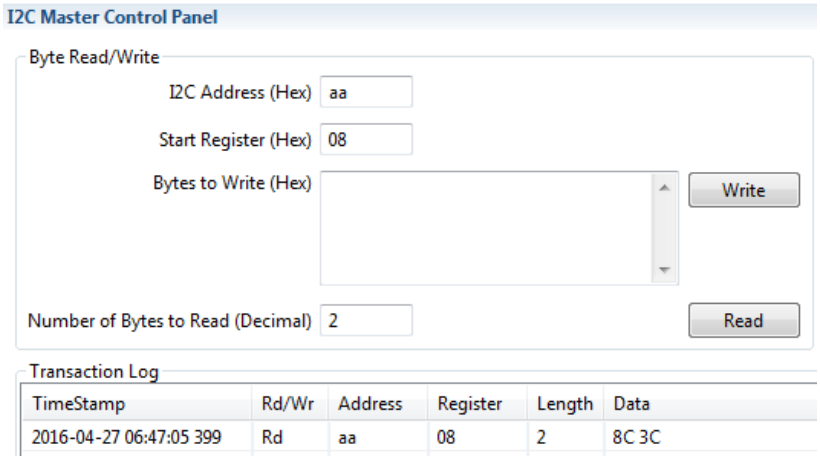
Standard I2C Commands

We will use the Voltage as an example. Its command code is 08/09.

Use the I2C Master Control Panel section to read the flash.

Start Register 08, Number of Bytes to Read 2



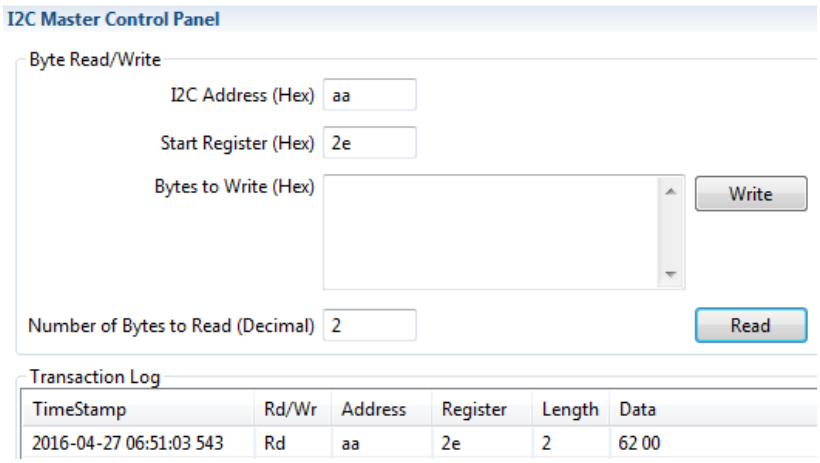
This is the data that is returned. You have to byte swap it and convert it to decimal. 3C8C is 15500mV.

Extended I2C Commands

Just read these like Standard Commands. We will use the State-of-Health as an example. Its command code is 2e/2f.

Use the I2C Master Control Panel section to read the flash.

Start Register 2e, Number of Bytes to Read 2



This is the data that is returned. You have to byte swap it and convert it to decimal. 0062 is 98% SOH.

Control Subcommands

Example 1:

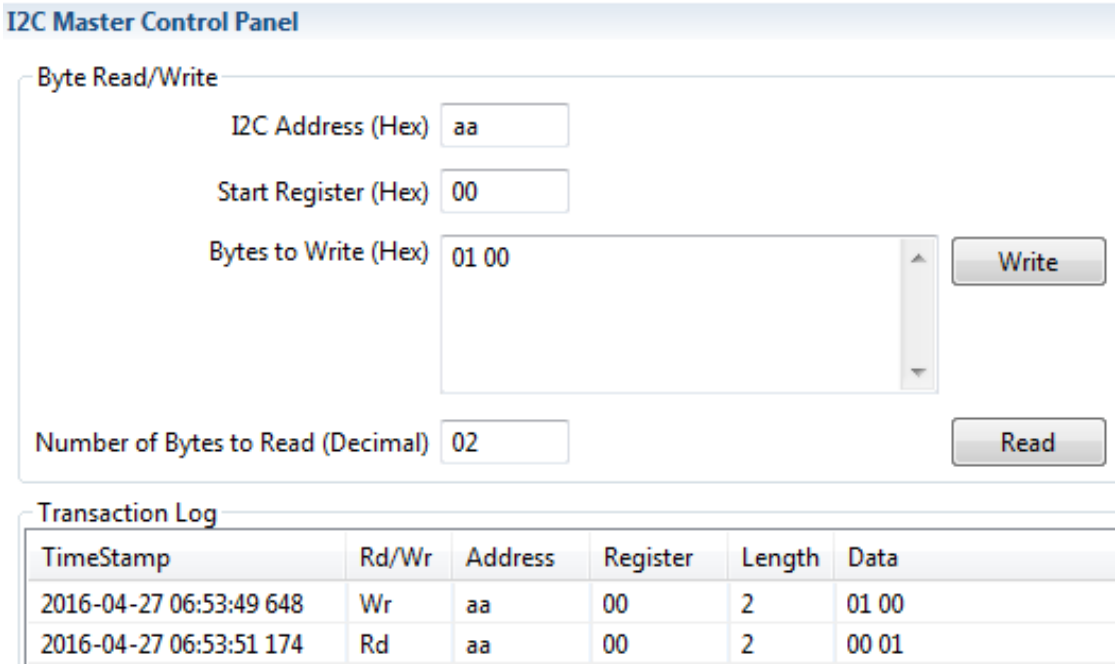
DEVICE_TYPE Control() Subcommand 0001 and the correct answer is 0100 for the bq34z100-G1.

