G7 Wireless Sensor System
TCP Modbus

Version 2.3.2

Hardware Support:
G7-BS [V1.2.2 / 2.2.2 / 2.3.1]
X7-BS [V1.2.2 / 2.2.2]

- In TCP Client mode

  1. G7-BS base station will initiate the data upload to central server on schedule or alarm triggered. Server only needs to wait for the data incoming from G7 Base Station.
  2. Under normal operation, G7 Wireless Sensor System works in TCP Client mode.
  3. G7 Setup Software will turn G7 Base Station as TCP Client mode by default.

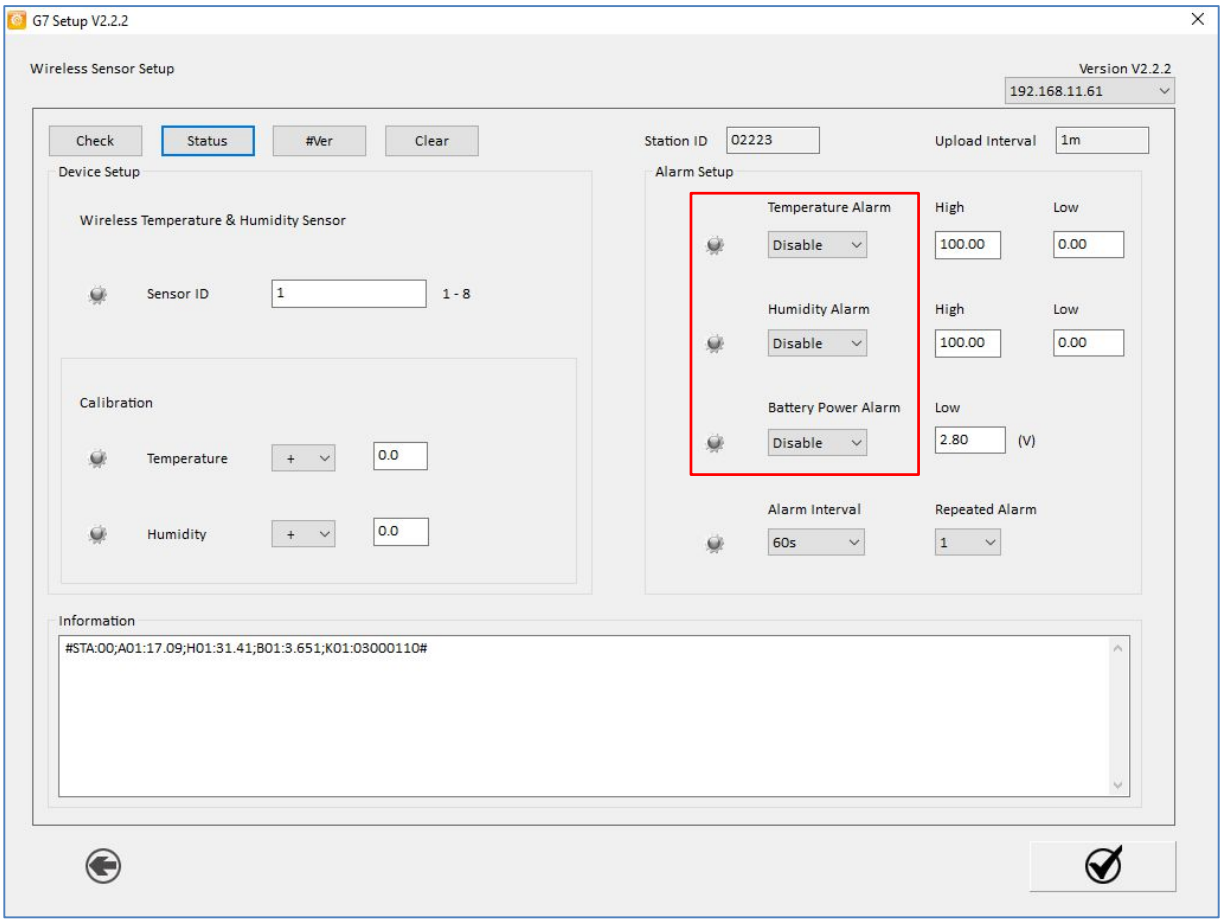
- In TCP Server mode (TCP Modbus)

  1. Third party software (e.g. BMS) will send command to G7-BS base station asking for the data.
  2. G7-BS Base Station will not initiate any data upload automatically.

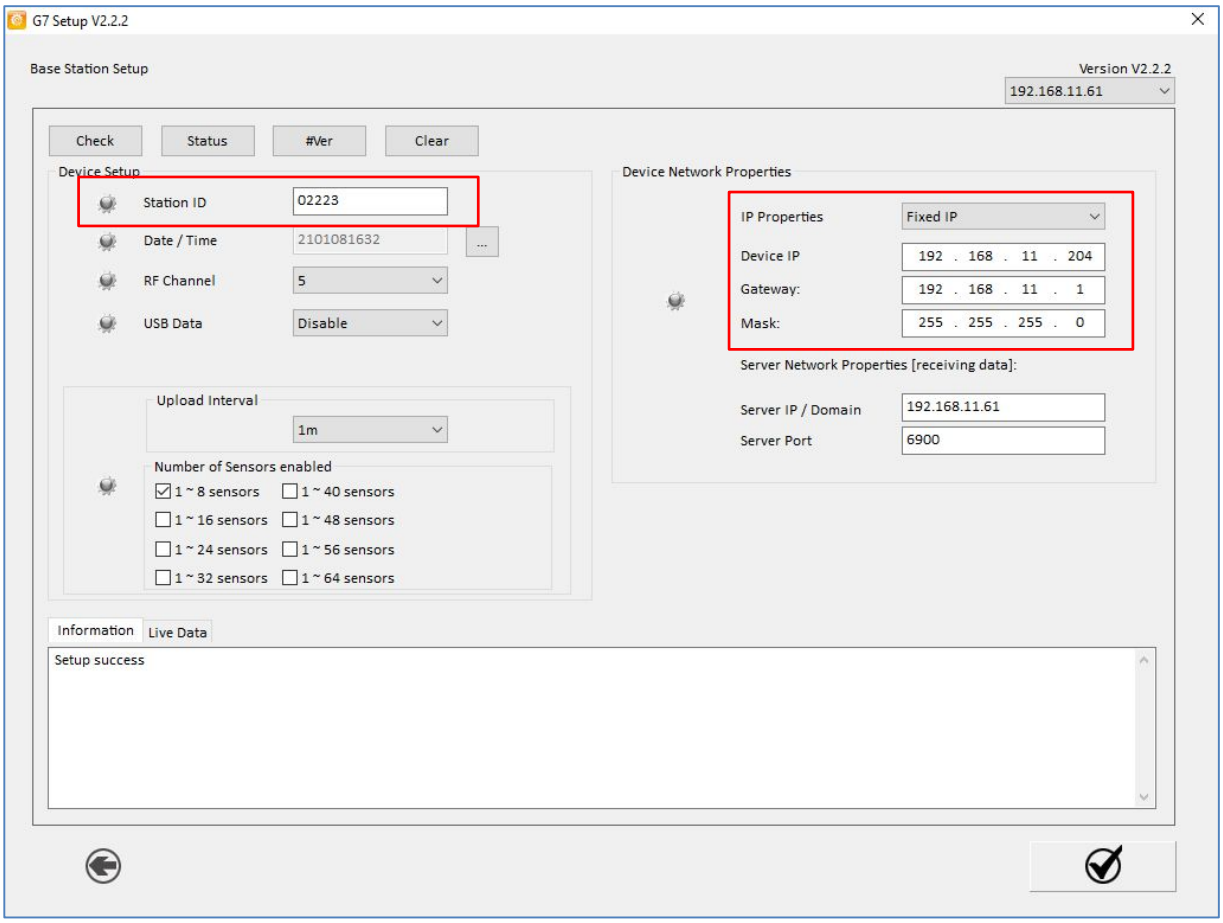
- "G7 TCP Switch" is a software tool to switch G7-BS Base Station between TCP Server Mode and TCP Client Mode.

