

Manual Sigfox Downlink



PRODUCT REFERENCES		
HC-DIG-SIG-Z1-W-B	HC-DIG-SIG-Z2-W-B	HC-DIG-SIG-Z4-W-B
HC-DIG-SIG-Z1-F-B	HC-DIG-SIG-Z2-F-B	HC-DIG-SIG-Z4-F-B
HC-DIG-SIG-Z1-W-TR	HC-DIG-SIG-Z2-W-TR	HC-DIG-SIG-Z4-W-TR
HC-DIG-SIG-Z1-F-TR	HC-DIG-SIG-Z2-F-TR	HC-DIG-SIG-Z4-F-TR
HC-ANA-SIG-Z1/2/4		

1. ACCESS TO SIGFOX BACKEND

1.1 Downlink mode activation

a. Configure the BIDIR mode in your Callback

The screenshot shows the Sigfox backend interface for editing a callback. The breadcrumb is "Device type InetCounters_Type1 - Callback edition". The "Callbacks" section contains the following fields:

- Type: **BIDIR** (circled in blue)
- Channel: URL
- Send duplicate:
- Custom payload config:
- URL syntax: `http://host/path?id={device}&time={time}&key1={var1}&key2={var2}...`
Available variables: device, time, duplicate, snr, station, data, avgSnr, lat, lng, rssi, seqNumber, ack, longPolling
Custom variables:
- Url pattern: `http://www.territorio.es:8082/CargaAutomaticaLecturas/CargaLecturasRedSIGFOX.ε`
- Use HTTP Method: GET
- Send SNI: (Server Name Indication) for SSL/TLS connections
- Headers: header value

Buttons: Ok, Cancel

b. Downlink mode activation

The screenshot shows the Sigfox backend interface for the "Callbacks" list of "Device type 'InetCounters_Type1'". The page title is "Device type 'InetCounters_Type1' - Callbacks" with a "New" button. Below the title, there is explanatory text: "These callbacks transfer data received from the devices associated to this device type to your infrastructure. For more informations, please refer to the Callback documentation".

The "DATA callbacks" table has the following columns: Downlink, Enable, Channel, Subtype, Duplicate, Batch, Information, Edit, Errors, Delete.

Downlink	Enable	Channel	Subtype	Duplicate	Batch	Information	Edit	Errors	Delete
<input checked="" type="checkbox"/> (circled in blue)	<input checked="" type="checkbox"/>		BIDIR	<input type="checkbox"/>	<input type="checkbox"/>	[GET] http://www.territorio.es:8082/CargaAutomaticaLecturas/CargaLecturasRedSIGFOX.aspx?id={de...			

1.2. Access to downlink configuration

a. Enter into the device type you desire to configure by the Downlink mode and press Edit.

The screenshot shows the Sigfox backend interface. The browser address bar displays `https://backend.sigfox.com/devicetype/563a2c439336a577179c2bb4/info`. The page title is "Device type 'INETCounters_Dispositivo Test' - Information". The left sidebar contains navigation options: INFORMATION, LOCATION, ASSOCIATED DEVICES, DEVICES BEING TRANSFERRED, STATISTICS, EVENT CONFIGURATION, CALLBACKS, and BULK CREATIONS. The main content area displays the following information:

- Id: 563a2c439336a577179c2bb4
- Name: INETCounters_Dispositivo Test
- Description: Módulos adquiridos para la realización de pruebas
- Keep alive: N/A
- Group: Inet Counters
- Payload display: None
- Contract: KeyAPPS_Demos Ampliación 2017-2018
- Alert Email: info@inetcounters.com
- Creation date: 2015-11-04 16:03:15
- Created by: Esteve Sanchez
- Last edition date: 2017-07-11 11:22:06
- Last edited by: Javier DE LA CAL

At the top right of the main content area, there are three buttons: "Disengage sequence number", "Edit", and "Delete". The "Edit" button is circled in blue.

