Modified by: G. Iraola
14/12/2018

ModBUS TCP Specification v7 for Wibeee family

From v3.X.570 firmware version

From v4.4.480 / v5.4.480 firmware version

Holding Registers

Address (Hex)		Value	Units	Resolution	Word Type	num. of Words	Descritption
0	1	Active Power 1	W	1 W	Unsigned INT 16-bit	2	Phase 1 Active Power
2	3	Active Power 2	W	1 W	Unsigned INT 16-bit	2	Phase 2 Active Power
4	5	Active Power 3	W	1 W	Unsigned INT 16-bit	2	Phase 3 Active Power
6	7	Active Power Total	W	1 W	Unsigned INT 16-bit	2	Total Active Power (Addition of three phases active Power)
8	9	Reactive Power 1	VAr	1 VAr	Signed INT 16-bit	2	Phase 1 Reactive Power
A	B	Reactive Power 2	VAr	1 VAr	Signed INT 16-bit	2	Phase 2 Reactive Power
C	D	Reactive Power 3	VAr	1 VAr	Signed INT 16-bit	2	Phase 3 Reactive Power
E	F	Reactive Power Total	VAr	1 VAr	Signed INT 16-bit	2	Total Reactive Power (Addition of three phases reactive ind. Power)
10	11	Aparent Power 1	VA	1 VA	Unsigned INT 16-bit	2	Phase 1 Aparent Power
12	13	Aparent Power 2	VA	1 VA	Unsigned INT 16-bit	2	Phase 2 Aparent Power
14	15	Aparent Power 3	VA	1 VA	Unsigned INT 16-bit	2	Phase 3 Aparent Power
16	17	Aparent Power Total	VA	1 VA	Unsigned INT 16-bit	2	Total Aparent Power (Addition of three phases Aparent Power)
18	19	Active Energy 1	kWh x 100	0.01 kWh	Unsigned INT 16-bit	2	Phase 1 Active energy
1A	1B	Active Energy 2	kWh x 100	0.01 kWh	Unsigned INT 16-bit	2	Phase 2 Active energy
1C	1D	Active Energy 3	kWh x 100	0.01 kWh	Unsigned INT 16-bit	2	Phase 3 Active energy
1E	1F	Active Energy Total	kWh x 100	0.01 kWh	Unsigned INT 16-bit	2	Total Active energy (Addition of three phases active energy)
20	21	Reactive Energy L 1	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 1 Reactive inductive energy
22	23	Reactive Energy L 2	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 2 Reactive inductive energy
24	25	Reactive Energy L 3	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 3 Reactive inductive energy
26	27	Reactive Energy L Total	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Total Reactive ind. energy (Addition of three phases reactive ind. energy)
28	29	Reactive Energy C 1	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 1 Reactive cap. Energy
2A	2B	Reactive Energy C 2	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 2 Reactive cap. Energy
2C	2D	Reactive Energy C 3	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Phase 3 Reactive cap. Energy
2E	2F	Reactive Energy C Total	kVArh x 100	0.01 kVArh	Unsigned INT 16-bit	2	Total Reactive cap. energy (Addition of three phases reactive cap. energy)
30	31	Current 1	A x 100	0.01 A	Unsigned INT 16-bit	2	Phase 1 Current
32		Model	-	-	Unsigned INT 16-bit	1	Model identifier**
33		Scale	A	1 A	Unsigned INT 16-bit	1	Selected Current Scale
34	35	Current 2	A x 100	0.01 A	Unsigned INT 16-bit	2	Phase 2 Current
36	37	Current 3	A x 100	0.01 A	Unsigned INT 16-bit	2	Phase 3 Current
38	39	Current Total	A x 100	0.01 A	Unsigned INT 16-bit	2	Total Current (Addition of three phases Current)
3A		Voltage 1	V x 100	0.01 V	Unsigned INT 16-bit	1	Phase 1 Voltage
3B		Voltage 2	V x 100	0.01 V	Unsigned INT 16-bit	1	Phase 2 Voltage
3C		Voltage 3	V x 100	0.01 V	Unsigned INT 16-bit	1	Phase 3 Voltage
3D		Voltage Average	V x 100	0.01 V	Unsigned INT 16-bit	1	Average Voltage (Average of three phases Voltage)
3E		Frequency 1	Hz x 100	0.01 Hz	Unsigned INT 16-bit	1	Phase 1 Frequency
3F		Frequency 2	Hz x 100	0.01 Hz	Unsigned INT 16-bit	1	Phase 2 Frequency
40		Frequency 3	Hz x 100	0.01 Hz	Unsigned INT 16-bit	1	Phase 3 Frequency
41		Frequency Average	Hz x 100	0.01 Hz	Unsigned INT 16-bit	1	Average Frecuency (Average of three phases Frecuency)
42		Power Factor 1	PF x 100	0.01	Signed INT 16-bit	1	Phase 1 Power Factor
43		Power Factor 2	PF x 100	0.01	Signed INT 16-bit	1	Phase 2 Power Factor
44		Power Factor 3	PF x 100	0.01	Signed INT 16-bit	1	Phase 3 Power Factor
45		Power Factor Total	PF x 100	0.01	Signed INT 16-bit	1	Total Power Factor (Calculation of three phases Power Factor)
46		AngleV1	Degrees x 10	0.1 °	Unsigned INT 16-bit	1	Phase1 Voltage Angle. Reference.
47		AngleV2	Degrees x 10	0.1 °	Unsigned INT 16-bit	1	Phase2-Phase1 Voltage Angle
48		AngleV3	Degrees x 10	0.1 °	Unsigned INT 16-bit	1	Phase3-Phase1 Voltage Angle
49*		THD-A1 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 1 Current THD odd
4A*		THD-A2 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 2 Current THD odd
4B*		THD-A3 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 3 Current THD odd
4C*		Fund. Harmonic A1	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 1 Current Fundamental Harmonic
4D*		Fund. Harmonic A2	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 2 Current Fundamental Harmonic
4E*		Fund. Harmonic A3	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 3 Current Fundamental Harmonic
4F*		3rd Harmonic A1	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 1 Current Harmonic 3
50*		3rd Harmonic A2	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 2 Current Harmonic 3
51*		3rd Harmonic A3	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 3 Current Harmonic 3
52*		5th Harmonic A1	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 1 Current Harmonic 5
53*		5th Harmonic A2	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 2 Current Harmonic 5
54*		5th Harmonic A3	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 3 Current Harmonic 5
55*		7th Harmonic A1	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 1 Current Harmonic 7
56*		7th Harmonic A2	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 2 Current Harmonic 7
57*		7th Harmonic A3	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 3 Current Harmonic 7
58*		9th Harmonic A1	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 1 Current Harmonic 9
59*		9th Harmonic A2	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 2 Current Harmonic 9
5A*		9th Harmonic A3	A x 10	0.1 A	Unsigned INT 16-bit	1	Phase 3 Current Harmonic 9
5B*		THD-V1 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 1 Voltage THD odd
5C*		THD-V2 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 2 Voltage THD odd
5D*		THD-V3 odd	% x 10	0.1 %	Unsigned INT 16-bit	1	Phase 3 Voltage THD odd
5E*		Fund. Harmonic V1	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 1 Voltage Fundamental Harmonic
5F*		Fund. Harmonic V2	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 2 Voltage Fundamental Harmonic
60*		Fund. Harmonic V3	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 3 Voltage Fundamental Harmonic
61*		3rd Harmonic V1	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 1 Voltage Harmonic 3
62*		3rd Harmonic V2	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 2 Voltage Harmonic 3
63*		3rd Harmonic V3	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 3 Voltage Harmonic 3
64*		5th Harmonic V1	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 1 Voltage Harmonic 5
65*		5th Harmonic V2	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 2 Voltage Harmonic 5
66*		5th Harmonic V3	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 3 Voltage Harmonic 5
67*		7th Harmonic V1	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 1 Voltage Harmonic 7
68*		7th Harmonic V2	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 2 Voltage Harmonic 7
69*		7th Harmonic V3	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 3 Voltage Harmonic 7
6A*		9th Harmonic V1	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 1 Voltage Harmonic 9
6B*		9th Harmonic V2	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 2 Voltage Harmonic 9
6C*		9th Harmonic V3	V x 10	0.1 V	Unsigned INT 16-bit	1	Phase 3 Voltage Harmonic 9