Revision 2120323 [V232]

(1) Disable all the alarms in wireless sensor setup



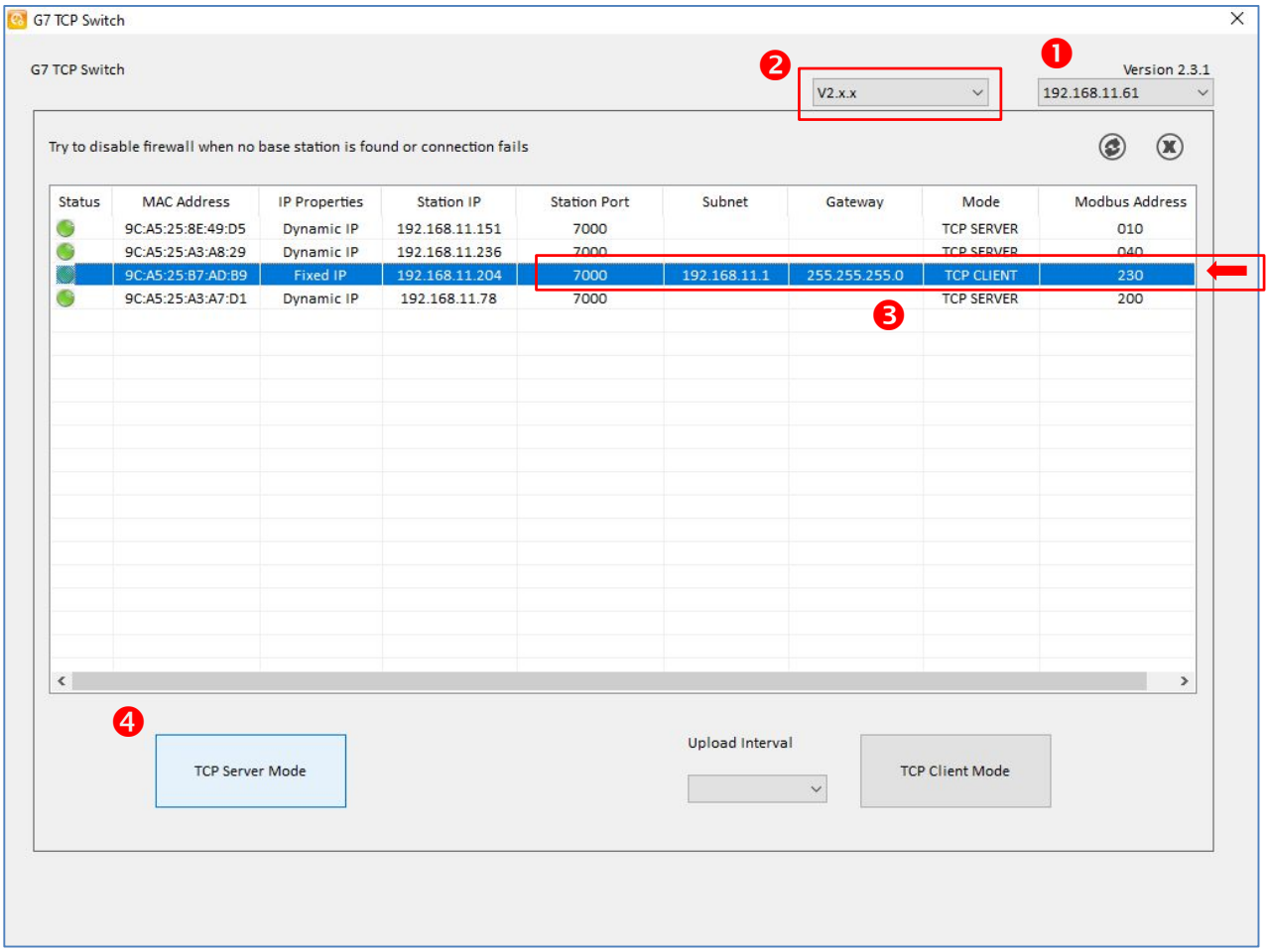
(2) Configure base station as "Fixed IP', and then exit Setup Software



(3) Run “TCP Switch”

Base Station is in TCP Client mode by default.

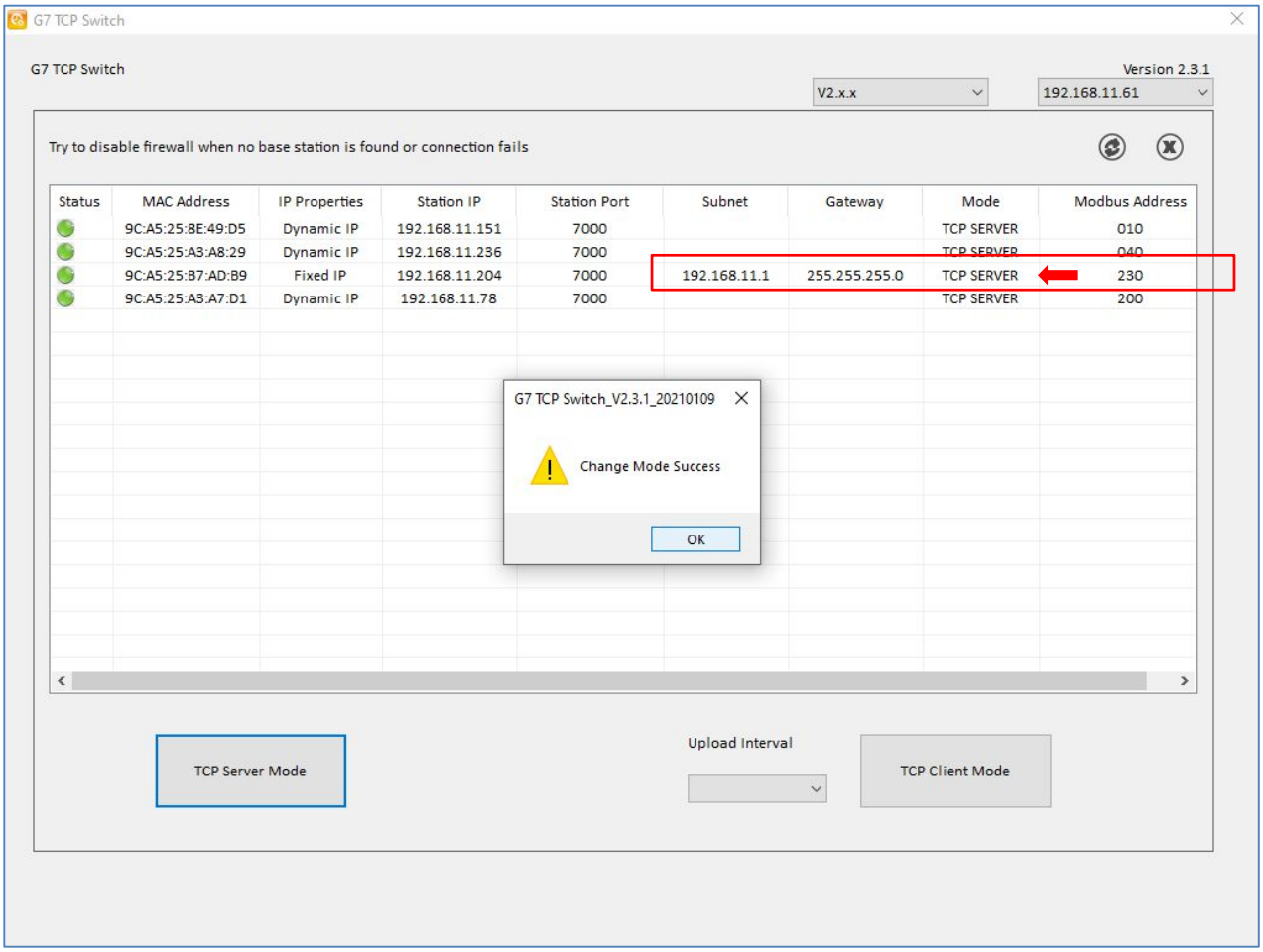
1. Select the computer IP address (when there are two or more networks connected)
2. Select base station hardware version (V1 or V2)
3. Select the base station
4. Click [TCP Server Mode] button



ⓘ G7 base station will turn back to TCP Client mode once user configures the base station by G7 Setup.

Base Station is now in TCP Server mode.