The screenshot shows the Sigfox backend interface in edit mode. The browser address bar displays `https://backend.sigfox.com/devicetype/563a2c439336a577179c2bb4/edit`. The page title is "Device type INETCounters_Dispositivo Test - Edition". The left sidebar is the same as in the previous screenshot. The main content area displays the following configuration options:

- Keep-alive (in minutes):
- Alert email:
- Downlink data:
- Downlink mode:

Below the configuration options, there is a section titled "Downlink Data" with the following text:

You can enter a configuration to define custom variables that will be replaced by the parsed data. You can then use these variables to generate the downlink data to be sent to the device asking for acknowledgment. The downlink data must be 8 bytes in hexadecimal format.

Variables available for the downlink are:

- time (int): the event timestamp (in seconds since the Unix Epoch <=> 4 bytes). If the device is in roaming the timestamp is approximative and you can configure custom variable *roaming* to identify if it's the case.
- tapid (int): the base station identifier (integer value <=> 4 bytes)
- rssi (int): the RSSI (in dBm <=> 2 bytes). If there is no data to be returned, then the value is equal to 2 bytes at 0.
- roaming (boolean): true if the device is roaming.

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b. Select DIRECT if you wish sending the data from the Sigfox backend or CALLBACK if you will send the commands from your platform or server.



2. COMMANDS

2.1 Commands structure

	8 BYTES							
	BYTE 1	BYTE 2	BYTE 3	BYTE 4	BYTE 5	BYTE 6	BYTE 7	BYTE 8
No configuration	00	-	-	-	-	-	-	-
Date and Time Change	01	Seconds	Minutes	Hour	Day	Week day	Month	Year
Alarm change	02	type	min/period**	Hour*	sec_current	min_current	hour_current	-
Device configuration	03	power_save	inputs (1-3)	type_CN1(5-8)	type_CN2(5-8)	type_CN2(5-8)	-	-
Change CN1	11	XX	XX	XX	XX	-	-	-
Change CN2	12	XX	XX	XX	XX	-	-	-
Change CN3	13	XX	XX	XX	XX	-	-	-

Type	01	Periodical Hours	Power_save	00	Deactivated
	02	Daily		01	Activated
	03	Periodical Minutes			
			Inputs	01	1 input
				02	2 inputs
Type_CNx	05	5 digits		03	3 inputs
	06	6 digits			
	07	7 digits			
	08	8 digits			

2.2 Data format

- Time and Date: Numerical character 0-9.
- Periods: Hexadecimal character 00-FF. For example 27 min -> 1B (hex) min.
- Configuration bytes: Numerical character 0-9
- Meter values: Hexadecimal character 00000000 - 5F5E0FF (HEX) (00000000 – 99999999 (Dec))

2.3 Samples

0130151016020517	Time: 10:15:30, Date: Tuesday 16/05/17
0202171000161000	Alarm: (1)daily 10:17:00 Current time: 10:16:00
0203100000151200	Alarm: (3)periodical minutes Every 16 min Current time: 12:15:00
0201050000321900	Alarm: (2)periodical hours Every 5 h. Current time: 19:32:00
0301000000000000	Activation Power Save
0300000000000000	Deactivation Power Save
0300030807050000	Power Save:0, Inputs:3, type_CN1:8, type_CN2:7, type_CN3:5
11057581BD000000	Meter 1 Value: 057581BD 91587005
1200134FA0000000	Meter 2 Value: 00134FA0 01265568
1300000153000000	Meter 3 Value: 00000153 00000339



3. ACTIVATION OF THE DOWNLINK MODE IN THE DEVICES HC-DIG-SIG-Zx

In order for the device to receive commands via Downlink, please, check the Installation manual HC-DIG.

If you have any doubts or concerns regarding this manual, please contact HC TECHNOLOGIES using the following procedures:

Web: www.hc-technologies.com

E-mail: info@hc-technologies.com

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