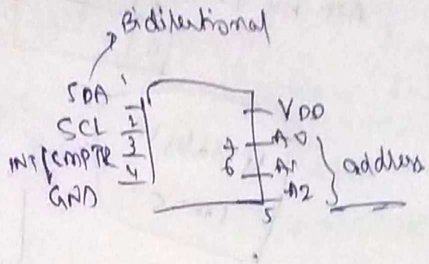
IOT-MTP: LM75 DM-33 → 3.3V
LM75 DM-50 → 5V.
→ works

24/02/21

LM75: Serial 2-wire



INT/CMPTR:
↳ programmable while loop checking whether temp crosses threshold.
↓
interrupt when temp moves over Threshold (or) goes down Threshold.

LM75 Slave address:

1 0 0 1	A2	A1	A0
MSB			LSB

7 bit. 8th bit
Read - 1
write - 0

Start: SCL high, SDL falling high to low.

Stop: SCL high, SDL rising.

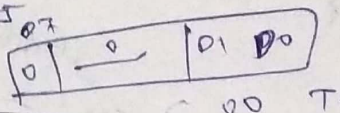
Ack: During Ack cycle, SCL high, SDL fault (low).

SDA can change only when SCL is low.
↳ i.e., while data moving.

SDA change when SCL is high are reserved for start & stop.

Master sends No-Ack before stopping.

1) After address, Ack by LM75



4 states in LM75.

00 Temp
01 Config
10 Thyst
11 Tset

---

1) when you have preset pointer location of Temp, Tos, Thyst

you can directly use the address

2) when Temp, Tos, Thyst are stored in separate register,

first address LM75 → (change to the required register) → then perform operation.

↓,

This requires repeat start.

Two byte read with no preset loc:

start by master

→ when selecting register of Temp, Tos, Thyst

you have to use W mode.

after selecting → If you want to change

(Now you in 'W' mode) to read, use

repeat start by master

&

read data.

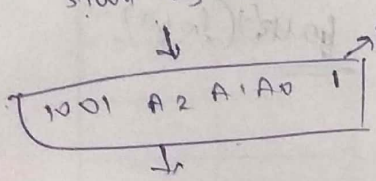
→ If you want to write, directly write data

msb - LSB

Typical two byte read from preset pointer:

start by master

↓



↓

Ack by LM75

↓

msb is read by master

(D7 bit first)

↓,

Ack by master

↓

LSB is read

↓

No-Ack by master

(before) ↓, &

Stop cond by master

Start by master

↓

send addr byte in W mode

↓

Ack by LM75

↓

Send 'D7 – D0' (00 01 10 11) Byte

↓

Ack by LM75

↓

Here, if read after selecting register

↙ use Repeat start by [0100 A2 A1 A0 R]

↓

Ack by LM75

↓

MSB

↓

ACK by master

↓

LSB

↓

No Ack by master & Stop by master.

↘ To write into reg.

After ack by LM75, send data by master (Config data)

↓

Ack by LM75

↓

Stop cond by master.

When Read:

After MSB : master Ack

After LSB: No-Ack by master ← Stop cond by master

When write:

After MSB: : LM75 Ack & after LSB : LM75 Ack + Stop cond by master.

clock '9' reserved for Ack

---

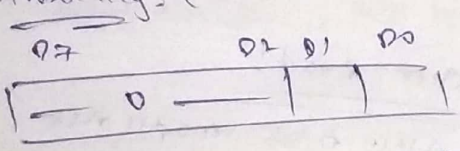
i) Preset means LM75 already in your req. state.

2) So, if you want to change state, use W, send [D7 —— D1, D0] & state changed. & LM75 is W mode now.

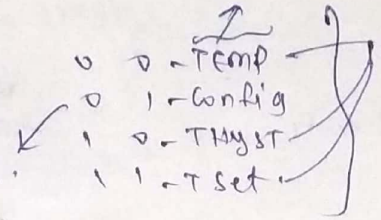
if master wants to write data, it can directly.

if master wants to read, send (addr 1001 A2 A1 A0 R) using (Repeat start) & read data.

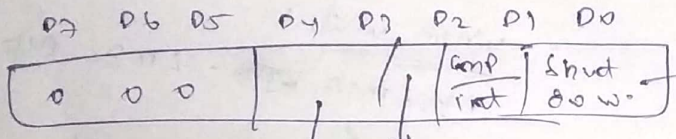
Pointer reg: (write only) → 8 bit.



Ambient temp.



Config reg: (R/W)



Fault Queue

INT/CMP polarity

No. of sequential temp to digi conversions before INT/COMP is updated.

D4	D3	
0	0	- 1
0	1	- 2
1	0	- 4
1	1	- 6

Temp, TSet, THYST } MSB 9 bits are used.

Temp conversion: (9 bits MSB only used)

0 1111 1010 ⇒ 0FA → 250 decimal × 0.5 ✓ 0125.

1FF → negative → take 2's comp

0 0 1 × 0.5 = - 0.5 ✓

) Ask sir about Timing diagram of lm75 ?