- Device Modbus Address = Last 2 digits of Station ID + “0”
- Station ID = 02223
- Device Modbus Address = 230



- Write down its Modbus Address, IP address and port number for future TCP Modbus access

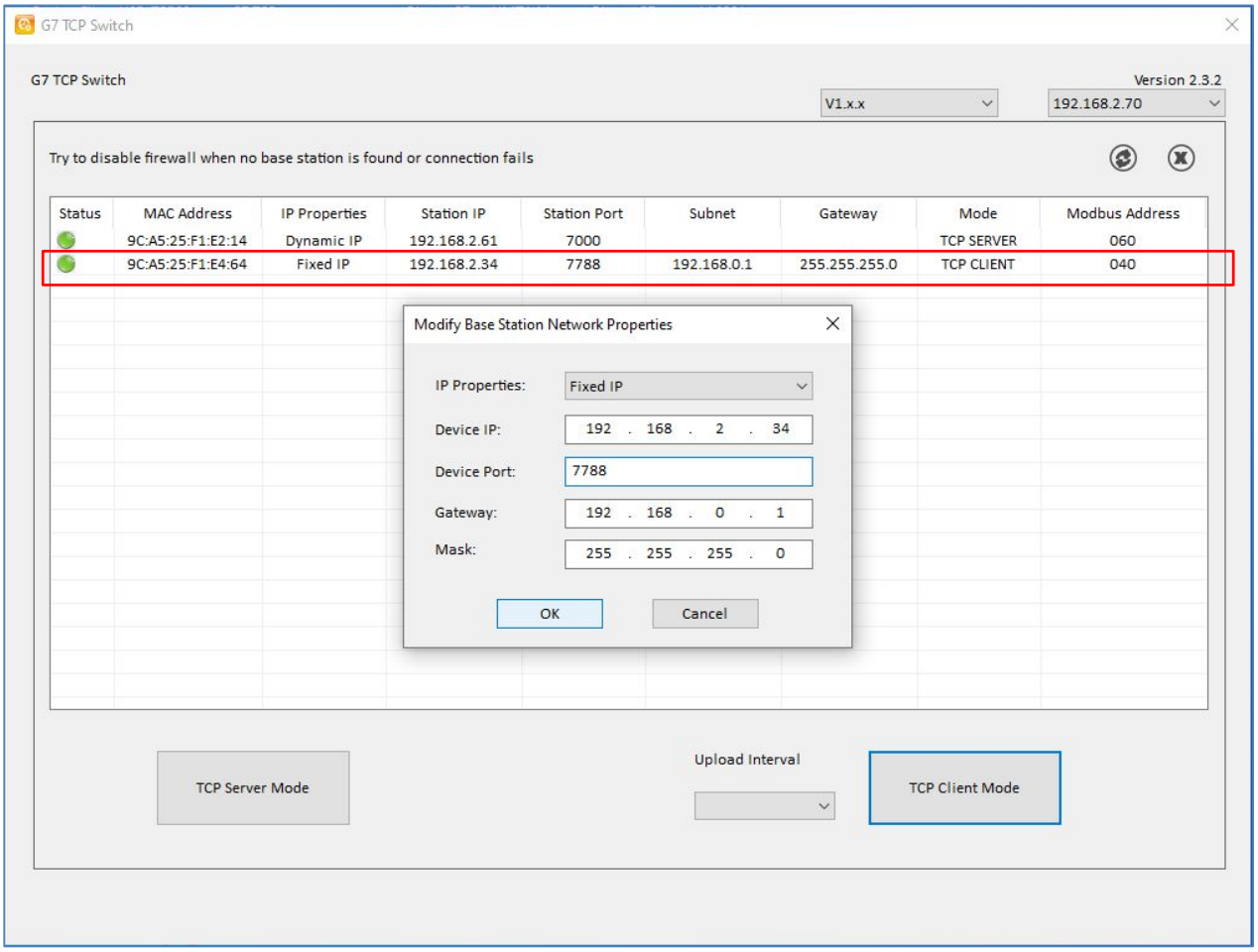
  IP Address: 192.168.11.204

  Port: 7000

  Modbus Address: 230

Base Station IP properties modification

- Select the base station
- Double Click “Mouse Right Button”
- Network Properties can be modified
- Base Station IP should be configured as Fixed IP for TCP Server Mode operation



(4) Modbus Data Register Address

After G7 Base Station is configured as TCP Server mode, it will not initiate any data upload.

In TCP Server mode, ModScan software or SCADA system will send command to G7 Base Station asking for the data.

G7 Modbus Address Table

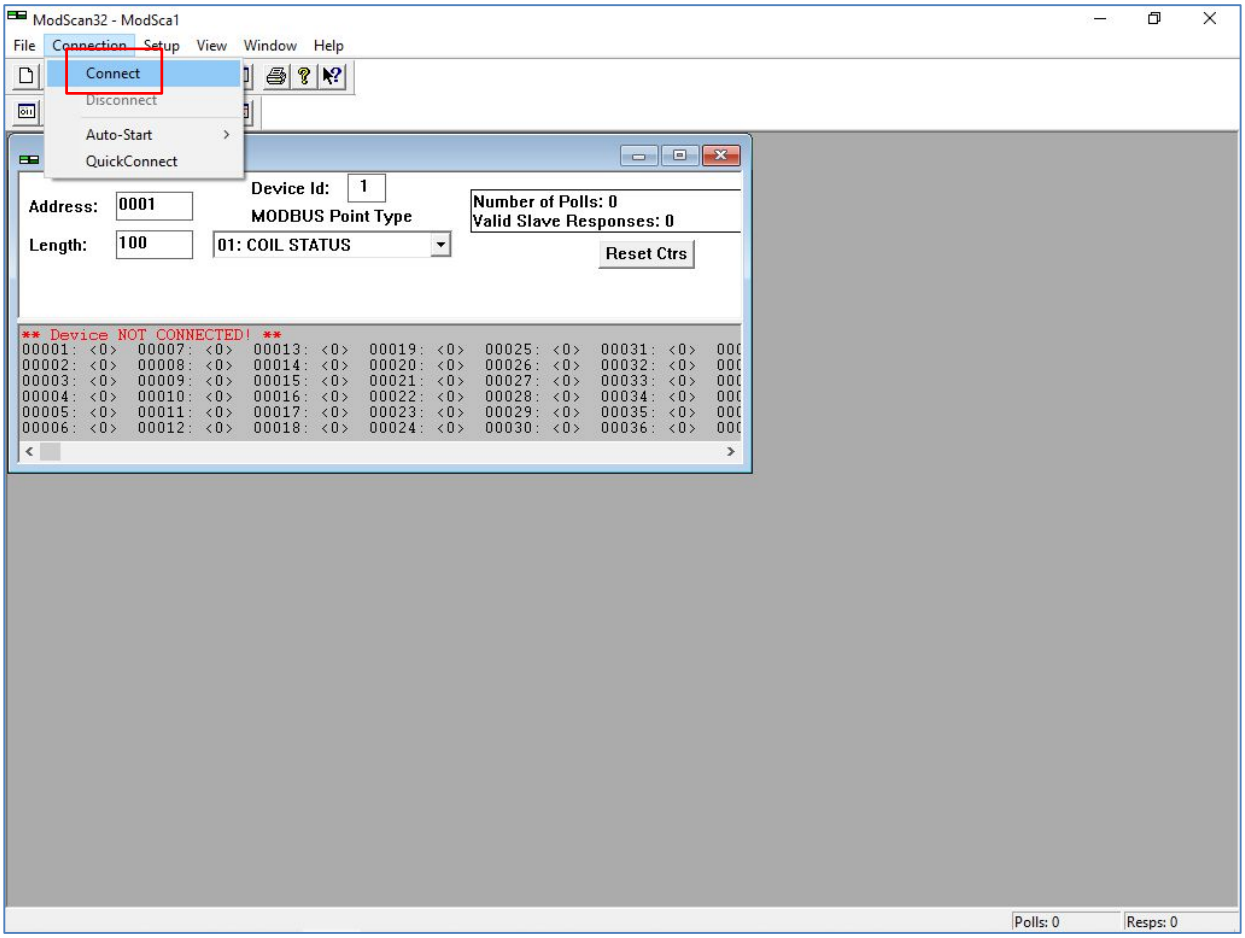
- Run the "G7 TCP Switch" to change G7 Base Station into TCP Server Mode.
- Make use of Modbus scanner or third party SCADA to read the data from data logger.

