

# VZ89 I2C SPEC



## 1. Theory of operation:

When the device is connected to the I2C bus line, the device is working as a slave device. The master can write/read the VZ89 device using the I2C interface command.

The VZ89 device address contains seven fixed bits.

The VZ89 device is set in "standard mode": bit rates up to 100 kbit/s.

## 2. Device addressing:

The address byte is the first byte received following the START condition from the master device. The first part of the address byte consists of a 4-bit device code which is set to 1110 for the VZ89. The device code is followed by three address bits (A2, A1, A0) which are programmed at 0:

VZ89 address (7 bits) = 0b11110000

## 3. Command byte:

The master sends a command byte (8 bits) in order to set parameters to the VZ89 or to request its status, as follow:

### 3.1. 0b00001000: Set ppmCO2:

This command is used to send a ppmCO2 value from an analyser to the VZ89 in order to recalibrate its outputs.

### 3.2. 0b00001001: Get VZ89 status:

This command is used to read the VZ89 status coded with 6 bytes:

D1 (8bits) represent the CO2-equivalent signal value [13..242].

D2 (8bits) represent the VOC-short signal value [13..242].

D3 (8bits) represent the VOC-long signal value [13..242].

D4 (8bits) represent the 1<sup>st</sup> byte of raw sensor resistor value (LSB).

D5 (8bits) represent the 2<sup>nd</sup> byte of raw sensor resistor value.

D6 (8bits) represent the 3<sup>rd</sup> byte of raw sensor resistor value (MSB).

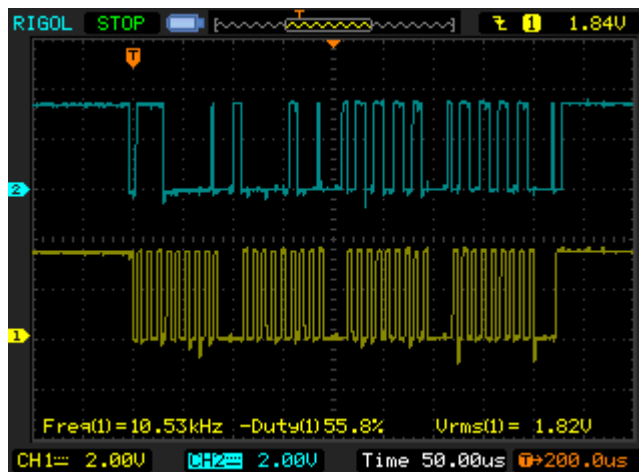
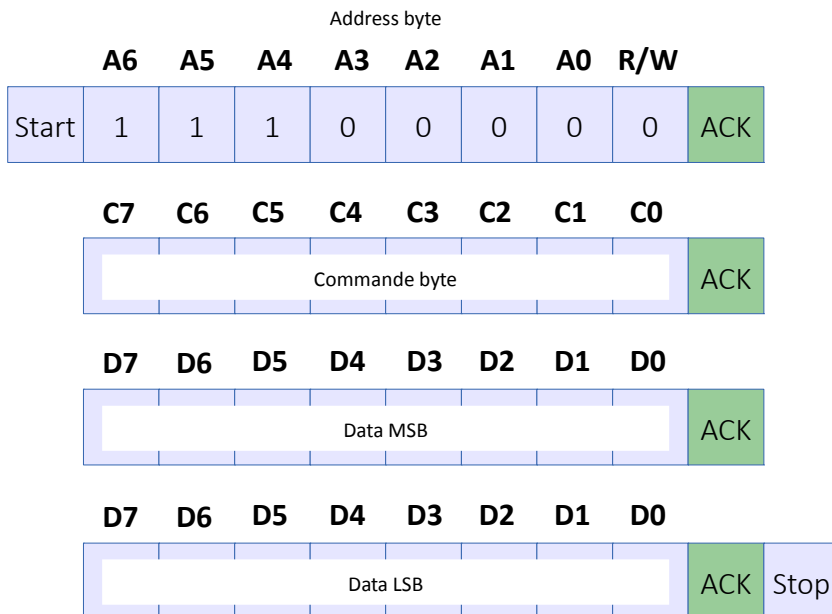
Note: the raw sensor resistor value  $[\Omega] = 10*(D4 + (256*D5) + (65536*D6))$

