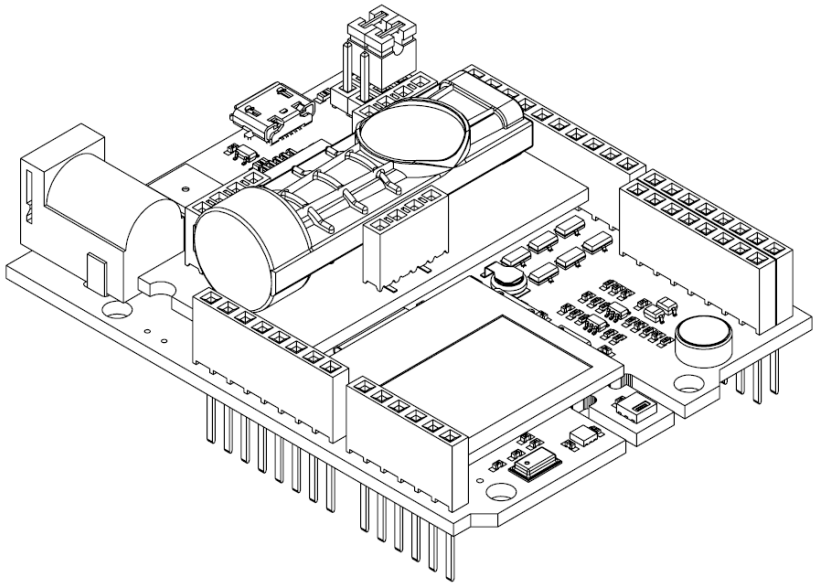
MeteoShield Manual



Contents

1 DOCUMENT REVISION HISTORY

Table 1.

REVISION	DATE	DESCRIPTION
V0.1	2014.05.18	First incomplete revision

2. INTRODUCTION

3. ELECTRICAL SPECIFICATIONS & DARBA REŽIMI

			Min	Type	Max	units
Storage temerature			-20	-	-85	°C
Usage Temperature						

SENSOR PERFORMANCE

Šeit sarakstīs un ieliks tabulas par visiem sensoriem uz MetoShielda, paraugs SHT21 datasheeta

Temperature Sensor

Table 1. Temperature sensor parameters[1]

Parameter	Symbole	Test Condition	Min	Type	Max	Unit
Operatio Range		I and Y Grade	-40	-	+125	°C
		G Grade	-40	-	+85	
Accuracy[2]		-10°C ≤ t_A ≤ 85°C	-	±0.3	±0.4	
		-40°C ≤ t_A ≤ 125°C	-	-	±0.6	
Repetability/Noise		14-bit resolution	-	0.01	-	°C RM
Response Time[3]	$T_{63\%}$	On MS board	-	> 6	-	s
Long Term Stability			-	≤ 0.01	-	°C/Yr

Notes:
1. Values are given for Si7020 temperature sensor, not for all MeteoShield board;
2. 14b measurement resolution (default).
3. Time to reach 63% of final value in response to a step change in temperature. Actual response time will vary dependent on system thermal mass and air-flow.

Humidity

Table 2. Humidity sensor parameters[1]