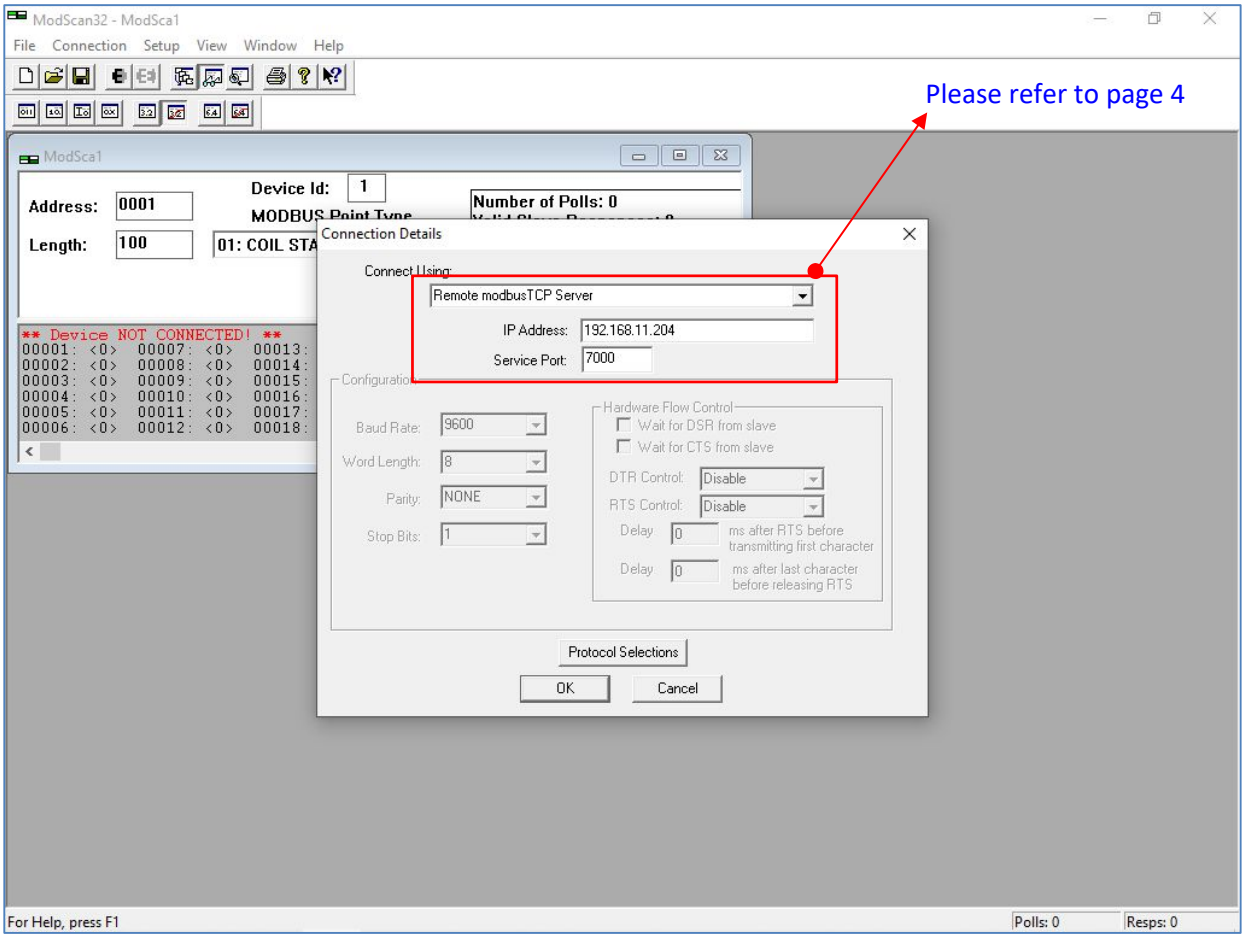
Device Modbus Address = Last 2 digits of Station ID + "0"

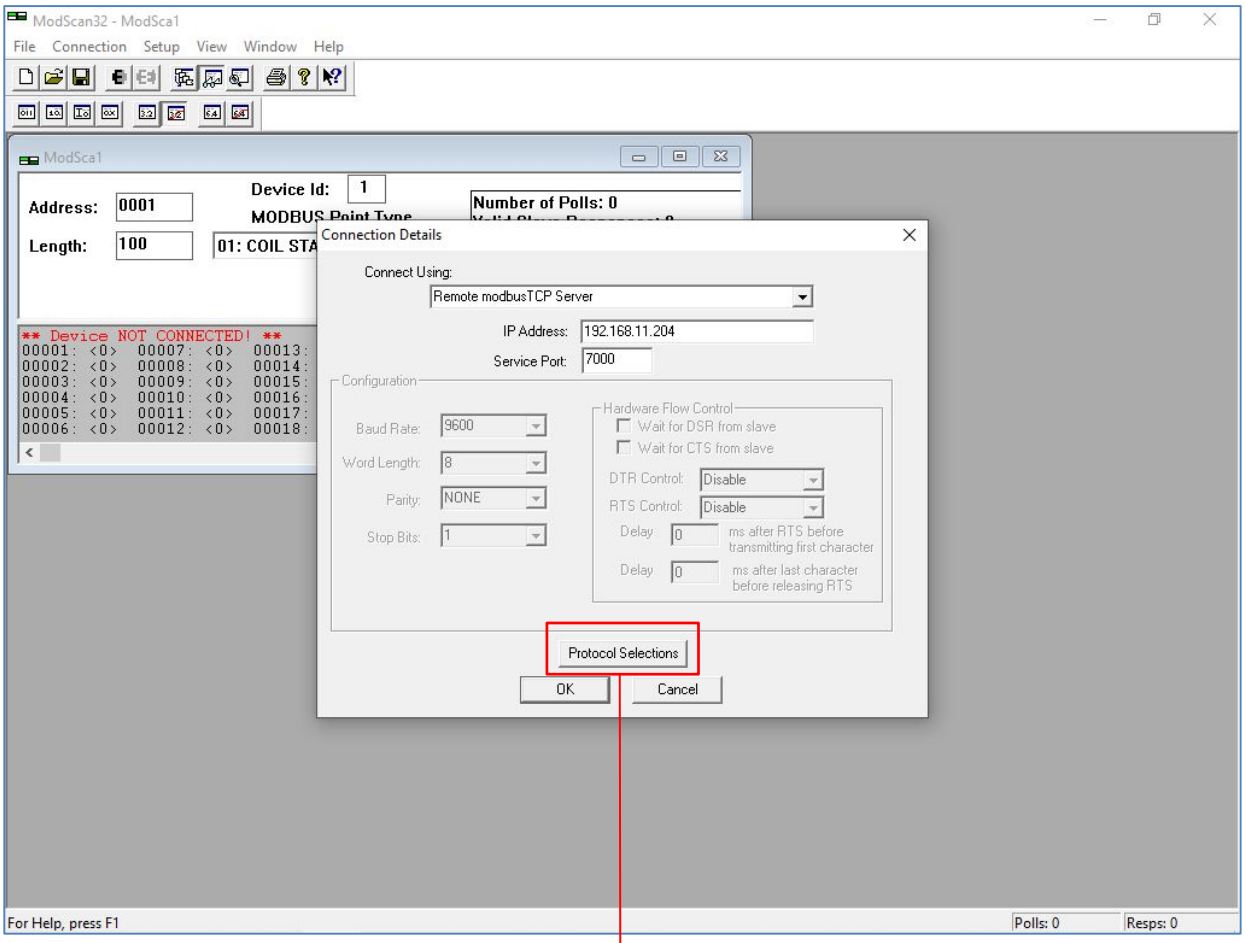
	Data Register Address				Data Register Address		
	A Value	H Value	Battery Voltage		A Value	H Value	Battery Voltage
Sensor ID = 1	40001	40003	40005	Sensor ID = 33	40193	40195	40197
Sensor ID = 2	40007	40009	40011	Sensor ID = 34	40199	40201	40203
Sensor ID = 3	40013	40015	40017	Sensor ID = 35	40205	40207	40209
Sensor ID = 4	40019	40021	40023	Sensor ID = 36	40211	40213	40215
Sensor ID = 5	40025	40027	40029	Sensor ID = 37	40217	40219	40221
Sensor ID = 6	40031	40033	40035	Sensor ID = 38	40223	40225	40227
Sensor ID = 7	40037	40039	40041	Sensor ID = 39	40229	40231	40233
Sensor ID = 8	40043	40045	40047	Sensor ID = 40	40235	40237	40239
Sensor ID = 9	40049	40051	40053	Sensor ID = 41	40241	40243	40245
Sensor ID = 10	40055	40057	40059	Sensor ID = 42	40247	40249	40251
Sensor ID = 11	40061	40063	40065	Sensor ID = 43	40253	40255	40257
Sensor ID = 12	40067	40069	40071	Sensor ID = 44	40259	40261	40263
Sensor ID = 13	40073	40075	40077	Sensor ID = 45	40265	40267	40269
Sensor ID = 14	40079	40081	40083	Sensor ID = 46	40271	40273	40275
Sensor ID = 15	40085	40087	40089	Sensor ID = 47	40277	40279	40281
Sensor ID = 16	40091	40093	40095	Sensor ID = 48	40283	40285	40287
Sensor ID = 17	40097	40099	40101	Sensor ID = 49	40289	40291	40293
Sensor ID = 18	40103	40105	40107	Sensor ID = 50	40295	40297	40299
Sensor ID = 19	40109	40111	40113	Sensor ID = 51	40301	40303	40305
Sensor ID = 20	40115	40117	40119	Sensor ID = 52	40307	40309	40311
Sensor ID = 21	40121	40123	40125	Sensor ID = 53	40313	40315	40317
Sensor ID = 22	40127	40129	40131	Sensor ID = 54	40319	40321	40323
Sensor ID = 23	40133	40135	40137	Sensor ID = 55	40325	40327	40329
Sensor ID = 24	40139	40141	40143	Sensor ID = 56	40331	40333	40335
Sensor ID = 25	40145	40147	40149	Sensor ID = 57	40337	40339	40341
Sensor ID = 26	40151	40153	40155	Sensor ID = 58	40343	40345	40347
Sensor ID = 27	40157	40159	40161	Sensor ID = 59	40349	40351	40353
Sensor ID = 28	40163	40165	40167	Sensor ID = 60	40355	40357	40359
Sensor ID = 29	40169	40171	40173	Sensor ID = 61	40361	40363	40365
Sensor ID = 30	40175	40177	40179	Sensor ID = 62	40367	40369	40371
Sensor ID = 31	40181	40183	40185	Sensor ID = 63	40373	40375	40377
Sensor ID = 32	40187	40189	40191	Sensor ID = 64	40379	40381	40383

