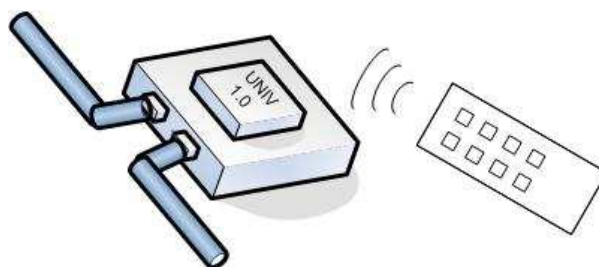


1. Features:

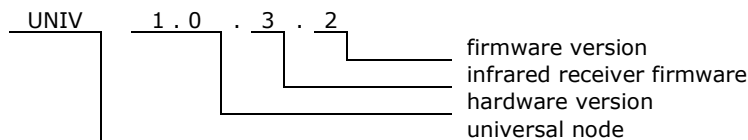
- Infrared receiver for universal remote controller
- The module can recognized codes:
 - SIRC 12bit (32 addresses, 128 commands),
 - SIRC 15bit (256 addresses, 128 commands),
 - RC5A (32 addresses, 128 commands)



2. Compatibility:

- Firmware for **UNIV 1.0.3.2. application.**
- Firmware can be uploaded into devices with bootloader version 2.5 or compatible.

3. Firmware version



4. Operation overview

Module sends message to the bus when receives and recognizes IR code, and another message when the IR transmission stops. It can recognize 3 types of codes SIRC 12bit, SIRC 15bit (SONY) and RC5 (Philips).

5. Firmware

Firmware can be uploaded by using HAPCAN Programmer, which can be downloaded from site <http://siwilo.com/hapcan/software>.

5.1. Infrared Receiver Frame

The module sends information of received infrared code, and another message when infrared transmission stops.

Table 1. INFRARED RECEIVER frame

Frame type	Flags	Module	Group	D0	D1	D2	D3	D4	D5	D6	D7
0x303	3 2 1 0	Node Nr	Group Nr	0xFF	0xFF	CODE	ADDRESS	COMMAND	0xFF	0xFF	0xFF

0x303	- universal module frame, infrared receiver application
3	- not used flag, read as "0"
2	- not used flag, read as "0"
1	- not used flag, read as "0"
0	RE - response flag. Flag is equal "1" if node was requested. If flag is equal „0" it means that status of input has just changed.

Node Nr - node number on the network
 Group Nr - group number of the node on the network

CODE - type of received code 0x00 – SIRC 12bit, 0x01 – SIRC 15bit, 0x02 – RC5

ADDRESS - address of received code

COMMAND - command of received code

When transmission of infrared signal stops, the module sends another message. The difference between message at the beginning and at the end of transmission is in a D2 byte.

Table 2. INFRARED RECEIVER frame – end of the IR transmission

Frame type	Flags	Module	Group	D0	D1	D2	D3	D4	D5	D6	D7
0x303	0x0	Node Nr	Group Nr	0xFF	0xFF	CODE+0x80	ADDRESS	COMMAND	0xFF	0xFF	0xFF

5.2. Status request

This firmware does not respond to STATUS REQUEST.

5.3. Control

This firmware does not have any control instructions.

5.4. Configuration

With this version of application parameters below can be configured:

- Module identifier (module number and group number);
- Module description (16 chars);

Configuration process can be done by using HAPCAN Programmer.

5.4.1. 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). Belonging to particular group might be important when linking devices.

5.4.2. Module description

Every module can have 16 char description, which makes easier for user (programmer) to distinguish nodes. Examples of node descriptions: bedroom-IR etc.

6. Document version

File	Note	Date
univ_v1-0-3-2a.pdf	Original version	May 2010