Use the I2C Master Control Panel section to read the flash.

Enter Start Register 00, Bytes to Write 0100 press “Write” button
(The scope waveforms occur in this order. AA, 00, 01, 00)

Enter Start Register 00, Number of Bytes to Read 2 press “Read” button
(The scope waveforms occur in this order. AA, 00, AB, 00, 01)

The GUI returns 0001, which is Little Endian for 0100. This is the DEVICE_TYPE for the bq34z100-G1.



Example 2:

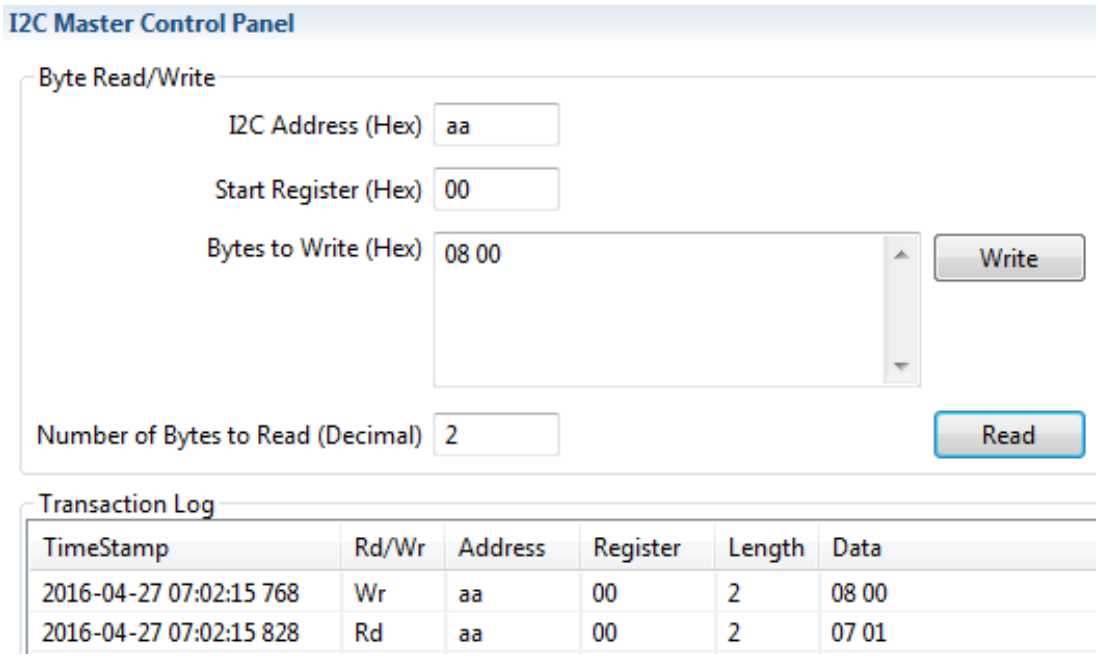
CHEM_ID Control() Subcommand 0008 and the correct answer is 0107 for the bq34z100-G1.

Use the I2C Master Control Panel section to read the flash.

Enter Start Register 00, Bytes to Write 0800 press “Write” button
(The scope waveforms occur in this order. AA, 00, 08, 00)

Enter Start Register 00, Number of Bytes to Read 2 press “Read” button
(The scope waveforms occur in this order. AA, 00, AB, 07, 01)

The GUI returns 0701, which is Little Endian for 0107. This is the default CHEM_ID for the bq34z100-G1.



Data Flash Access

Example 1:

Find the SubClass and Offset for the data that you want to read. We will use Serial Number for this example. SubClass 48, Offset 04 and it occupies 2 bytes.