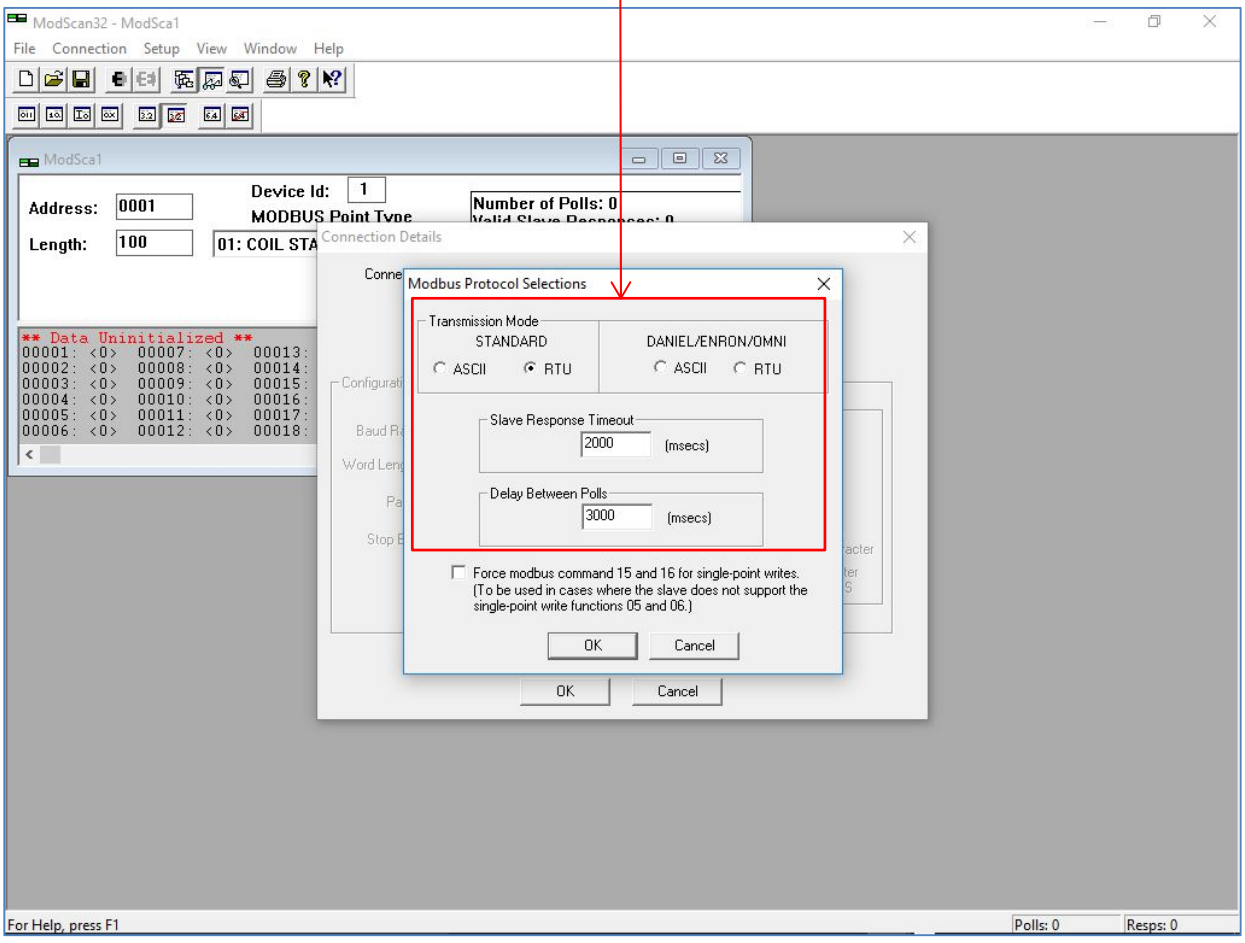
Data Field	G7-T2/TX/H2/H3	G7-AD	G7-D2	G7-TP	G7-MB
A	Temperature	AD1: 4-20mA	D01: Open/Close	Temperature	Modbus Analog
H	Humidity	AD2: 0-5V	D02: Open/Close	Pressure	Modbus Pulse
B	Battery Voltage				

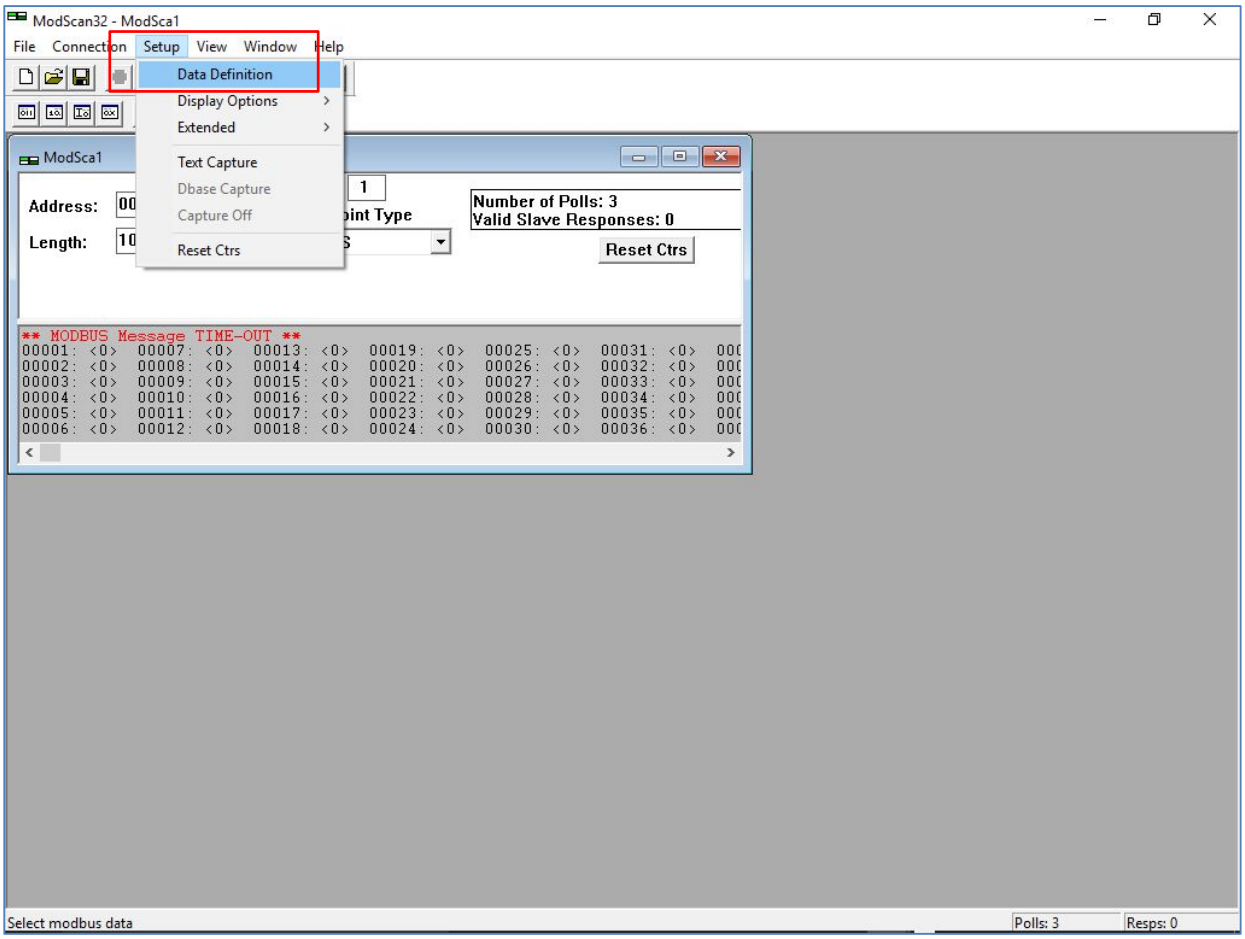
(5) Run [ModScan32]

