HYT – Changing of I2C-Address

To change the I2C-address of the sensormodule 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 configurationsparameter that includes the I2C-address
                0x5C   write configurationsparameter 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: 10_b – Command-Mode
            01_b – Stale
Riagnostic: $xxx1_b$ – corrected EEPROM-error
            $xx1x_b$ – uncorrectable EEPROM-error
            $x1xx_b$ – RAM Parity error
            $1xxx_b$ – configuration error
Response: 00_b – busy
            01_b – positive acknowledge
            10_b – 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 bitposition 6:0, default value is 0101000_b. 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 lowbyte.										
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										