Light

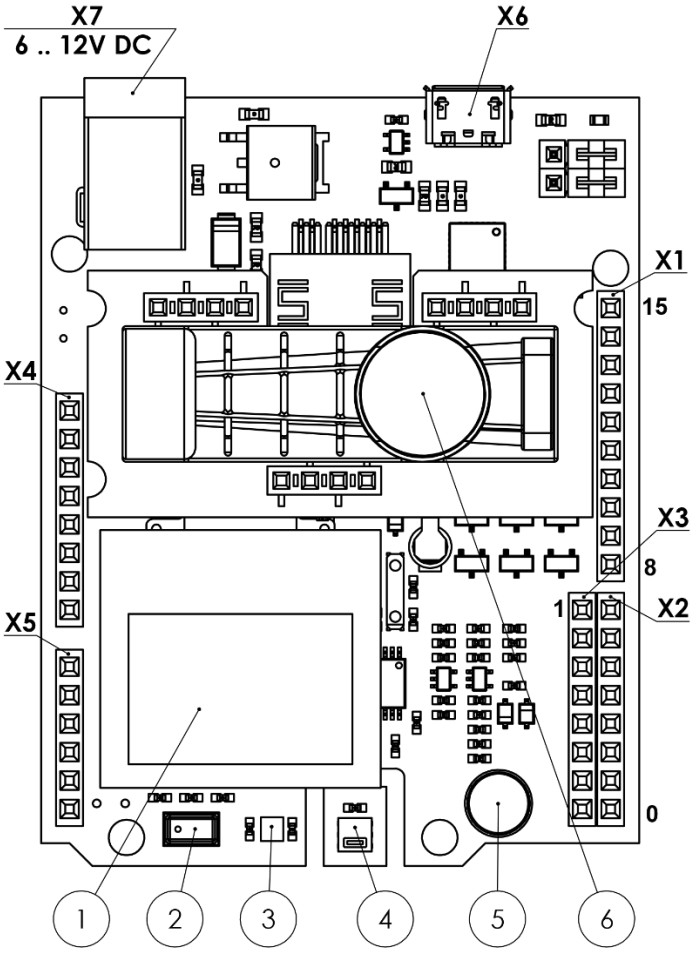
CO2

Pressure

Sound Level

General Purpuse Output

4. PIN DESCRIPTION



5. SERIAL HOST PROGRAMMING

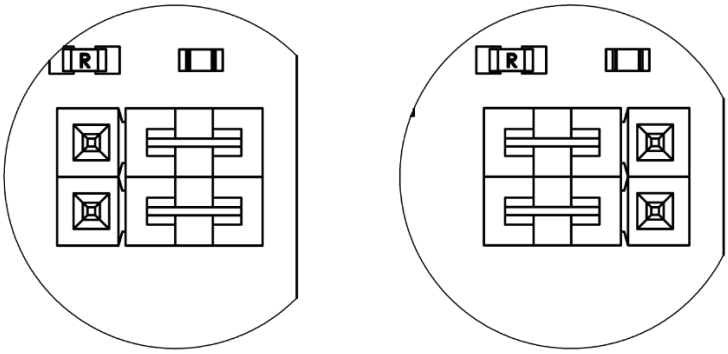
5.1 Communication Interface

A host communicating to MeteoShield is done via a serial port (UART), it must use the following settings.

Table. TODO

Parameter	Value
Baud rate	115200 bits/s
Parity	No
Data bits	8
Stop bits	1

All transfered bytes are in ASCII. The least significant bit (LSB) of eatch byte must be transmitted first on the physical interface.



A **B**

Image . TODO

Data flow from/to MeteoShiel is switchet with two jumpers. Image [TODO] figure **A** show configuration MeteoShield is connected to **X2** connector pins **0** (RX) and **1** (TX) – arduino boards compatible. Figure **B** shows configuration MeteoShield is connected to USB-UART bridge (CP210X)[A].

5.2 Frame Layout

The host and the MeteoShield communicates via simple protocol with one frame type. Each frame contains *Start* {#} character, command (CMD), variable (VAR), code (CODE), value (VAL), seperators {.} {:} and end of frame {\r} {\n} characters.

Note:

Curly brackets-> {} is used for visual separation of ONE parameter, one character. Physically they do not appear in the frame.