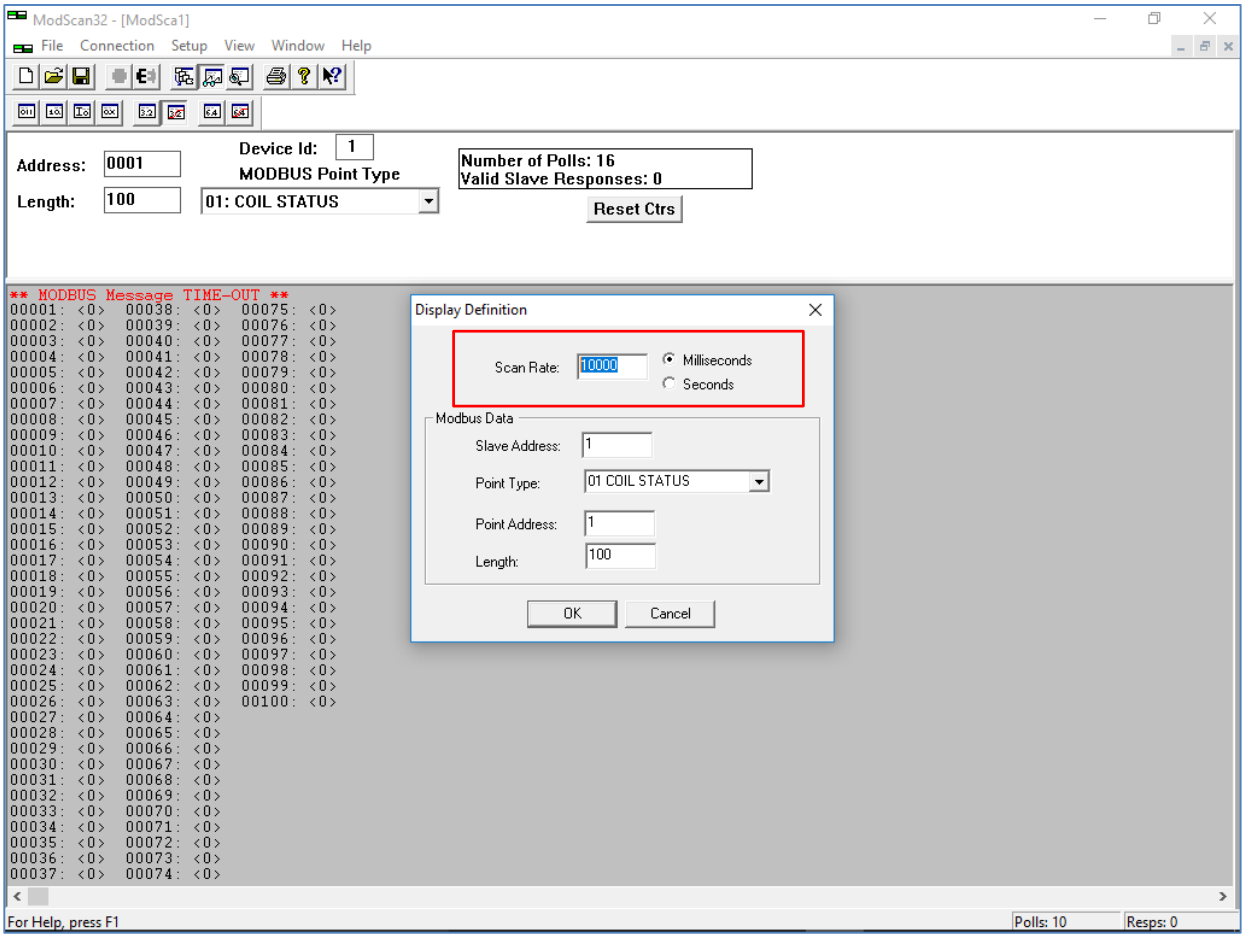





ModScan32 - ModSca1
File Connection Setup View Window Help
ModSca1
Address: 0001
Length: 100
Device Id: 1
MODBUS Point Type
01: COIL STA
Number of Polls: 0
** Device NOT CONNECTED! **
Connection Details
Connect Using:
Remote modbusTCP Server
IP Address: 192.168.11.204
Service Port: 7000
Configuration
Baud Rate: 9600
Word Length: 8
Parity: NONE
Stop Bits: 1
Hardware Flow Control
Wait for DSR from slave
Wait for CTS from slave
DTR Control: Disable
RTS Control: Disable
Delay 0 ms after RTS before transmitting first character
Delay 0 ms after last character before releasing RTS
Protocol Selections
OK
Cancel
For Help, press F1
Polls: 0
Resps: 0


ModScan32 - ModSca1
File Connection Setup View Window Help
ModSca1
Address: 0001
Length: 100
Device Id: 1
MODBUS Point Type
01: COIL STA
Number of Polls: 0
** Data Uninitialized **
Connection Details
Modbus Protocol Selections
Transmission Mode
STANDARD
ASCII RTU
DANIEL/ENRON/OMNI
ASCII RTU
Slave Response Timeout
2000 (msecs)
Delay Between Polls
3000 (msecs)
Force modbus command 15 and 16 for single-point writes.
(To be used in cases where the slave does not support the single-point write functions 05 and 06.)
OK
Cancel
OK
Cancel
For Help, press F1
Polls: 0
Resps: 0

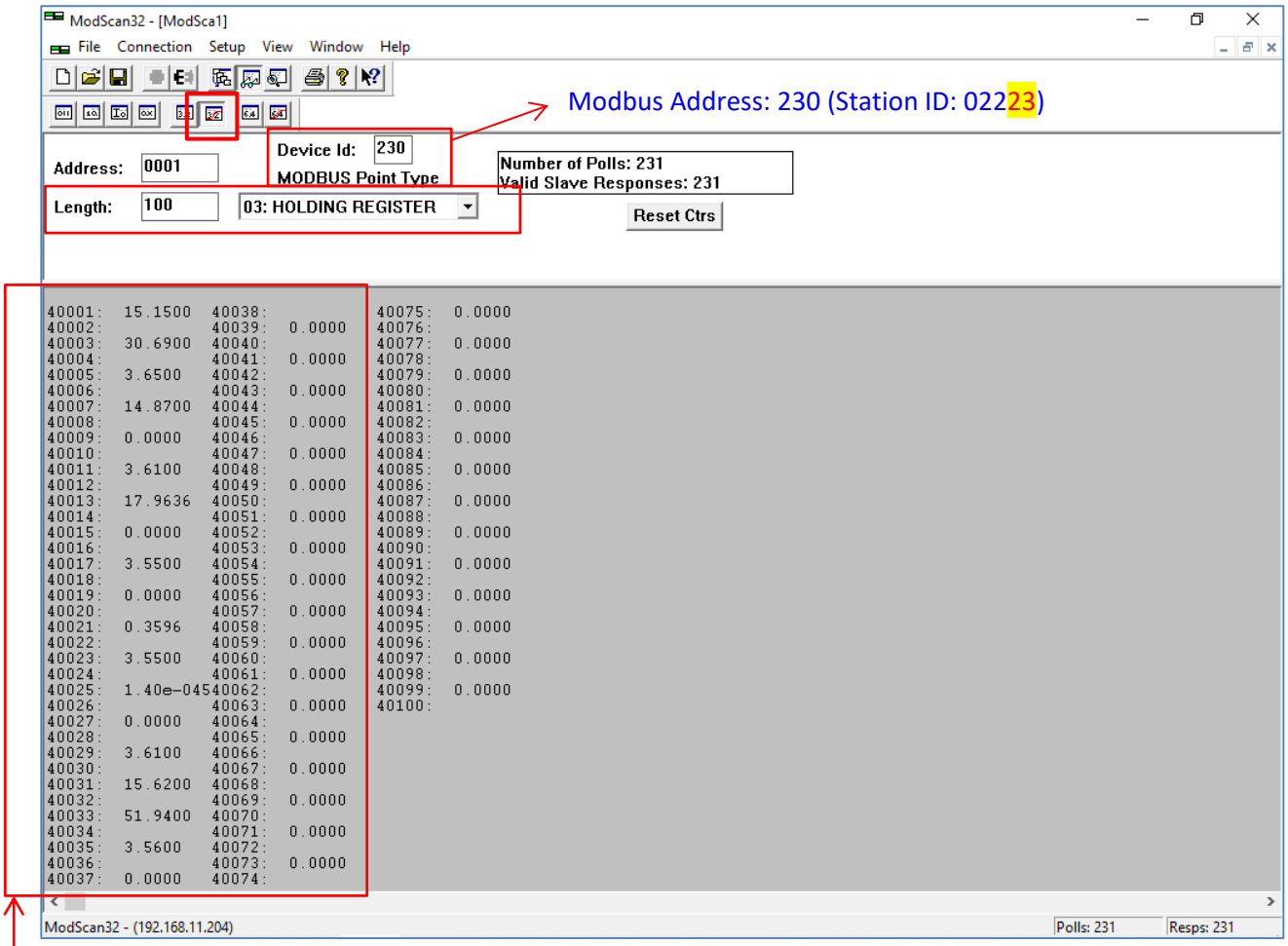

ModScan32 - ModSca1
File Connection Setup View Window Help
Data Definition
Display Options
Extended
Text Capture
Dbase Capture
Capture Off
Reset Ctrs
ModSca1
Address:
Length:
Number of Polls: 3
Valid Slave Responses: 0
Reset Ctrs
** MODBUS Message TIME-OUT **
Select modbus data
Polls: 3
Resps: 0


