MODBUS TABLE ORGANIZATION

Starting Address of the Group Registers (Dec)	Starting Address of the Group Registers (Hex)	System Version (Release)	System Version (Build)	Group Name (Text)	Group Code (Hex)	Group Complexity (Hex)	Group Version (Hex)
200	C8			Commands	F030	D5	000
4096	1000			Measures	F030	D5	000
4608	1200			Settings	F030	D5	000

MODBUS PROTOCOL DETAILS

Function Code (Dec)	Exception Codes (Dec)	Data Encoding
3	1, 2, 3	"Big Endian" (most significant byte first)
16	1, 2, 3	

MODBUS OVER SERIAL DETAILS

Physical Layer	Trasmission Modes	Device Addressing	Baud Rates (bit/s)	Data Bits	Data bits trasmission sequence	Parity	Stop Bits
standard EIA/TIA 485 (RS-485) two-wire configuration	RTU	1÷247	programmable	8	Least significant bit first	no	1

MASTER/SLAVE COMMUNICATION TIMING

Timer Descrtiption	Timer Value (msec)
Inter-character time-out	25
Response delay (from master request)	25÷100
Delay Time (between two master trasmissions)	>25

REFER ALSO TO: www.modbus.org - MODBUS over serial line specification and implementation guide V1.02
- MODBUS APPLICATION PROTOCOL SPECIFICATION V1.1b

NOTE: File and printed copies of this document are not subject to document change control.

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [bit]	Description	Note	Read Function Codes (Dec)	Data Storing (2)
				(no DISCRETE INPUTS availables)			

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [bit]	Description	Note	Read Function Codes (Dec)	Write Function Codes (Dec)	Data Storing (2)
				(no COILS availables)				

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [word]	Bit Position	Description	Type	Scale	Unit	Range	Note	Read Function Code (Dec)	Data Storing (2)
4097	4096	1000	62		Measures							
4097	4096	1000	2		Phase 1 : phase voltage	unsigned integer	1	mV			3	
4099	4098	1002	2		Phase 2 : phase voltage	unsigned integer	1	mV			3	
4101	4100	1004	2		Phase 3 : phase voltage	unsigned integer	1	mV			3	
4103	4102	1006	2		Phase 1 : current	unsigned integer	1	mA			3	
4105	4104	1008	2		Phase 2 : current	unsigned integer	1	mA			3	
4107	4106	100A	2		Phase 3 : current	unsigned integer	1	mA			3	
4109	4108	100C	2		Neutral current	unsigned integer	1	mA			3	
4111	4110	100E	2		Chained voltage : L1-L2	unsigned integer	1	mV			3	
4113	4112	1010	2		Chained voltage : L2-L3	unsigned integer	1	mV			3	
4115	4114	1012	2		Chained voltage : L3-L1	unsigned integer	1	mV			3	
4117	4116	1014	2		3-phase : active power	unsigned integer	1, 0.01	W		*See DETAILS*	3	
4119	4118	1016	2		3-phase : reactive power	unsigned integer	1, 0.01	var		*See DETAILS*	3	
4121	4120	1018	2		3-phase : apparent power	unsigned integer	1, 0.01	VA		*See DETAILS*	3	
4123	4122	101A	1		3-phase : sign of active power	unsigned integer	1	-	0, 1	0=positive, 1=negative	3	
4124	4123	101B	1		3-phase : sign of reactive power	unsigned integer	1	-	0, 1	0=positive, 1=negative	3	
4125	4124	101C	2		3-phase : indirect positive active energy	unsigned integer	1	kWh			3	Y
4127	4126	101E	2		3-phase : direct positive reactive energy	unsigned integer	1, 10, 100, 1000, 10.000, 100.000	varh		*See DETAILS*	3	Y
4129	4128	1020	2		3-phase : direct positive active energy	unsigned integer	1, 10, 100, 1000, 10.000, 100.000	Wh		*See DETAILS*	3	Y
4131	4130	1022	2		Operating time counter	unsigned integer	1	sec			3	Y
4133	4132	1024	1		3-phase : power factor	unsigned integer	0.01	-			3	
4134	4133	1025	1		3-phase : sector of power factor (cap or ind)	unsigned integer	1	-	0, 1, 2	0="1" or "0", 1="ind" (L), 2="cap" (C)	3	
4135	4134	1026	1		Frequency	unsigned integer	0.1	Hz			3	
4136	4135	1027	2		3-phase : average power	unsigned integer	1, 0.01	W		*See DETAILS*	3	
4138	4137	1029	2		3-phase : peak maximum demand	unsigned integer	1, 0.01	W		*See DETAILS*	3	Y
4140	4139	102B	1		Time counter for average power	unsigned integer	1	min			3	
4141	4140	102C	2		Phase 1 : active power	unsigned integer	1, 0.01	W		*See DETAILS*	3	
4143	4142	102E	2		Phase 2 : active power	unsigned integer	1, 0.01	W		*See DETAILS*	3	
4145	4144	1030	2		Phase 3 : active power	unsigned integer	1, 0.01	W		*See DETAILS*	3	
4147	4146	1032	1		Phase 1 : sign of active power	unsigned integer		-	0, 1	0=positive, 1=negative	3	
4148	4147	1033	1		Phase 2 : sign of active power	unsigned integer		-	0, 1	0=positive, 1=negative	3	