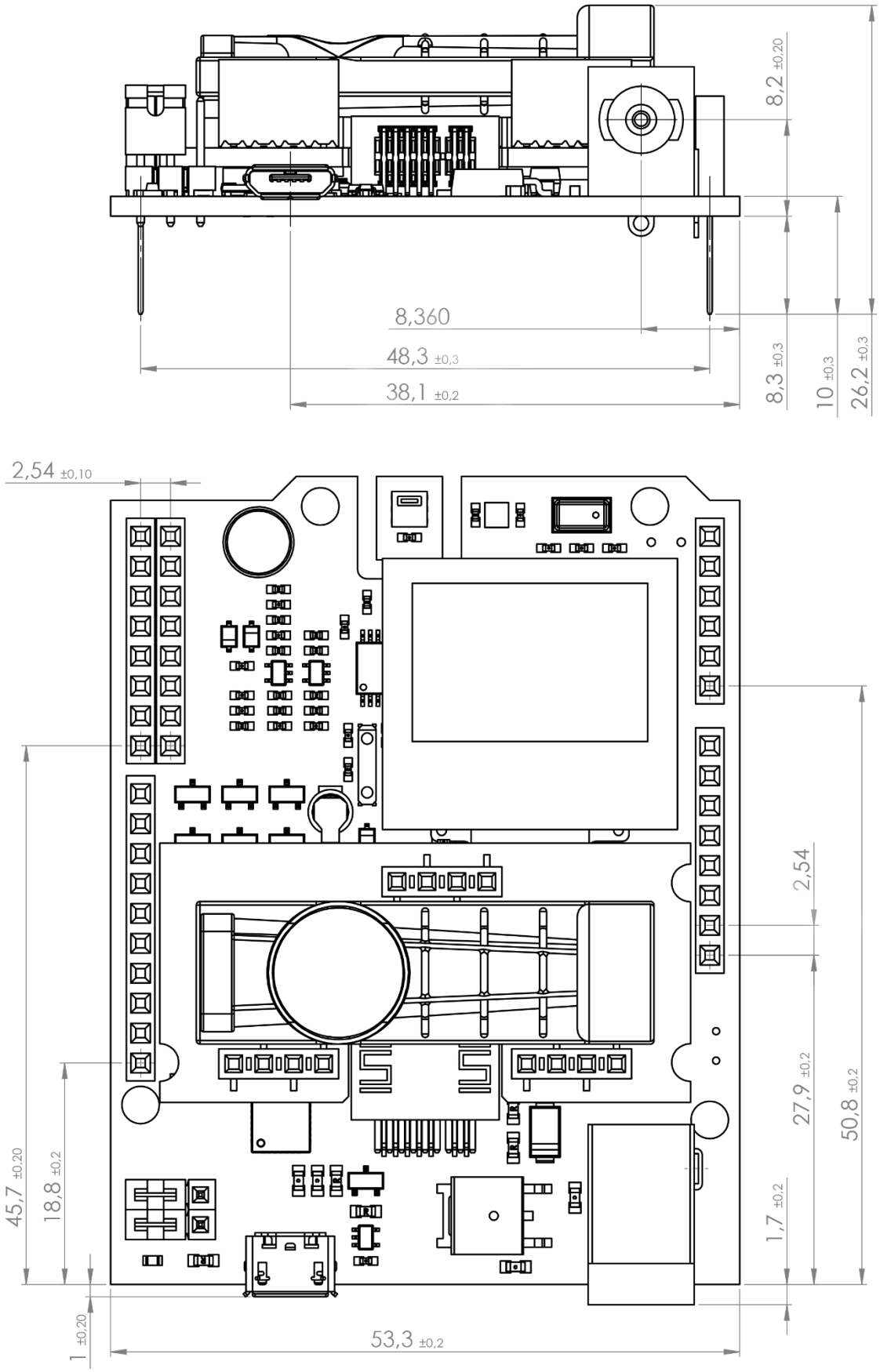
Example:

{**CMD**} it means that there is only one character – for excample '**S**' – ASCII character with decimal value **83** which means *SET* something.

#.{CMD}.{VAR}.{CODE}:{VAL}\r\n

5.3 Commands

DIMENSIONS



All dimensions in [mm]

IMPORTANT NOTICES

Warning, Personal Injury

Do not use this product as safety or emergency stop devices or in any other application where failure of the product could result in personal injury. Do not use this product for applications other than its intended and authorized use. Before installing, handling, using or servicing this product, please consult the data sheet and application notes. Failure to comply with these instructions could result in death or serious injury.

ESD Precautions

Warranty

REFERENCES

[A] – MeteoShield uses SiliconLabs USB-to-UART bridge CP210x. Drivers can be found: link.