ModScan32 - [ModSca1]
File Connection Setup View Window Help
Address: 0001
Length: 100
Device Id: 1
MODBUS Point Type
01: COIL STATUS
Number of Polls: 16
Valid Slave Responses: 0
Reset Ctrs
** MODBUS Message TIME-OUT **
Display Definition
Scan Rate: 10000
Milliseconds
Seconds
Modbus Data
Slave Address: 1
Point Type: 01 COIL STATUS
Point Address: 1
Length: 100
OK
Cancel
For Help, press F1
Polls: 10
Resps: 0

[Example 1]

G7-BS Base Station ID: 00223

Number of Sensors enabled and connected: 8



Modbus Device Address = Station ID			
	Data Register Address		
	Temperature	Humidity	Battery Voltage
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[Example 1]

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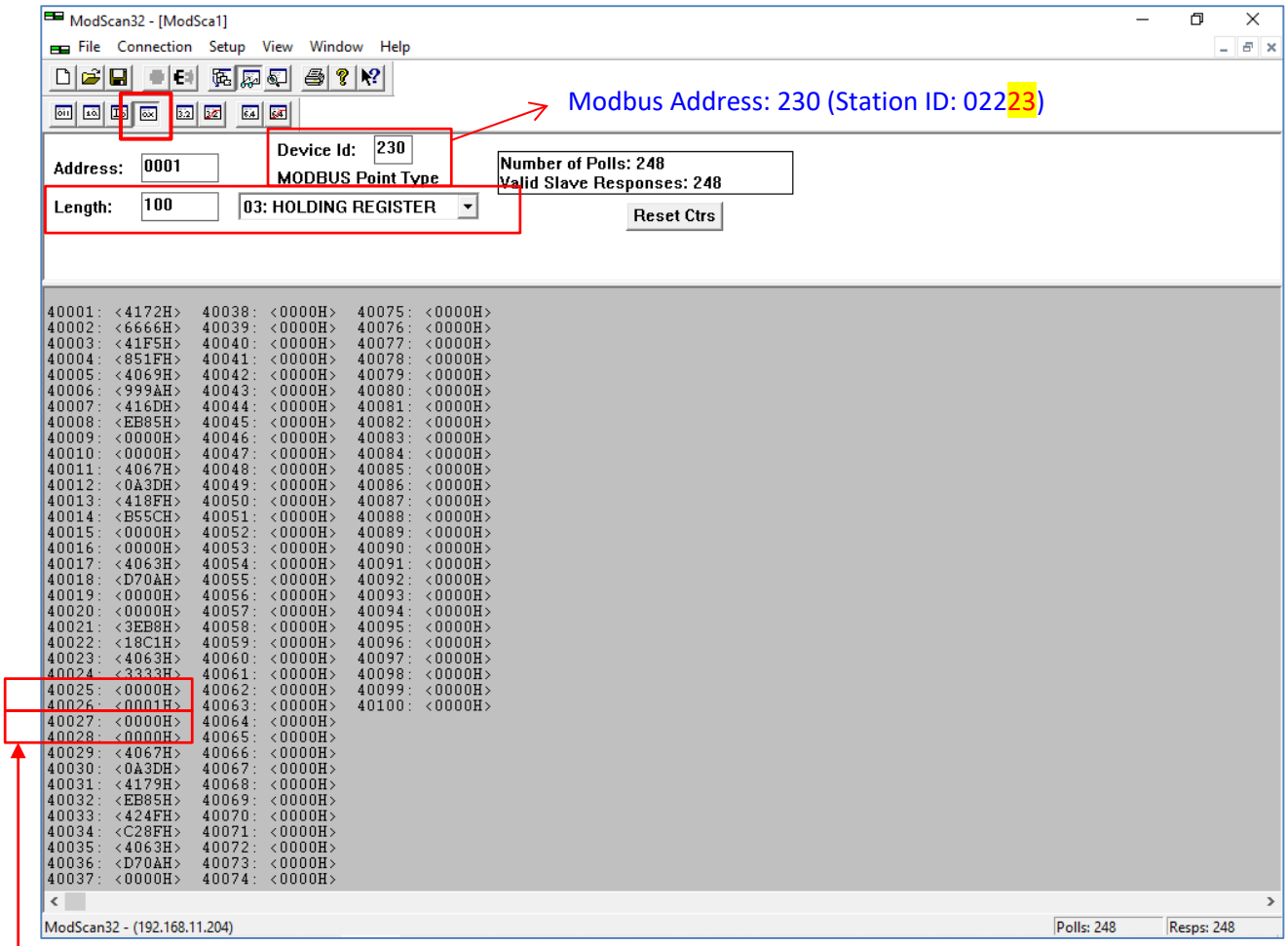


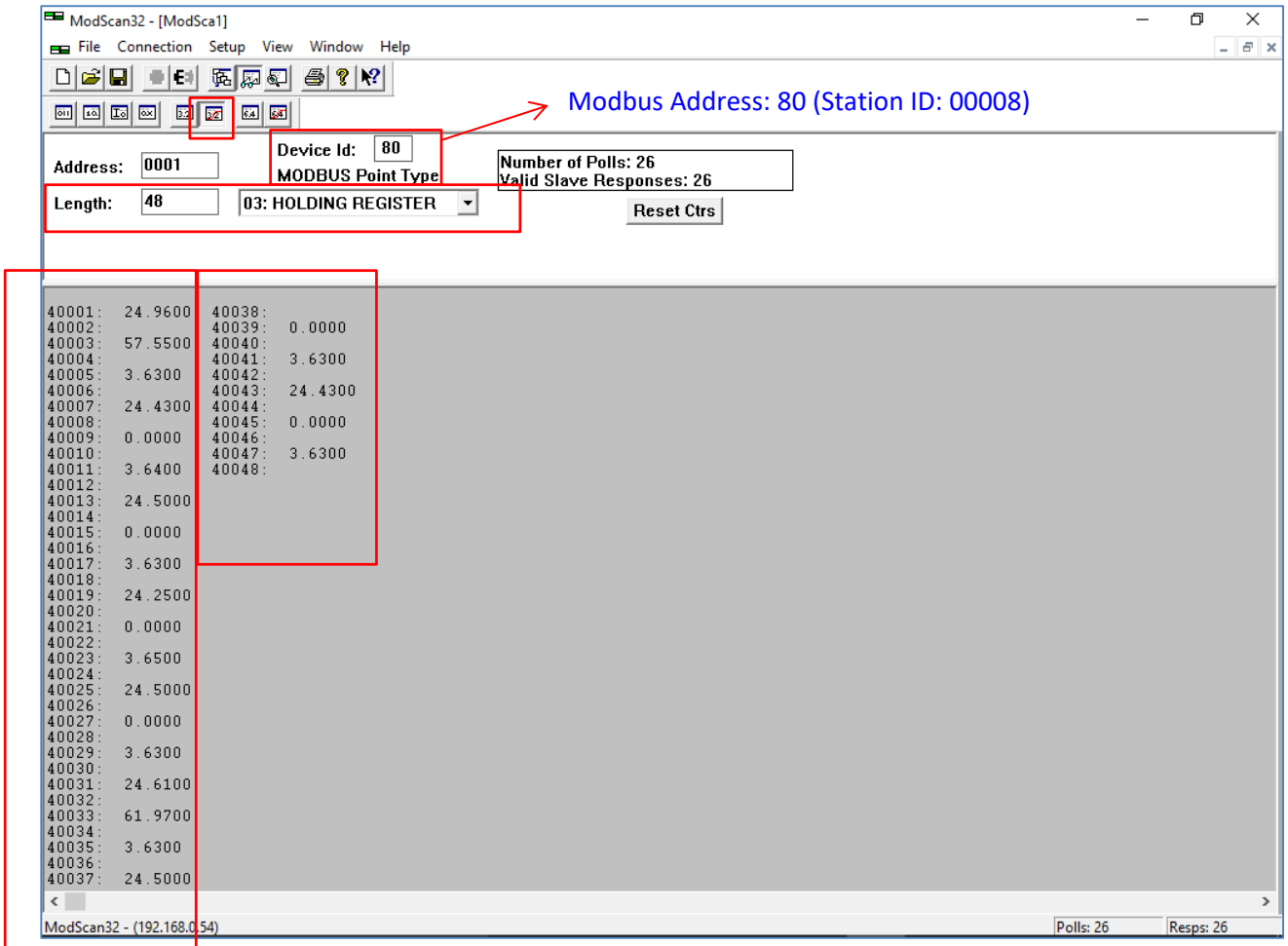
Sensor: G7-D2

- Data Field A: 00001 Alarm On
- Data Field H: 00000 Alarm Off

[Example 2]

