Our goal :

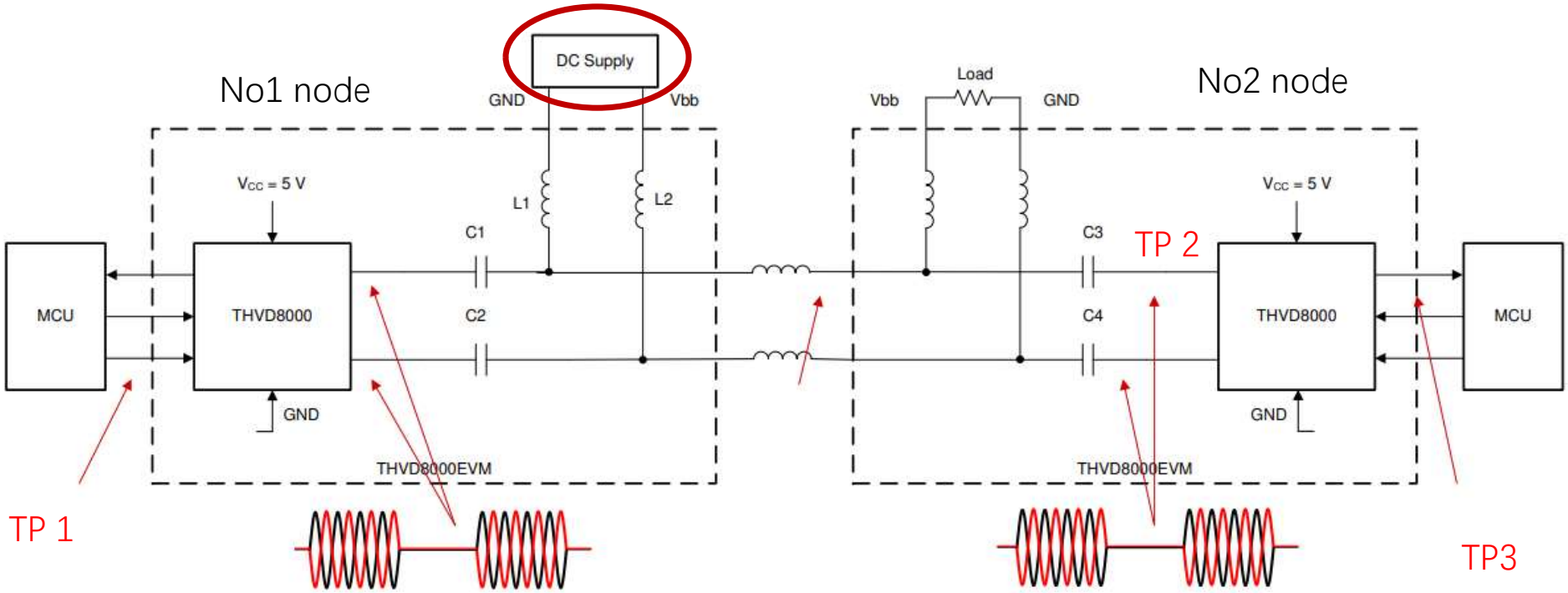
1 . replace 4-lines RS485, 2 power line is low cost on cable , polarity free too.
2. power is 18-32V dc on our meter. Powered and communication on 2- line cable.
3. up to 64 nodes .
4. The 2-line BUS is one master node , daisy chain. Other is slave node.
5. Communication is 9600bps, low data rate,CTC16 check
6. Cable(copper) length is up to 800-1200meters.

Plan

1. copy THVD8000EVM schematic .
2. finished 2 PCBA
3 .test signal in point by oscilloscope(up to 100M)
4. F-set, 49.9K 1%, 32.4K 1% 0603 ~300Khz

Note ：

2 nodes， No.1， master node ， power consumption 50mA,, No.2 slave node , power consumption 50mA， L1~L4 330uH， DC supply is 18~32V， THVD8010 is 3.3V powed by DC supply DC-DC(LMR14010A Ti) . It is 2 meters long from No.1 to No.2. C1~C4 1uF



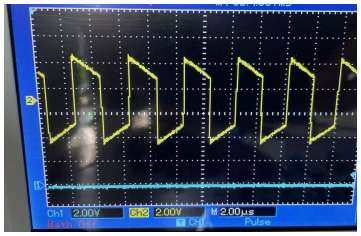
We used 3 powers, 1 is PC power(220VAC-20VDC), the PCBA was worked,TP2 and TP3 had signal.
2 is Adjustable switching power supply ,TP2 had signal, the TP3 no signal , 3 is battery power ,
TP2 had signal ,the TP3 no signal

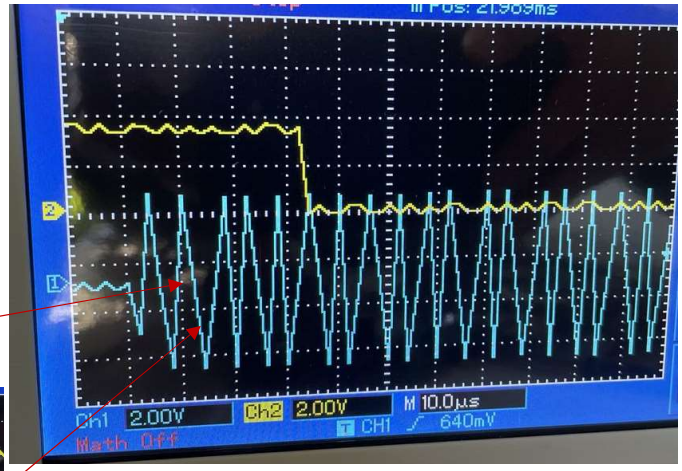
This was the waveform , copy from oscilloscope.

1 PC power

Yellow is TP3

Blue is TP2



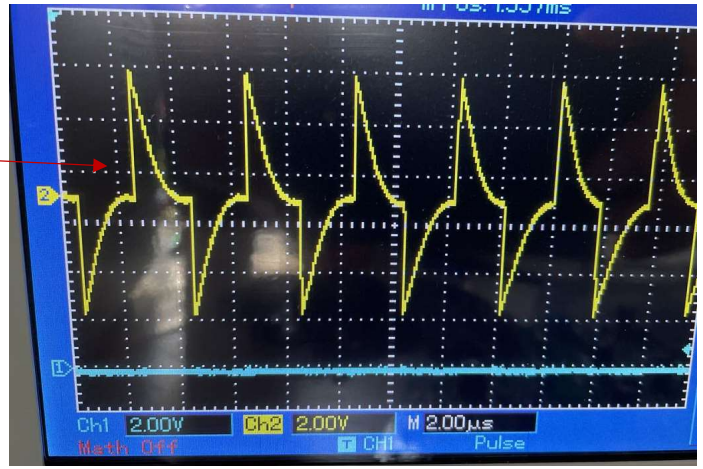


2 Adjustable switching power supply

the IC (node2) was no **demodulation the TP2**

TP3 no signal

TP2



3　battery power

the IC was no **demodulation the TP2**

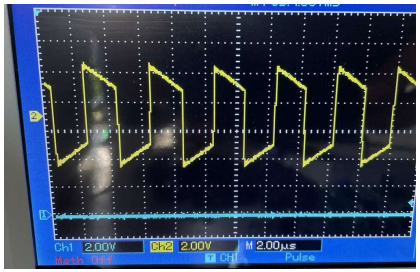
TP3 no signal

TP2

Question

1 What factors affect demodulation? L or C ? Zn?

2 how to gets a good waveform?



3 Is it easy controled in facility installation?