When the device receives the downlink, it will generate a KEEP ALIVE frame (0x30).

2.3.4 Handle output channels (0x06)

Offset (in byte)	Data	Description
0	0x06	Frame code
1	Channel1 state	0: N/A 1: OFF 2: ON
2	Channel2 state	
3	Channel3 state	
4	Channel4 state	
5	Downlink ack request	0: No uplink ACK is required 1: An uplink ACK (0x2F) is required

Note: If a channel is not in output mode changing its state will return an « invalid request » status (in case downlink has been requested).

Coding example:

Offset (in byte)	Data	Description
0	0x06	Frame code
1	0x00	Channel 1: no action
2	0x01	Channel 2 output set to OFF
3	0x02	Channel 3 output set to ON
4	0x00	Channel 4: no action
5	0x01	An uplink ACK (0x2F) is required

2.3.5 Generate pulse on output channels (0x07)

Generate a pulse on output channels based on the current output state
For instance, if current output is ON and a 500ms pulse is requested, we will have:

- ON (current state before downlink reception)
- OFF (for 500ms)
- ON (go back to initial state)

Offset (in byte)	Data	Description
0	0x07	Frame code
1	Channel1 pulse duration	pulse duration (x 0.1 s) duration@0 : no pulse request
2	Channel2 pulse duration	
3	Channel3 pulse duration	
4	Channel4 pulse duration	
5	Downlink ack request	0 : No uplink ACK is required 1 : An uplink ACK (0x2F) is required

Note: If a channel is not in output mode changing its state will return an « invalid request » status (in case downlink has been requested)

Coding example:

Offset (in byte)	Data	Description
0	0x07	Frame code
1	0x00	Channel 1: no action
2	0x01	Channel 2 output will execute a pulse for 0.1s
3	0xFF	Channel 3 output will execute a pulse for 25.5s
4	0x00	Channel 4: no action
5	0x00	An uplink ACK (0x2F) is NOT required

2.3.6 Get registers (0x40)

This frame (0x40) allows you to inform the device through the network that it must send the values of specific S3XX registers in an uplink frame (0x31).

Offset (in byte)	Data	Description
0	0x40	Frame code
1	CONFID1	Index of the register to be sent. The corresponding register is 300 + CONFIDX value.
2	CONFID2	
3	CONFID3	

IMPORTANT: the user can specify several CONF IDs in the downlink frame but it is up to the user's responsibility to verify that according to the protocol, the size of the data available in a downlink will be large enough to contain all the desired data. Otherwise, the application will send only the first values.

In Sigfox mode: backend may request to send 8 bytes in a downlink. All unused bytes should set to 0xFF to ask the product to stop the downlink frame parsing.

Coding example:

Offset (in byte)	Data	Description
0	0x40	Frame code
1	0x00	Get register S300
2	0x14	Get register S320
3	0x20	Get register S332
4-7	0xFFFFFFFF	In SFX : ignored by product

2.3.7 Set registers (0x41)

This frame (0x41) allows you to change the value of requested S3XX registers.

Offset (in byte)	Data	Description
0	0x41	Frame code
1	CONFID1	Index of the register to be changed. The corresponding register is “300 + CONFID1“
2	Value of CONF ID 1	Value to set In this example, its value is contained in 1 byte
3	CONFID2	Index of the register to be changed. The corresponding register is “300 + CONFID2”
4-5	Value of CONF ID 2	Value to set In this example, its value is contained in 2 bytes
…		

Following the sending of the downlink 0x41, the associated uplink 0x33 is immediately returned. If the update of the register(s) went well, the device will perform a backup and begin its restart procedure automatically. In addition, the Config bit of the status byte will be set to 1 in the next scheduled uplink frame (periodic or alarm or keep alive frame) if everything went well.

Coding example:

Offset (in byte)	Data	Description
0	0x41	Frame code
1	0x1C	Register to modify is S328
2-3	0x00AA	Value to set in S328 is 170 (S320 is a 2-byte register)
4	0x1E	Register to modify is S330
5	0x01	Value to set in S330 is 1(S330 is a 1-byte register)
…		

2.3.8 Reboot (0x48)

This frame (0x48) allows you to reboot the device.

Offset (in byte)	Data	Description
0	0x48	Frame code
1-2	delay	Delay before reboot in minutes (from 1 to 65535)

Following the sending of the downlink 0x48, an uplink ACK (0x2F) is sent. After the specified delay, the device will then begin its restart procedure.

Coding example:

Offset (in byte)	Data	Description
0	0x48	Frame code
1-2	0x05A0	Reboot of the product in 24 hours (1440 minutes)

2.3.9 Set time (0x49)

This frame (0x49) allows you to set the time of the device.

Offset (in byte)	Data	Description
0	0x49	Frame code
1-4	Date / time	Date / time to set (EPOCH2013 format). Date / time is valid from 2020/01/01 00:00:00 to 2089/12/31 23:59:59 Use 0xFFFFFFFF value to not change current time.
5	Clock drift compensation	Compensation of the clock drift (in tenth of seconds per day). Valid values are from -100 to 100 (-10.0 to 10.0 seconds per day). Use 0x80 value to not change current drift compensation.

Following the sending of the downlink 0x49, an uplink ACK (0x2F) is sent.

Coding example:

Offset (in byte)	Data	Description
0	0x49	Frame code
1-4	0x0E38F5AC	2020-07-24 17:38:52
5	0xDD	Clock drift compensation of -3.5 seconds per day