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [word]	Bit Position	Description	Type	Scale	Unit	Range	Note	Read Function Code (Dec)	Data Storing (2)
4149	4148	1034	1		Phase 3 : sign of active power	unsigned integer		-	0, 1	0=positive, 1=negative	3	
4150	4149	1035	2		Phase 1 : reactive power	unsigned integer	1, 0.01	var		*See DETAILS*	3	
4152	4151	1037	2		Phase 2 : reactive power	unsigned integer	1, 0.01	var		*See DETAILS*	3	
4154	4153	1039	2		Phase 3 : reactive power	unsigned integer	1, 0.01	var		*See DETAILS*	3	
4156	4155	103B	1		Phase 1 : sign of reactive power	unsigned integer		-	0, 1	0=positive, 1=negative	3	
4157	4156	103C	1		Phase 2 : sign of reactive power	unsigned integer		-	0, 1	0=positive, 1=negative	3	
4158	4157	103D	1		Phase 3 : sign of reactive power	unsigned integer		-	0, 1	0=positive, 1=negative	3	
4609	4608	1200	2		Settings							
4609	4608	1200	1		Current transformer ratio (CT)	unsigned integer	1	-			3	Y
4610	4609	1201	1		Voltage transformer ratio (VT)	unsigned integer	0.1	-			3	Y

(2) If Y the data is stored in a non-volatil memory

DETAILS

	Type	Scale	Unit	Range	Condition
3-phase : active power		0.01	W		CTxVT<6.000
		1	W		CTxVT ≥ 6.000
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : reactive power		0.01	var		CTxVT<6.000
		1	var		CTxVT≥6.000
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : apparent power		0.01	VA		CTxVT<6.000
		1	VA		CTxVT≥6.000
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : direct positive reactive energy		1,000,000	varh		100.000≤CTxVT<1.000.000
		100,000	varh		10.000≤CTxVT<100.000
		10,000	varh		1.000≤CTxVT<10.000
		1,000	varh		100≤CTxVT<1.000
		100	varh		10≤CTxVT<100
		10	varh		1≤CTxVT<10
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : direct positive active energy		1,000,000	Wh		100.000≤CTxVT<1.000.000
		100,000	Wh		10.000≤CTxVT<100.000
		10,000	Wh		1.000≤CTxVT<10.000
		1,000	Wh		100≤CTxVT<1.000
		100	Wh		10≤CTxVT<100
		10	Wh		1≤CTxVT<10
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : average power		0.01	W		CTxVT<6.000
		1	W		CTxVT≥6.000
	Type	**Scale**	**Unit**	**Range**	**Condition**
3-phase : peak maximum demand		0.01	W		CTxVT<6.000
		1	W		CTxVT≥6.000
	Type	**Scale**	**Unit**	**Range**	**Condition**
phase 1 : active power		0.01	W		CTxVT<6.000

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [word]	Bit Position	Description	Type	Scale	Unit	Range	Note	Read Function Code (Dec)	Data Storing (2)
							1	W		CTxVT≥6.000		
					phase 2 : active power	**Type**	**Scale**	**Unit**	**Range**	**Condition**		
							0.01	W		CTxVT<6.000		
							1	W		CTxVT≥6.000		
					phase 3 : active power	**Type**	**Scale**	**Unit**	**Range**	**Condition**		
							0.01	W		CTxVT<6.000		
							1	W		CTxVT≥6.000		
					phase 1 : reactive power	**Type**	**Scale**	**Unit**	**Range**	**Condition**		
							0.01	var		CTxVT<6.000		
							1	var		CTxVT≥6.000		
					phase 2 : reactive power	**Type**	**Scale**	**Unit**	**Range**	**Condition**		
							0.01	var		CTxVT<6.000		
							1	var		CTxVT≥6.000		
					phase 3 : reactive power	**Type**	**Scale**	**Unit**	**Range**	**Condition**		
							0.01	var		CTxVT<6.000		
							1	var		CTxVT≥6.000		

Register Number	Register Address (Dec)	Register Address (Hex)	Dimension [word]	Bit Position	Description	Scale	Unit	Range	Note	Read Function Codes (Dec)	Write Function Codes (Dec)	Data Storing (2)
201	200	C8			Commands							
201	200	C8	1		Reset Commands. [IND] 10 [00C8] [0001] [02] [00XY] where: X=0; Y=8 ; reset " time counter for average power" X=1; Y=0 ; reset " 3-phase : peak maximum demand"				*See DETAILS*		16	

DETAILS	
Reset Commands	[IND] = Device's modbus address