# VZ89 I2C SPEC

## 4. Writing data to VZ87

Send by master

Send by slave



SDA

SCL

Note: in this exemple:

D1: Address [7bits] = 1110000 and R/W [1bit] = 0

D2: Command = 00000100 (no longer used)

D3: Data MSB = 01010101

D4: Data MSB = 01010101

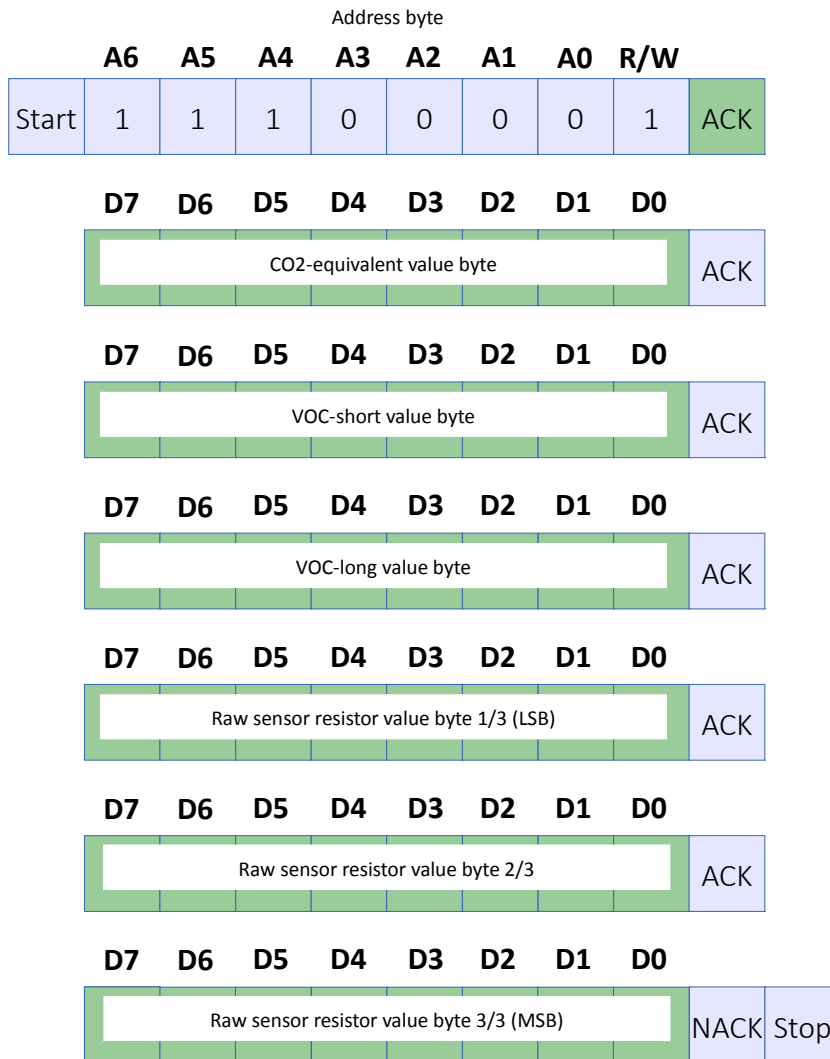
