HYT – Changing of I2C-Address

To change the I2C-address of the sensor module HYT the module must be switched into the Command-Mode. The switching is performed by sending the start-command-mode-message over I2C-bus no later than 10ms after Power-On reset. Each command-mode-message is 4 byte long, like shown in table 1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S | 6 | 5 | 4 | 3 | 2 | 1 | 0 | W | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | P |
| S | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | A | C | C | C | C | C | C | C | C | A | D | D | D | D | D | D | D | D | A | D | D | D | D | D | D | D | D | A | P |
|  | Slave Address | | | | | | |  |  | Command Byte | | | | | | | |  | Command Data [15:8] | | | | | | | |  | Command Data [7:0] | | | | | | | |  |  |

table 1

SlaveAddress: 0x28 default value

Command-Byte: 0xA0 start command-mode

0x1C read configurations parameter that includes the I2C-address

0x5C write configurations parameter that includes the I2C-address

0x80 end of command-mode, start normal-mode

At writing access the both command data bytes contains the data, at reading access both data bytes must be set to 0x00.

The response to the command-mode message can be read out by a Data-Fetch. The response time of the command-mode messages are 100µs.

Table 2 shows the response to the start of the command-mode.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S | 6 | 5 | 4 | 3 | 2 | 1 | 0 | R | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | N | P |
| S | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | A | S | S | D | D | D | D | R | R | N | P |
|  | Slave Address | | | | | | |  |  | Status | | Diagnostic | | | | Response | |  |  |

table 2

status: 10b – Command-Mode

01b – Stale

Diagnostic: xxx1b – corrected EEPROM-error

xx1xb – uncorrectable EEPROM-error

x1xxb – RAM Parity error

1xxxb – configuration error

Response: 00b – busy

01b – positive acknowledge

10b – negative acknowledge

Table 3 shows the response to the read out the I2C-address.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| S | 6 | 5 | 4 | 3 | 2 | 1 | 0 | R | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | A | P |
| S | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | A | S | S | D | D | D | D | R | R | A | E | E | E | E | E | E | E | E | A | E | E | E | E | E | E | E | E | A | P |
|  | Slave Address | | | | | | |  |  | Status | | Diagnostic | | | | Response | |  | EEPROM Data [15:8] | | | | | | | |  | EEPROM Data [7:0] | | | | | | | |  |  |

Table 3

Status: see table 2

Diagnostic: see table 2

Response: see table 2

EEPROM-Data: content of the memory

The response to the command byte 0x1C contains the I2C-address in bit position 6:0, default value is 0101000b. The old I2C-address is valid until the module is in command mode.

The following table shows a complete process of reading and writing back of the I2C-address.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Power – On Reset | | | | | | | | | | |
| S | 0x50 | A | 0xA0 | A | 0x00 | A | 0x00 | N | P | Start Command – Mode |
| S | 0x51 | A | 0x81 | N | P |  |  |  |  | Response (ACK) |
| S | 0x50 | A | 0x1C | A | 0x00 | A | 0x00 | N | P | Read out Data Bytes with I2C-address |
| S | 0x51 | A | 0x81 | A | Highbyte | A | Lowbyte | N | P | Response |
| Write the new address into the bits 6:0 of the low byte. | | | | | | | | | | |
| S | 0x50 | A | 0x5C | A | Highbyte | A | Lowbyte | N | P | Write back Data Bytes with i2C-address |
| S | 0x51 | A | 0x81 | N | P |  |  |  |  | Reponse (ACK) |
| S | 0x50 | A | 0x80 | A | 0x00 | A | 0x00 | N | P | Start normaler mode |
| or alternatively Power – Off | | | | | | | | | | |