MERG Knowledgebase

# CANACE8C Kit 89 Firmware

## CBUS Software and Documentation

**Note** that this page provides information on the firmware supplied with the CANACE8C Kit 89. All other enhancements, alternative firmware PCBs etc. will be found at **CANACE8C Upgrades/enhancements.**

## Overview

The CANACE8C CBUS module converts logic signals into CBUS events.

## Hardware

MERG Kit 89 is available from the kitlocker [http://merg.org.uk/merg_kitlocker/section.php?id=6], either as a complete kit or just the PCB, Kit 989. [http://merg.org.uk/merg_kitlocker/section.php?id=25]

For further information see The Kit 89 page.

## Operations Guide (SLiM)

The CANACE8C module has a 6 way DIL switch and three additional jumpers. The 6 way switch has 4 bits (Sel 0 to Sel 3) which are used for setting the Node Number (in producer mode) and the usual learn and unlearn switches. The lower two jumpers extend the possible NN range to 64 being the high bits of the NN. (Jumper out is a logic 0). The selected NN should be unique for that module.

The DIL switch is also used when teaching the SoD event, the 'route' event and Device Numbers for short events. To teach the SoD event, set Sel 0 to Sel 3 all ON (mode 0000). Put the learn switch ON and send the SoD event. Take out of learn mode and reset the NN. For the route event set the Sel 0 switch OFF (mode 0001), the learn switch ON and send the route event. Again take out of learn and reset the NN.

To set the inputs to have Device Numbers, ie Short Events, a producer of short events is required with NN set to 00 00. This essentially requires use of a PC running the FCU. Although this can be done in SLiM as set out here it is simpler to use FLiM. SLiM mode is intended for use without a PC when the default Long Event numbers are used. To set the inputs to have Device Numbers, teach the DNs with Sel 3 set OFF. The remaining Sel 0 to Sel 2 are a binary sequence selecting which input the DN is to apply to. e.g.. for input 1 Sel is 1000, for input 8, Sel is 1111. These DNs must be taught with the event NN set to 00 00. The two LSbytes become the DN so subsequent changes of the inputs will send short events with the DN as the two LSbytes.

The remaining jumper can set whether a change sends ON events only or ON / OFF events. Jumper in sends ON only. This is useful if the inputs are connected to pushbuttons.

If teaching in SLiM mode, remember to note the NN on the switches / jumpers before teaching as this value must be restored afterwards.
Note: If the inputs have been given DNs, a change will always produce a short event. Also short responses will occur with a SoD event. The SoD event itself can be either short or long depending on what was taught. A 'route' response will always be a long event.

## Operations Guide (FLiM)

Each of the 8 inputs can be configured to generate a CBUS 'Event'. This may be a 'short' or a 'long' event, and can either be generated on each transition of the input, or just when the input is ON.

Each input may be inverted so that an ON event corresponds with an active high input.

For 'noisy' signals, each input may have a delay time for both ON→OFF and OFF→ON transitions. If this is used, the input needs to be stable for the configured time.

Each input can be configured to be in "Pushbutton Toggle Mode". In this mode, a single pushbutton on the input will generate alternate ON and OFF events.

On receipt of a "Start of Day" event, the module will send the current state of each input (except those in Pushbutton Toggle Mode, where a "Start of Day" just resets an internal flag so that the next state will be ON).

A CANACE8C in FLiM mode would normally be configured with the FlimConfig utility.

## Firmware Options

The CANACE8C firmware is the standard firmware for this board.

## Firmware Releases

#### Current Firmware

The latest firmware release is Version '2q', 24-Dec-16

This archive contains source and hex files for CANACE8C, CANTOTI and CANACE8MIO builds. For details of CANTOTI and CANACE8MIO see the option and enhancement page.

- Note for developers: The common include and assembler files required to build this firmware may be found here: CBUS include and header files

FlimConfig Utility V1.4.7.19 or later is needed to configure the firmware.

Major Changes from v2n:

- Fixed an interrupt race condition with some fast changing inputs.
- Fixed a few minor bugs with Route logic
- Rewritten output routines to correct ONONLY oddities

Additional Features when used with CANMIO hardware:

- Add support for 8 additional inputs via the expansion connector.
- Support for SLiM, see the CANMIO page for more details.

#### Beta Firmware

None

#### Older Released Firmware

- Version '2n', 17-Jun-14. Major Changes from v2k:
  - Added “Inhibit SOD” flag for each input.
  - If an input is configured as ON ONLY, a SOD won't be sent if the input is OFF.
  - Bus events are now monitored to keep push button toggle inputs in step.
  - Input changes will not produce any events until 2000mS after power up.
  - Added improved 'Route Event on input change' configuration options.
- Version '2k'
  Note that a bug has been discovered in v2k that causes spurious events to be generated at power up. This can affect CANCMD operation. Either use v2j or current code.
- Versions '2l' and '2m' were never released
- Version '2j'
- Version '2h'
- Version '2g'
- Version 'x'
- Version 'w'
- Version 's'
- Version 'p'

**Older Beta Firmware**

- CANACE8c & CANACE8MIO Version 2q BETA 1
- Version '2pBeta3', 9-Dec-16
- Version '2pBeta1', 25-Sep-14
- Version '2pBeta100', 6-Nov-14
- canace8c_v4f_beta101.zip

# Lead Developer

The original development of the CANACE8C was done by Mike Bolton and Gil Fuchs.
This project is currently coordinated by *Phil Wheeler [http://www.merg.org.uk/forum/memberlist.php?mode=viewprofile&u=2000]*

# Developer Information

See CANACE8C Developer Information page.

# Further Information

## CBUS Overview

CBUS Overview [http://www.merg.org.uk/merg_resources/cbus.php]

## CBUS Modules Guide

CBUS Modules Guide

## CBUS Developers' Guide

CANACE8C Developer Information
CBUS Developers' Guide Further information for developers.

## FLiM Configuration Utility

FlimConfig Utility

## CBUS Tester

CBUS Tester

kits, cbus, software

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