Convert the SubClass HEX. 48 = 30H

Use the I2C Master Control Panel section to read the flash.

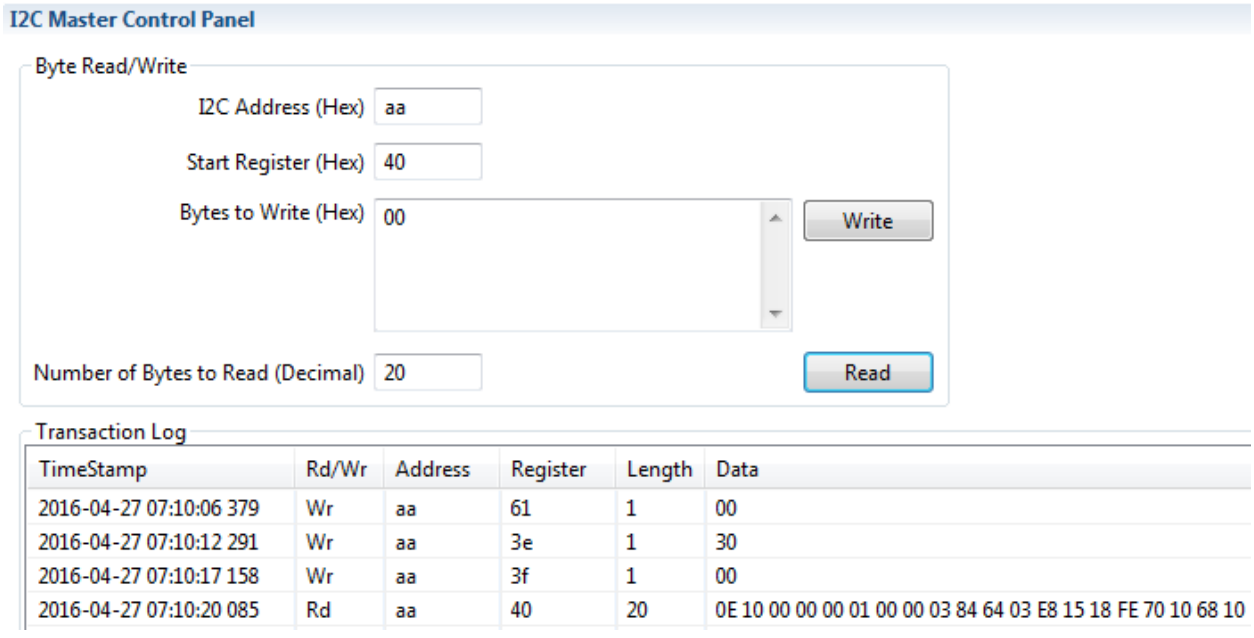
Start Register 61, Bytes to Write 00 (Enable Flash x'fer command)

Start Register 3E, Bytes to Write 30 (SubClass address)

Start Register 3F, Bytes to Write 00 (Enable General Purpose Block)

Start Register 40, Number of Bytes to Read 20

This is the data that was returned. The Serial number starts in the 5th byte. (0 is the first byte) The Serial Number is 0001 in this example.



To read offset greater than 31, you will have to go to the next page.

e.g. I2C Command 3F, Byte 01

Example 2:

Find the SubClass and Offset for the data that you want to read. We will use Device Chemistry for this example. SubClass 30, Offset 55 and it occupies 5 bytes. The Offset exceeds 32 bytes, so we will read the data from the 2nd page of the SubClass. The Device Chemistry will be located in bytes 24-29 of the 2nd page. The first byte is the number of bytes in the string.

Convert the SubClass HEX. 48 = 30H

Use the I2C Master Control Panel section to read the flash.

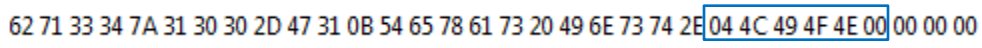
Start Register 61, Bytes to Write 00 (Enable Flash x'fer command)

Start Register 3E, Bytes to Write 30 (SubClass address)

Start Register 3F, Bytes to Write 01 (Enable General Purpose Block, 2nd page)

