BSM II

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Application note A43Z090100-a

BSM II / GENSYS

A43Z090100a.doc

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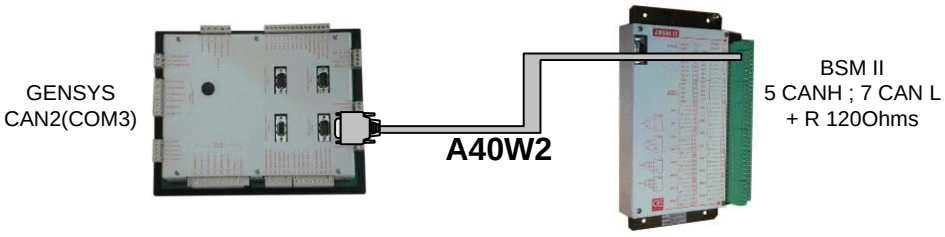
Schematic



Note 1: Corde A40W2 (CRE product) is recommended to connect BSM II to GENSYS. Connect “CAN H” (terminal 5) of BSM II to Blue/white stripe wire and connect “CAN L“ (terminal 7) of BSM II to White/Blue stripe wire.

Note 2: If BSM II is the end of the CAN bus, add one 120Ω resistance in parallel of terminals 5 and 7.

Configuration

The communication between GENSYS and BSM II uses CANopen protocol. BSM II is a slave and GENSYS is a master.
BSM II can communicate with a second BSM II.
GENSYS can be connected to several devices by its COM3: BSM II (Max 2), Wago© coupler (Max 32).
Only one of the two BSM II must be set to archive data from GENSYS (limited by the number of message send from GENSYS).

Standard procedure

This procedure allows you to archive most of significant variables of your application when an alarm occurs.
See also the application note “A40Z090211A” to configure GENSYS.

1- Download the text file (level 1 equation) “Z090211a_1.txt” to the GENSYS.
2- Download the text file (level 1 equation) “A43Z090100a_1.txt” to the BSM II.
3- Archiving data begins immediately.
4- Variables are stored in the BSM II when an alarm occurs :
    a. 1 sample per second
    b. 5 samples before the alarm
    c. 5 samples after the alarm
5- Get back archives from the BSM II:
    a. Connect BSM II to a PC
    b. Go in menu : Display / Archiving data /
    c. Click on EVN1_File.txt, …, EVN5_File.txt to download them to the PC.

Note 1: in this configuration, the BSM II node ID is equal to 1. Be careful that any other device on the CAN bus has the same node ID.

Custom procedure

This procedure shows you how to custom equations to send your own variables to the BSM II.

1- Download the text file (level 1 equation) “Z090211a_1.txt” to the GENSYS.
2- Download the text file (level 1 equation) “A43Z090100a_1.txt” to the BSM II.
3- Custom: see notes below.

Note1: Change the Node ID of BSM II

To change the Node ID of the BSM II:

a. Go in CANopen configuration menu: configuration / CANopen settings /
b. Change “My Node ID”. Range 1 to 127

See GENSYS application note “Z090211x” to set the new node ID of the BSM II.

Note2: Send input message to GENSYS
BSM II can only send to GENSYS its inputs:

a. 10 digital inputs,
b. 16 analog inputs,
c. analog input 17 equals LM35 sensor measurement,
d. analog input 18 equals pickup measurement.

Var Num	Value (dec)	Name	Min	Max
V3187	1296	TxPDO3 var1	+00000	+65535
V3188	25601	TxPDO3 V1 H	+00000	+65535

Note 3: Receipt Analogue Outputs from GENSYS
All variables are transferred as analogue outputs from GENSYS to BSM II.

N° message	Analogue output	BSM II Variable
RxPDO1	AO1 → AO4	E0130 → E0133
RxPDO2	AO5 → AO8	E0134 → E0137
RxPDO3	AO9 → AO12	E0138 → E0141
RxPDO4	AO13 → AO16	E0142 → E0145
RxPDO5	AO17 → AO20	E0146 → E0149
RxPDO6	AO21 → AO24	E0150 → E0153
RxPDO7	AO25 → AO28	E0154 → E0157

Note 4: Find Digital Outputs from a summary in a variable
15 digital variables can be sum up in one analogue output. Each bit of the AO is equal to a digital variable.

N.B. in PLC equation, variables are considered as signed integer. That means bit 31 is the sign and this bit cannot be used.

Example: Find Digital Output in AO8, position bit 1.
Write the equation below in level 1:

```
@Copy AO8 in a temp variable E2150
E2150:=E0201;
@Test bit15 (sign bit);
TEST E2150 LT 0 THEN E2150:=-E2150 TEND;
@Reset bit up to bit1;
TEST (X2150 - 16384) GE 0 THEN E2150:= X2150 - 16384 TEND;
TEST (X2150 -  8192) GE 0 THEN E2150:= X2150 -  8192 TEND;
TEST (X2150 -  4096) GE 0 THEN E2150:= X2150 -  4096 TEND;
TEST (X2150 -  2048) GE 0 THEN E2150:= X2150 -  2048 TEND;
TEST (X2150 -  1024) GE 0 THEN E2150:= X2150 -  1024 TEND;
TEST (X2150 -   512) GE 0 THEN E2150:= X2150 -   512 TEND;
TEST (X2150 -   256) GE 0 THEN E2150:= X2150 -   256 TEND;
TEST (X2150 -   128) GE 0 THEN E2150:= X2150 -   128 TEND;
TEST (X2150 -    64) GE 0 THEN E2150:= X2150 -    64 TEND;
TEST (X2150 -    32) GE 0 THEN E2150:= X2150 -    32 TEND;
TEST (X2150 -    16) GE 0 THEN E2150:= X2150 -    16 TEND;
```

```
TEST (X2150 -     8) GE 0 THEN E2150:= X2150 -     8 TEND;
TEST (X2150 -     4) GE 0 THEN E2150:= X2150 -     4 TEND;
@test bit1, put bit1 value in var E2021 (virtual input 1);
TEST (X2150 -     2) GE 0
                        THEN
                                    BLOC
                                          E2021:=1;
                                          E2150:= X2150 - 2
                                    BEND
                        ELSE  E2021:=0
                        TEND;
@test bit0, put bit0 value in var E2022 (virtual input 2);
TEST X2150 EQ 1 THEN    E2022:=1
                        ELSE  E2022:=0
                        TEND
```

Note5: Digital Outputs of BSMII
The variable E2301 "DO summary" represents a block of 6 Digital Outputs.

That variable can be used by a master (GENSYS for example) with messages SDO and PDO, to modify Digital outputs value.

Either that variable CANNOT be used in PLC equations. Any modification of E2301 in PLC equation is considered.