# **Writing Data Flash**

#### Guide to write DF in bq78z100 and other flash based gauges

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### Writing to Dataflash

Wr(0x3e,target\_DF\_address,new\_data)

- Target\_DF\_address can be found in the TRM, sent in little endian.
- New\_data is the data you wish to upload to the DF location.

Wr(0x60,checksum,length)

- 0x60 is the checksum command, must be used to verify DF write and keep data.
- Checksum = 0xFF (target\_address + new\_data)
- Length = command\_size + data\_size + checksum\_size + length\_size

Procedure also works for multibyte updates.



## Writing to Dataflash

Example: write 0x05 to Manufacturer Info Block A01.

Sequence:

- Wr(0x3e,0x41,0x40,0x05)
- Wr(0x60,checksum,length)
- Checksum = 0xFF (0x41+0x40+0x05) = 0xFF 0x86 = 0x79
- Length = command size(=2) + data\_size(=1) + checksum\_size (=1) + length\_size (=1) = 0x05

Check data in the manufacturer info block:

- Wr(0x3e,0x41,0x40)
- Rd(0x3e, read 32bytes)



# **Example Single Write**

dvanced Co	mm	HDQ			Clear Log Save Log
DQ Master Cont	r <mark>ol P</mark> ar	nel			
Byte Read/Write-					
S	tart Re	gister (H	ex) 3e		
Ву	tes to	Write (H	ex) 41 4	10	Write
Number of Bytes Transaction Log	to Rea	d (Decim	al) 32		Read
Number of Bytes Transaction Log TimeStamp	to Read	d (Decim Addr	al) 32 Regi	Le	Read Data
Number of Bytes Transaction Log TimeStamp 2021-01-27 05:	to Read Rd Wr	d (Decim Addr N/A	al) 32 Regi 3e	Le 2	Read Data 41 40
Number of Bytes Transaction Log TimeStamp 2021-01-27 05: 2021-01-27 05:	to Read Rd Wr Rd	d (Decim Addr N/A N/A	Regi 3e 3e	Le 2 32	Read   Data   41 40   41 40   62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33
Number of Bytes Transaction Log TimeStamp 2021-01-27 05: 2021-01-27 05: 2021-01-27 05:	Rd Rd Wr Rd Wr	d (Decim Addr N/A N/A N/A	Regi 3e 3e 3e 3e	Le 2 32 3	Read   Data   41 40   41 40 01 62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33   41 40 05
Number of Bytes Transaction Log TimeStamp 2021-01-27 05: 2021-01-27 05: 2021-01-27 05:	Rd Rd Wr Rd Wr Wr	d (Decim Addr N/A N/A N/A N/A	Regi 3e 3e 3e 60	Le 2 32 3 2	Read   Data   41 40   41 40 01 62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33   41 40 05   79 05 Value changed in DF
Number of Bytes Transaction Log TimeStamp 2021-01-27 05: 2021-01-27 05: 2021-01-27 05: 2021-01-27 05:	Rd Wr Rd Wr Wr Wr Wr	d (Decim Addr N/A N/A N/A N/A N/A	Regi 3e 3e 3e 60 3e	Le 2 32 3 2 2 2	Read   Data   41 40   41 40   01 62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33   41 40 05   79 05 Value changed in DF   41 40

 Example implemented using advanced communication tab of bqStudio.

- Can be implemented with MCU following the same procedure.
- Example should also work with I2C.



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#### **Example Multi Write**

Advanced Cor	nm l	HDQ			🦉 🖬 📓 Clear Log Save Log Calcula
HDQ Master Contro	ol Par	nel			
Byte Read/Write					
Sta	art Reg	gister (H	ex) 3e		
Byt	es to	Write (H	ex) 41 4	40	Write
Number of Bytes to	o Read	d (Decim	nal) 32		Read
Transaction Log		1	1	1	
TimeStamp	Rd	Addr	Regi	Le	Data
2021-01-27 05:	Wr	N/A	3e	2	41 40
2021-01-27 05:	Rd	N/A	3e	32	41 40 01 62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33
2021-01-27 05:	Wr	N/A	3e	3	41 40 05
2021-01-27 05:	Wr	N/A	60	2	79 05
2021-01-27 05:	Wr	N/A	3e	2	41 40
2021-01-27 05:	Rd	N/A	3e	32	41 40 05 62 63 64 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33
2021-01-27 06:	Wr	N/A	3e	7	41 40 01 02 03 04 05
2021-01-27 06:	Wr	N/A	60	2	6F 09
2021-01-27 06:	Wr	N/A	3e	2	41 40
2021-01-27 06:	Rd	N/A	3e	32	41 40 01 02 03 04 05 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 7A 78 79 30 31 32 33

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#### **Useful Links**

- E2E thread with helpful instructions
- <u>https://e2e.ti.com/support/power-management/f/196/t/632332?BQ28Z610-I-can-t-write-Data-Flash</u>
- TRM for data flash locations 15.1 data flash table
- <u>https://www.ti.com/lit/ug/sluub63a/sluub63a.pdf?ts=1611767700105&ref\_url=htt</u> ps%253A%252F%252Fwww.ti.com%252Fproduct%252FBQ78Z100

