HAPCAN
HOME AUTOMATION

RS232C INTERFACE FIRMWARE
UNIV 3.101.0.0

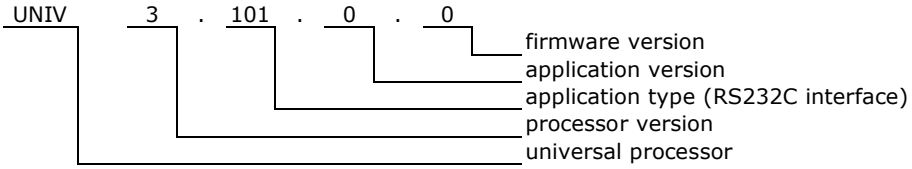
1. Features

- Firmware for RS232C Interface UNIV 3.101.0.x.
- The module is transparent for all messages transmitted from the bus to the serial port and vice versa.
- Serial port frames are encapsulated using start, stop and checksum bytes
- Transmit (42 messages) and receiving (42 messages) FIFO buffer

2. Compatibility

- Firmware for **UNIV 3.101.0.x application**
- Firmware can be uploaded into devices with bootloader version 3.0 or compatible.

3. Firmware version



4. Firmware

Firmware can be uploaded using HAPCAN Programmer, which can be downloaded from hapcan.com website.

4.1. Frame building

HAPCAN frame is formed when the module receives a packet of 15 bytes from the serial port. The first byte (0xAA) is the starting byte of the frame. The last two bytes are the checksum byte (CHKSUM) and the end of the frame byte (0xA5). The first 4 bytes of a message form CAN message identifier, and the remaining 8 bytes are data (from D0 to D7).
Transmission the frame from HAPCAN bus to the serial port is made by adding the start byte (0xAA), a checksum byte and stop byte (0xA5). The checksum byte value is obtained by adding 12 bytes of HAPCAN message.

Table 1. RS232C INTERFACE FRAME

HAPCAN		Frame Type	Flags	Node	Group	D0	D1	D2	D3	D4	D5	D6	D7	
RS232C	START	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9	Byte 10	Byte 11	Byte 12	CHKSUM	STOP

START = 0xAA

CHKSUM = $\sum_{i=1}^{12} Byte\_i$

STOP = 0xA5

Table 2. CAN frame header (identifier).

CAN	ID28	ID27	ID26	ID25	ID24	ID23	ID22	ID21	ID20	ID19	ID18	ID17	-	-	-	ID16	ID15	ID14	ID13	ID12	ID11	ID10	ID9	ID8	ID7	ID6	ID5	ID4	ID3	ID2	ID1	ID0
HAPCAN	Frame type												Flags				Node								Group							
RS232C	Byte 1								Byte 2								Byte 3								Byte 4							

4.2. Configuration

Parameters below can be configured with this version of application:
- Module identifier (module number and group number);
- Module description (16 chars);

The configuration process can be done using HAPCAN Programmer version 3.0 or later.

4.2.1. Module identifier

Every module on the network must have unique identifier. The identifier is made of two bytes, module number (1 byte) and group number (1 byte). Identifier of the Ethernet Interface can be changed in HAPCAN Programmer in software settings.

4.2.2. Module description

Every module can have 16 char description, which makes easier for user (programmer) to distinguish nodes.

5. Document version

File	Note	Date
univ_3-101-0-0a.pdf	Original version	July 2012