G7-BS Base Station ID: 00008

Number of Sensors enabled and connected: 8



Modbus Device Address = Station ID			
	Data Register Address		
	Temperature	Humidity	Battery Voltage
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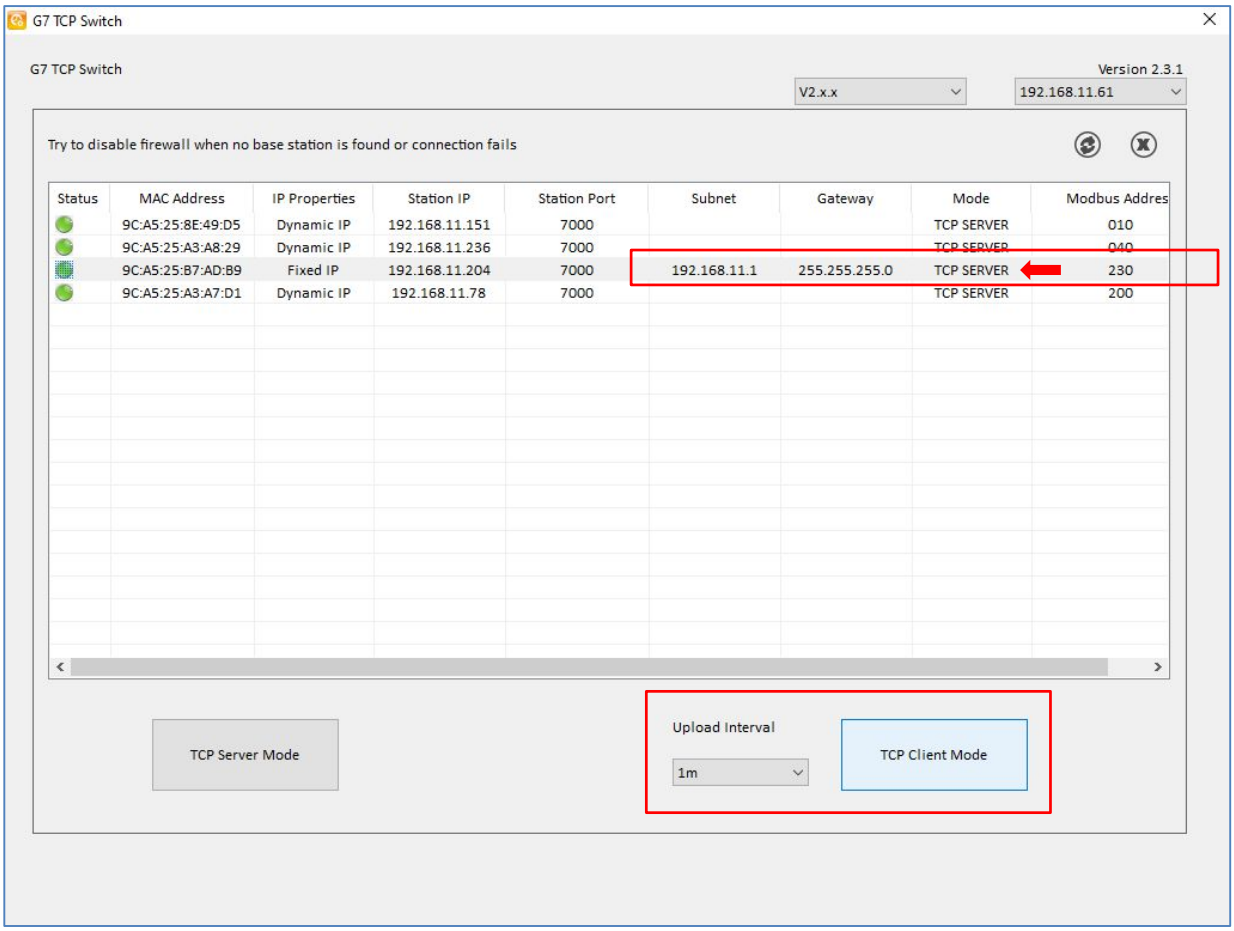
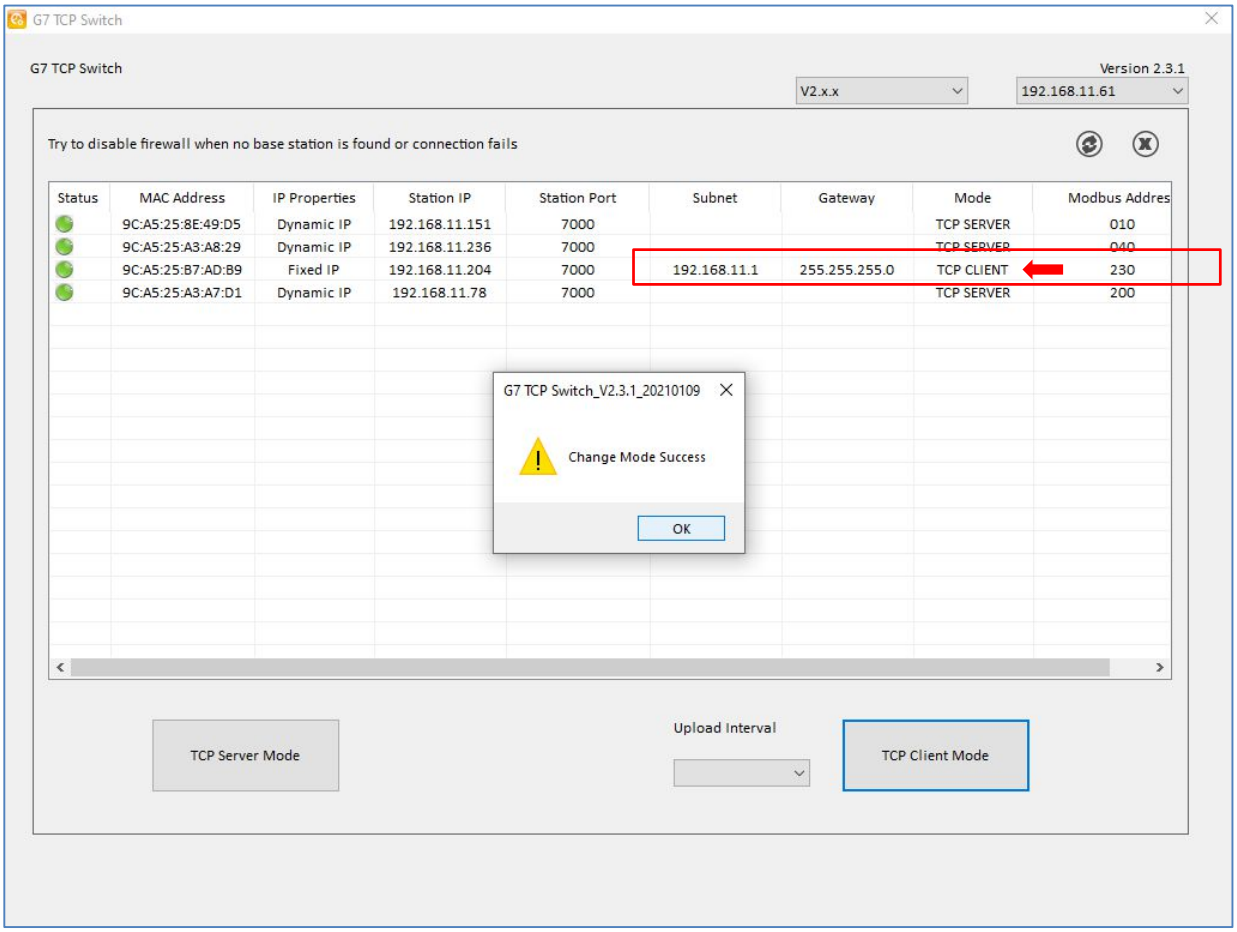
Sensor ID = 9	40049	40051	40053
Sensor ID = 10	40055	40057	40059

(6) Revert to TCP Client Mode



Select the base station and upload interval, and Click [TCP Client Mode]