Start Register 40, Number of Bytes to Read 32

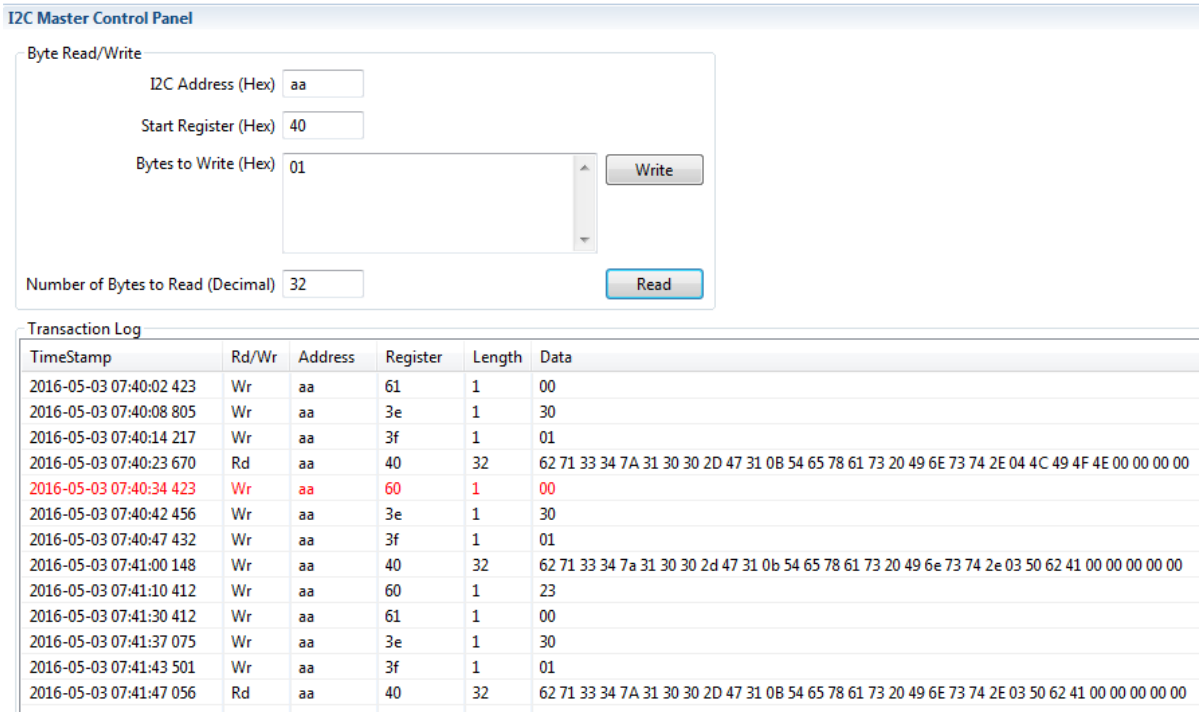
This is the data that was returned. The Device Chemistry starts in the 24th byte. (0 is the first byte) The 04 is the number of bytes currently load and 4C 49 4F 4E are ASCII for LION



We want to change LION to PbA and PbA is 50 62 41 in ASCII. The new string will be: 62 71 33 34 7a 31 30 30 2d 47 31 0b 54 65 78 61 73 20 49 6e 73 74 2e 03 50 62 41 00 00 00 00 00

Where 03 is the number of bytes.

You will also have to calculate the checksum to enter. Add the 32 bytes of data in hexadecimal and inverse the bits on the last byte to find the checksum. The string adds up to 7DC. The inverse of the last byte is 23, so this will be entered with the 60 command. Here is the full process to read the initial data flash contents, enter the new data and read the data flash to verify that it is correct.


I2C Master Control Panel
Byte Read/Write
I2C Address (Hex)
aa
Start Register (Hex)
40
Bytes to Write (Hex)
01
Write
Number of Bytes to Read (Decimal)
32
Read
Transaction Log
TimeStamp
Rd/Wr
Address
Register
Length
Data
2016-05-03 07:40:02 423 Wr aa 61 1 00
2016-05-03 07:40:08 805 Wr aa 3e 1 30
2016-05-03 07:40:14 217 Wr aa 3f 1 01
2016-05-03 07:40:23 670 Rd aa 40 32 62 71 33 34 7A 31 30 30 2D 47 31 0B 54 65 78 61 73 20 49 6E 73 74 2E 04 4C 49 4F 4E 00 00 00 00
2016-05-03 07:40:34 423 Wr aa 60 1 00
2016-05-03 07:40:42 456 Wr aa 3e 1 30
2016-05-03 07:40:47 432 Wr aa 3f 1 01
2016-05-03 07:41:00 148 Wr aa 40 32 62 71 33 34 7a 31 30 30 2d 47 31 0b 54 65 78 61 73 20 49 6e 73 74 2e 03 50 62 41 00 00 00 00 00
2016-05-03 07:41:10 412 Wr aa 60 1 23
2016-05-03 07:41:30 412 Wr aa 61 1 00
2016-05-03 07:41:37 075 Wr aa 3e 1 30
2016-05-03 07:41:43 501 Wr aa 3f 1 01
2016-05-03 07:41:47 056 Rd aa 40 32 62 71 33 34 7A 31 30 30 2D 47 31 0B 54 65 78 61 73 20 49 6E 73 74 2E 03 50 62 41 00 00 00 00 00