G3 CAN bus configuration guide (v1.0)

Revision log:

Filename : iotasset.txt
Location : \user

A. Introduction

This file 'iotasset.txt' contains the assets configuration that is read by the CAN bus BOT program when it starts up.

B. IOT asset 'KEY,VALUE' general format

Each IOT asset is setup using a BLOCK of 'key, value' pairs (CSV format).
There are four (4) default key names that must be present for each IOT asset.
These default key names are reserved and cannot be used for custom key names.

CAN BUS

Default key	Description
TYPE	To define the type of CAN bus protocol
CANID	To define the CAN bus message ID filter
CANMASK	To define the CAN bus message ID mask
CANDATA	To define the CAN bus data position and data format setting

Customer can add-on their custom key but limited to a maximum of eight (8) unique custom key only. This means a maximum of 12 keys per asset (ie 4 default keys + 8 custom keys).
Each asset must be setup using the same set of unique custom keys.
Space char will be automatically removed, empty line will also be ignored.
Backslash(\) and double inverted commas(") chars cannot be used in 'key, value' setup.

CAN bus asset blocks must start and end with CAN_START marker and CAN_STOP marker respectively. It is possible to have more than one set of block marker in the iotasset.txt file.

C. IOT asset 'KEY,VALUE' setup information

TYPE,m

Argument	Value	Description
m	C	CAN 2.0A(standard), CAN 2.0B(extended)

CANID,n

Argument	Value	Description
n	000-7FF (3 hex chars)	11-bit message ID for CAN 2.0A (standard)
	00000000-1FFFFFFF (8 hex chars)	29-bit message ID for CAN 2.0B (extended)

CANMASK,s

Argument	Value	Description
s	000-7FF (3 hex chars)	Filter matches when (Received_CANID & CANMASK)==(CANID & CANMASK)
	00000000-1FFFFFFF (8 hex chars)	Filter matches when (Received_CANID & CANMASK)==(CANID & CANMASK)

CANDATA,t,u,v,x,y

Argument	Value	Description
t	CAN data offset	Number of data byte offset (decimal)
u	CAN data length	Number of data byte length (decimal)
v	[Data Type]	Data type as converted from CAN bus raw data
x *	INTEGER value multiplier	Value = Value*Multiplier + Adder (decimal)
y *	INTEGER value adder	Value = Value*Multiplier + Adder (decimal)

*optional for DATA TYPE INTEGER only, requires both arguments x, y when applied.

<DATA TYPE BOOLEAN>

v [Data Type]	u [Data Length]	Description
BOOL	1	Boolean value, ie 0 or 1

<DATA TYPE INTEGER>

v [Data Type]	u [Data Length]	Description
UINT8	1	8-bit data to 8-bit unsigned integer
SINT8		8-bit data to 8-bit signed integer
UINT16HL	2	8-bit data pair to 16-bit unsigned integer, big endian
UINT16LH		8-bit data pair to 16-bit unsigned integer, little endian
SINT16HL		8-bit data pair to 16-bit signed integer, big endian
SINT16LH		8-bit data pair to 16-bit signed integer, little endian
UINT32HLhl	4	8-bit data quad to 32-bit unsigned integer, big endian
UINT32hlHL		8-bit data quad to 32-bit unsigned integer, Word – little endian, Byte – big endian
UINT32LHlh		8-bit data quad to 32-bit unsigned integer, Word – big endian, Byte – little endian
UINT32lhLH		8-bit data quad to 32-bit unsigned integer, little endian
SINT32HLhl		8-bit data quad to 32-bit signed integer, big endian
SINT32hlHL		8-bit data quad to 32-bit signed integer, Word – little endian, Byte – big endian
SINT32LHlh		8-bit data quad to 32-bit signed integer, Word – big endian, Byte – little endian
SINT32lhLH		8-bit data quad to 32-bit signed integer, little endian

<DATA TYPE STRING>

v [Data Type]	u [Data Length]	Description
STRING8	8	Set of eight 8-bit data to 8 ASCII characters (abcdefgh)
STRING8R		Set of eight 8-bit data to 8 ASCII characters, reversed (hgfedcba)
STRING4	4	Set of four 8-bit data to 4 ASCII characters (abcd)
STRING4R		Set of four 8-bit data to 4 ASCII characters, reversed (dcba)

<DATA TYPE FLOAT>

v [Data Type]	u [Data Length]	Description
FLOAT32ABCD	4	Set of four 8-bit data to single precision (32-bit) floating point number. Byte orientation=ABCD,DCBA,BADC,CDAB A,B,C,D=canbyte1,canbyte2,canbyte3,canbyte4
FLOAT32DCBA		
FLOAT32BADC		
FLOAT32CDAB		

D. Example setup IOT asset

CAN_START

TYPE,C
CANID,5A0
CANMASK,7FF
CANDATA,1,2,UINT16HL,0.5,-2

Default keys: Type=CAN bus,
ID=0x5A0, Mask=0x7FF,
DATA offset=1, length=2,
data type=UINT16HL
multiplier=0.5, adder=-2 (optional)
>ID & Mask = 0x5A0
>Receives message ID = 0x5A0

Site,APC
Grp,PMS
Unit,AMP
Key,LightSensor

Custom keys: Can be setup by user.
Maximum custom keys=8

TYPE,C
CANID,280
CANMASK,280
CANDATA,4,2,UINT16HL
Site,APC
Grp,PMS
Unit,AMP
Key,RPM

ID=0x280, Mask=0x280
ID & Mask = 0x280
Receives message ID = 0x280 to 0x28F

TYPE,C
CANID,10000A30
CANMASK,1FFFFFFF
CANDATA,0,4,UINT32HLhl
Site,APC
Grp,PMS
Unit,AMP
Key,Temperature

ID=0x10000A30,
Mask=0x1FFFFFFF
ID & Mask = 0x10000A30
Receives message ID = 0x10000A30

CAN_STOP

E. Method to download ‘iotasset.txt’ file to G3

Save the file inside \user folder of a USB drive labelled ‘FATBOX’.
Plug in the USB drive and click the ‘Download to FATBOX’ button in the ‘Management’ tab of web configuration.

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