Smartwater Error Codes

Code	Description	Action
02	Battery Empty	Replace Battery
03	No Pulses	No water flow recorded, meter is stuck or pulse sensor is faulty for more than a certain number of days. Self Resetting with pulses received.
11	Eeprom Memory Failure	Failed read/write to Eeprom
13	Flash memory CRC Error	Self Resetting or Replace Device
15	RTC Failure	Self Resetting or Replace Device
16	Crystal Failure	Power On
20	No Modem Response	Replace Device
21	Invalid Modem Response	Self Resetting or Replace Device

Replace the batteries using 2 x Size AA Alkaline batteries.

Slide lid down

Fit new batteries. Note polarity.

Slide lid back to close

Notes

Ver. 2

SMARTWATER CIU REFERENCE GUIDE

The Smartwater CIU (Customer Interface Unit) is a handy programmer to configure and install the Smartwater AMR devices. The CIU communicates with the Smartwater device via Infra Red port located on top of the device. A set of Short Codes are available to perform tasks.

Short Codes

Code	Description	Result on CIU
0#	View CIU Battery Voltage	2.1 to 2.60 (Low <2.1V Empty: < 2.0V)
1#	View Device Serial Number	33 xxxx xxxx x
2#	View Totalizer	xxxxx.xxx m^3
3#	Set Totalizer in Litres	xxxxxx Litres
4#	Set totalizer in Cubic Meters (m^3)	xxxxxx m^3
5#	View Group Code	000000 – 999999
6#	View Error Code	See "**Smartwater Error Codes**"
7#	View Device Battery Voltage	3.3 to 3.77 (Low <3.3V Empty <3.0V)
8#	View Uplink Profile	Daily/hourly hh(hour)-mm(minute)
9#	View Device Firmware Version	Vxx-xx Rel xx
11#	View Days without Pulse threshold	xx days
12#	View Leak Threshold	xx Litres/hour
13#	View Clock on Device	hh-mm yyyy
14#	View Nr of Counters	Cntr- x (4,5,6 or 7 m^3)
15#	View Primary Water Factor	xx Liters/Pulse
16#	View Secondary Water Factor	xx Liters/Pulse
17#	View Burst Pipe Profile	xx m^3 xx hours
18#	View High use Profile	xx% xx days
19#	View Cycle Start	Day of the month (Default 1st day)
20#	Activate Device	Success
21#	Set Days without Pulse threshold	xx Days (1-255, 30 default)
22#	Set Leak Threshold	Xx Litres/hour (1 to 65535, default 1)
23#	Set Device Clock	ddmmyy hh-mm
24#	Set Nr. of Counters (m^3 only)	4,5,6 or 7

25#	Set Primary Water Factor	05,1,2,5,10,20,100,1000
26#	Set Secondary Water Factor (Bulk only)	05,1,2,5,10,20,100,1000
27#	Set Burst Profile	Volume xx m^3 Hours xx h ($2m^3$, 2 hours)
28#	Set High use Profile	Level xx% days xx (50%, 1 day)
29#	Set Cycle Start Day	Day of the month (Default 1st day)
30#	Reset Tamper Condition	Success
31#	Reset Error Code	Success
34#	Reset Configuration Profile (Factory default)	Success
60#	Activate Device	Success
61#	View Device Id	Id xx xxxxxx
62#	View PAC	PAC xx xxxxxx
80#	View CIU Group Code	000000 – 999999
90#	View CIU Software Version	xx-xx rel xx

More detailed explanation on certain Short Codes.

Note: Any parameters entered must always be followed by the '#' key.

1# - Reads 11 digit **Device Serial Nr** same as printed on the device and starts with 33.....

2# - Display the electronic **Totalizer** of the device. Note the resolution of the totalizer depends on the Nr. of m^3 counters configured as well as the Water Factor. i.e. 10L/pulse.

3# - Set **Totalizer in Litres** to synchronize the mechanical and electronic readings. If the totalizer is less than 9999.999m^3 use this command to, else use the next command to set in Cubic Meters only.

4# - Set **Totalizer in Cubic Meters (m3)** to synchronize the mechanical and electronic readings for bulk meters, with higher totalizer readings. You will not be able to synchronize to the exact Litres.

5# - Each device has a preset **Group Code** from 000000 – 999999 that links the device to the company that installed or manages the installation. This code is also printer at the back of the device. Only Smartwater CIU's with matching Group Code may read and modify configuration on the device. Other device Group Code's are blocked.

8# - Uplink Profile indicates if the device sends daily or hourly packets and at which hour and minute of the day.

11# - The number of days allowed for not receiving pulses, before Error 3 is raised. See Error Codes for more.

12# - The Leak threshold, is the lowest volume in Litres/hour that will trigger a leak. Some bulk installations accepts small leak as normal, and should only trigger a leak condition on volume higher than the set threshold.