# VZ89 I2C SPEC



## 5. Reading VZ89 status

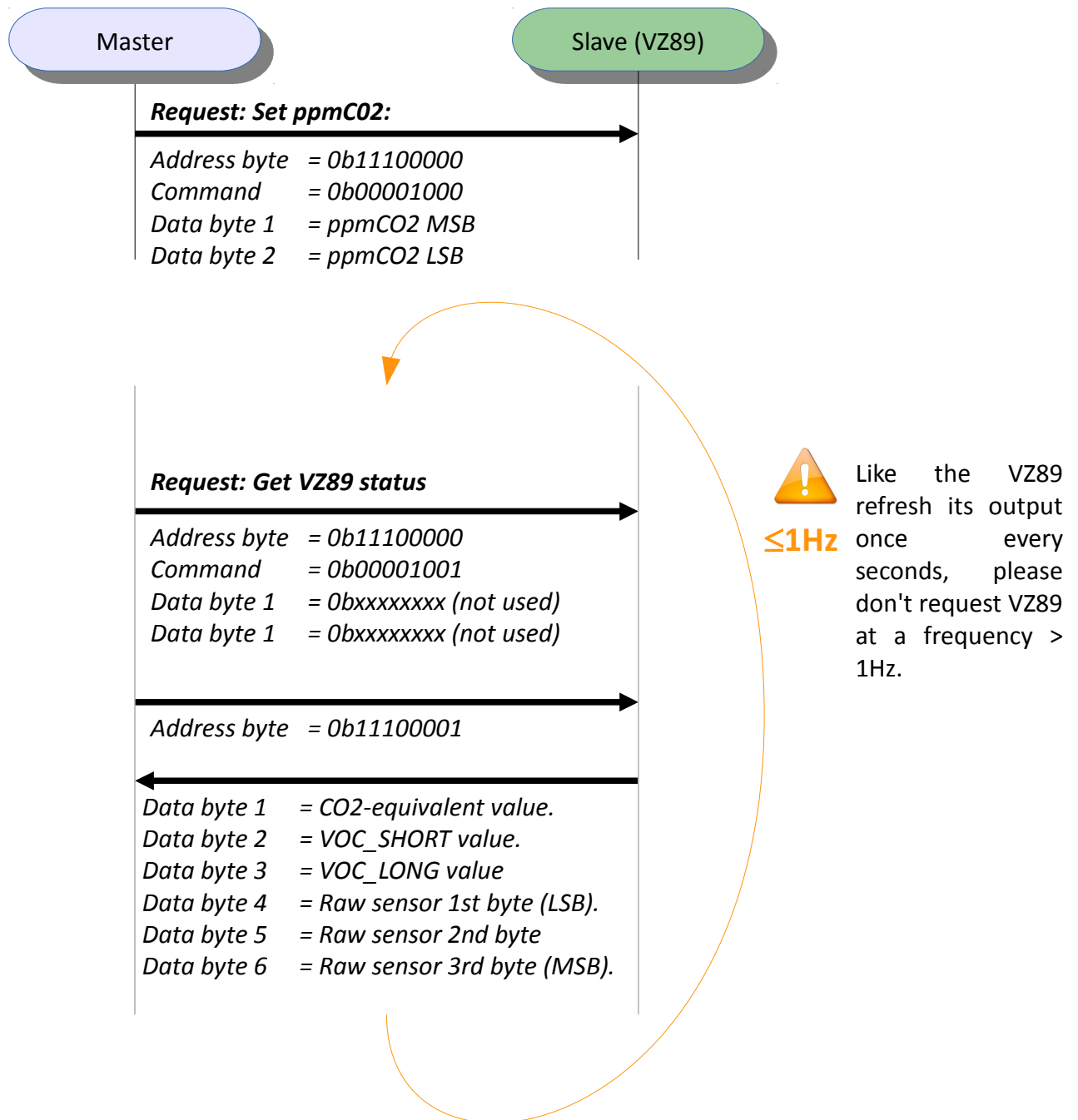
Send by master

Send by slave



# VZ89 I2C SPEC

## 6. I2C Communication diagram:




# VZ89 I2C SPEC



## Annex

### a. Document history

Date	Author	Description	Status	Rev
Jul-17,2014	Francois Carnal	<ul style="list-style-type: none"><li>• Doc creation</li></ul>		A