dsPIC33C DUAL ACTIVE BRIDGE DEVELOPMENT BOARD: CAN data structure

Data from dsPIC33CK to PC / Power Board Visualizer

The dsPIC33CK will send a 64 byte CAN frame to the PC periodically. The data contained in each byte is shown in Table 1. CAN ID 0x404 is used.

Table 1: CAN frame data bytes from dsPIC to PC

16-bit word	Description	notes	scaling for LV hardware	Display Units
0	State	See Table 2		
1	Status Flag	See Table 3		
2	Primary Voltage		0.2229	V
3	Secondary Voltage		0.253353	
4	Primary Current		0.009765625	A
5	Secondary Current (CT)		0.012207	A
6	Secondary Current (Current Sensor)		0.032227	A
7	Temperature		1	˚C
8	5V rail		0.001611328	V
9	Primary to Secondary Phase		0.1	Degrees (˚)
10	Not used			
11	Not used			
12	Switching Period		0.00025	us
13	Switching Period Target		0.00025	us
14	Power		1	W

Table 2 shows the state/value relationship for the DAB state machine bytes.

Table 2: state/value relationship for PFC controller state word

values	state
1	PCS_INIT
2	PCS_WAIT_IF_FAULT_ACTIVE
4	PCS_STANDBY
8	PCS_SOFT_START
16	PCS_UP_AND_RUNNING

Table 3 shows the bits in the “Status flags” word.

Table 3: bits in the "Vac status" word

bit	Description
0	Enabled
1	Running
2	Fault Active
3	Primary OVP
4	Not used

5	Secondary OVP
6	Not Used
7	Primary OCP
8	Secondary OCP
9	Current SCP
10	Temperature OTP
11	5V rail UVP
12	Not used
13	Not used
14	Not used
15	Not used

Data from PC/Power Board Visualizer to dsPIC33CK

- A button on PBV is required to turn / off the PFC.
- A slider on PBV is required to control the output voltage setpoint.

CAN ID 0x402 is used for both.

8 bytes are sent.

Buttons

Table 4: data sent when certain buttons are activated

Byte 1 Command	Byte 2	description
0x55	0x00	Stop PFC
0x55	0x01	Start PFC

Output Current Reference Slider

Table 5: data sent when Vout reference slider is activated

Byte 0 Command	Byte 1 Command	Byte 2	Byte 3	description
0xDD	0xDD	Iout ref, high byte	Iout ref, low byte	Set output current reference ADC scaling: 31.03

Output Voltage Reference Slider

Table 6: data sent when Vout reference slider is activated

Byte 0 Command	Byte 1 Command	Byte 2	Byte 3	description
0xDD	0xDE	Vout ref, high byte	Vout ref, low byte	Set output voltage reference ADC scaling: 3.947

Output Power Reference Slider

Table 7: data sent when Vout reference slider is activated

Byte 0 Command	Byte 1 Command	Byte 2	Byte 3	description
0xDD	0xDF	Pout ref, high byte	Pout ref, low byte	Set output power reference ADC scaling: 1