* **Harmonics measurements are only available for WibeeeBox, WibeeeBox Three-phase, Wibeee Max 2 Scales and Wibeee Max 3 Scales**

** **Model identifiers:**

Wibeee Monophase: 102	Wibeee Three-phase: 302	Wibeee Three-Phase RN: 312
Wibeee Max 1: 202	Wibeee Max 2 Scales: 222	Wibeee Max 3 Scales: 232
Wibeee Three-Phase 3W: 322	Wibeee Box: 132	Wibeee Plug: 402
Wibeee Box Three-Phase: 332		

MODBUS TCP Available Functions

Fun. Code	Function	Address	Value	Description
FC (03)	Read holding registers:	0x0000:0x005A	Magnitude value	Reads the 109 holding registers of measures
FC (05)	Write single coil:	0x0000 0x0001 0x0001	0xFF00 0xFF00 0x0000	Commands the reset of energy counters. Commands de relay ON action. (Only for Wibeee Plug) Commands de relay OFF action. (Only for Wibeee Plug)
FC (01)	Read coil status:	0x0001	Relay value	Reads current relay value (Only Wibeee Plug): Reads 0x0002 if relay is ON. Reads 0x0000 if relay is OFF

Addressess from 0x00 to 0x48 apply for all Wibeee family devices

Addressess from 0x49 to 0x6C just apply for devices with harmonics representation: WibeeeBox, WibeeeBox Three-phase, Wibeee Max 2 Scales and Wibeee Max 3 Scales

Data Refresh Time (min) must be set to "-1" within General Options section (internal website) during configuration stage in order to establish MODBUS TCP mode properly

Modbus TCP/IP clients and servers listen and receive Modbus data via port 502

All parameters composed by 2 words are Little Endian