14# - Number of m^3 Counters indicates the number of digits/dials/number implemented to count only the Cubic Meters m^3, excluding the litres counters. For example 999999.9m3 has 6 counters. This determines the highest value in m^3 the totalizer can go before it roll over to 0. It also determines the lowest resolution that the electronic totalizer on the device measures. Many bulk meters does not go down to 1L but only 10L, 100L, or even 1m^3. See table:

Nr. of Counters	Mechanical totalizer	Device Resolution	Device totalizer
4	9999.999 m^3	1L or 0.001m^3	9999.999 m^3
5	99999.99x m^3*	1L or 0.001m^3	99999.999 m^3
6	999999.9xx m^3*	10L or 0.01m^3	999999.99 m^3
7	9999999.xxx m^3*	100L or 0.1m^3	9999999.9 m^3

* x means the digit may or may not be present on the meter. Resolution also depends on the Water Factor.

Note!!: 15mm and 20mm domestic meters are always programmed as 4.

15# / **16#** - **Primary** and **Secondary Water Factor** indicates the Litre/pulse ratio. Every pulse increments the electronic totalizer the volume in Litres. See Set Primary Water Factor below. Note!!: 05 indicates 0.5L/pulse, where 5 indicates 5L/pulse.

17# - View conditions under which a Burt Pipe notification is sent. For example: 2m^3 for 2 hours.

18# - View the conditions under which the High Use event is triggered. For example: Exceed by 50%, for 1 day or more.

19# - The starting date of a new monthly billing or consumption cycle. 1st indicates consumption is recorded form the 1stday of the month.

20# - See short code 60# below.

21# - Set the number of days allowed before Error 3 is raised. 1 to 255 days. Default 30.

22# - Set the minimum Litres/hour recording, that triggers are leak. A leak is defined if over a period of 24 hours, every hour recorded a flow of more than xx litres. (1 to 65535 litres/hour)

23# - Adjust the clock on the device, by entering the date in the format **ddmmyy** followed by # key. Then enter the time in format **hhmm** followed by # key.

24# - Set **Nr. of m3 counters** to 4,5,6 or 7 as in table **Number of m3 counters** table above.

25# / 26# - Set **Primary Water Factor or Secondary Water Factor** to match to the pulse/litre output of the water meter. For the Smart_Reed and Smart_HE devices, always set the secondary water factor. After entering the command, enter the volume, i.e. 10# for a 10L/pulse. Water Factor can be set for any ratio up to 65535Litres/pulse and is not limited to the table below.

Meter Pulse Output	Programmable setting
0.5L/pulse	05#
1 L/pulse	1#
5 L/pulse	5#
10 L/pulse	10#
100 L/pulse	100#
1kL/pulse	1000#

Note: For a water factor of 0.5L, enter the "0" in front of the 5, since you cannot type a "." dot point on the CIU.

27# - Set conditions under which a Burt Pipe notification is sent. Enter the Volume from 1 to 65536 m^3/hour. Secondly enter for how many hours this volume must be exceeded before the notification is sent. For example: 2m^3 for 2 hours. To disable this notification, enter volume of 0m^3, for 0 hours.

28# - Defines the conditions under which the High Use event is triggered. Enter the % level that must exceed the daily average. Secondly enter for how many days this volume must be exceeded before the event is triggered. For example: 50%, for 1 day. To disable this event trigger, enter volume of 0%, for 0 days.

29# - Set the day of the month that a cycle monthly consumption cycle starts. (1 to 28, Default 1)

34# - Reset Configuration Profile to default values. Cycle Start: 1st day, Number of day without pulse: 30 day, Burst pipe volume: 2kL for 2 hours. High Use: 50% for 1 day.

60# - **Activate Device** switches on the device radio to start transmitting. When the device leaves the factory, the radio is switched off. Once the radio is activated, daily or hourly data packets are being sent, and the owner of the device is being billed monthly for the service.

A device is factory pre-programmed to transmit daily or hourly as a fixed time of the day or hour. Changing from daily to hourly involves changing network contracts, and therefore cannot be performed in the field.

61# - The Device Id, is the unique address of the Radio, and is different to the serial number.

62# - The PAC is the encryption string, and is defined by the radio manufacturer.

80# - The CIU only functions on devices with similar Group Code printed on a sticker on the device.

CIU Messages

Description	Action
No Unit	No response from the Device.
No Code	Short Code not implemented on CIU.
Success	Command executed successfully.
Stored	New parameters stored successfully.
Invalid	Short Code not implemented on Device.
CRC Err	Invalid Group Code. CIU and Device Group Code must match.
Reject	Command was rejected.
Failed xx	Unidentified Failure
Error xx	Internal Error Code