UWP 3.0 Driver Notes for ATyS p via Plug-in Ethernet Communication Module

Using this manual

Safety Precautions

Authorised Personnel Only

The product or system described in this documentation must be installed, operated, and maintained by qualified personnel only. NHP accept no responsibility for the consequences of the use of this equipment by unqualified personnel.

A qualified person is one with the necessary skills and knowledge of the construction and operation of the installation of electrical equipment and has been trained to identify and avoid risks.

Appropriate use of NHP, Carlo Gavazzi / SOCOMEC products

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Appropriate use of NHP, Carlo Gavazzi or SOCOMEC products during transport, storage, installation, assembly, commissioning, operation, and maintenance is necessary to ensure safe operation and without any problems.

The permissible ambient conditions must be met. The information contained in the technical documentation must be observed.

Publication of responsibility

The contents of this document have been reviewed to ensure that the reliability of the information is correct at time of publication.

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Firmware Notice

The firmware of the products at the creation of the driver is listed below. Errors experienced while using this document may be due to miss matched firmware version. If errors are experienced after a firmware upgrade has been completed, please contact NHP for the latest version of the driver.

This manual has been developed with UWP Firmware V8.4.0.3.

Summary of Changes

This section highlights the details of changes made since the previous issue of this document.

The versioning convention used to track changes in this document follows the structure V**x.y.z** where:

x: Major revision, where extensive changes are made which is generally incompatible with the previous version. Such changes may include new firmware upgrade and/or features, or removal of information which is no longer relevant or applicable to the previous version.

y: Minor revision, where changes made do not change the overall scope of the previous version but may include additional information which complements or corrects the previous version or provides additional clarity on an existing topic.

z: Patch version, where small changes are made to correct minor errors or adjust existing text, charts, figures and/or images, and which do not add or remove information from the previous version. Example changes may include spelling corrections, image re-sizing and adjustments, updated images, etc.

Version	Publication date	Changes	By
V 1.0.0		Initial release	F.G.

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Introduction

The UWP 3.0 has the capability to centralise multiple meters and power components with Modbus RTU or TCP capability. It can act as a central point of information or a gateway to a larger building management or energy management system. To reduce UWP 3.0 commissioning time, drivers have been created for NHP's meters and power components.

This user manual outlines the variables included in the ATyS p driver and their respective placement within the Modbus address map. The driver has been created for monitoring purposes only, no write functions have been included in this version. To obtain the write functionality offered by the ATyS p, alternate products must be used.

Variables for the extra I/O modules, control functions, LED indications and communication settings of the ATyS p have been excluded from this version of the driver.

Who Should Use This Manual?

This manual aims to provide users, electricians, panel builders and maintenance personnel with the technical information required for commissioning and operation of the NHP/Carlo Gavazzi UWP 3.0 and NHP/SOCOMEC ATyS p remote transfer switch together.

Users of this document must have at minimum a basic understanding of the following:

- Ethernet, Modbus RTU and TCP communication
- Serial RS-485 wiring practices
- Electrical circuit protection

Applicable Products

- UWP 3.0
    - Product ID: UWP30RSEXXX
- ATyS p Auto Transfer Switch part numbers:

95733016	95733080	95733320	95734050	95734200
95733020	95733100	95734012	95734063	95734250
95733025	95733120	95734016	95734080	95734320
95733031	95733160	95734020	95734100	
95733040	95733180	95734025	95734120	
95733050	95733200	95734031	95734160	
95733063	95733250	95734040	95734180	

- ATyS p Auto Transfer Switch COMMS module part numbers:

17634025	Ethernet
95733012	RS485 Modbus (Modbus RTU)

Wiring and installation instruction of these products can be found in the respective product's user manual. Please see additional resources section for links.

Additional resources

The following resources contain additional information which should be read in conjunction with this document.

Resource	Description
ATyS p Instruction Manual	Information on installing, mounting, wiring, and Modbus map for ATyS p Communication Module.
UWP 3.0 Installation Manual	Information on installing, mounting, wiring the UWP 3.0 Module.
UWP 3.0 Tool User Manual	Information on configuring and commission the UWP 3.0 Module.
UWP 3.0 WebApp User Manual	Information on setting up the monitoring page, reoccurring reports, and alarms UWP 3.0 Module.

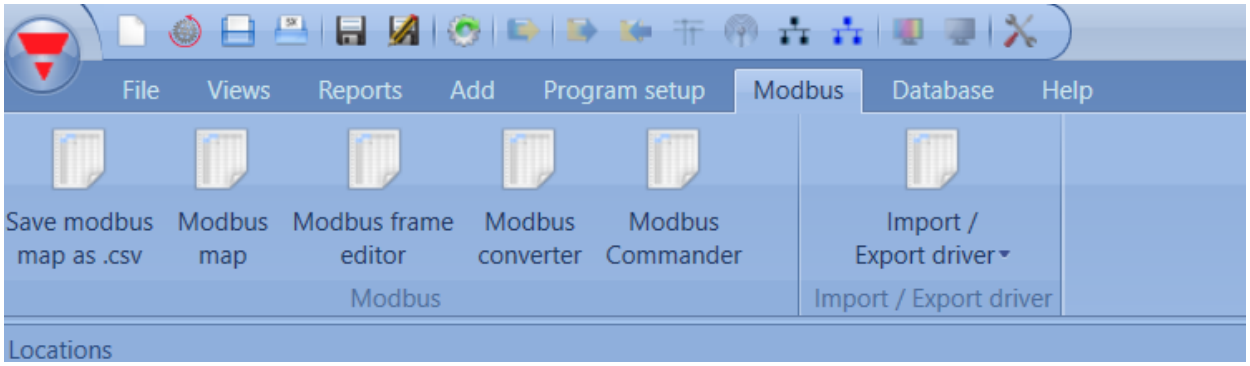
Terminology and Abbreviations

Abbreviation	Description	Abbreviation	Description
0DT	Dead Timer	**MOD AUT**	Automatic mode
AL	Alarm	**NBL**	Network Balance
AT	Available Timer	**OP FCT**	Operating Factor (Duty Cycle)
BET	Motor	**OT**	Return to Zero Timer
CAP	Return to Zero Capacitor	**POS**	Position Fault
CT	Cool Down Timer	**PRIO EON**	Priority External on Load
E1T	On Load External Operation (Start)	**PRIO NET**	Priority Network
E2T	On Load External Operation (Duration)	**PRIO TON**	Priority On Load Test
E3T	On Load External Operation (End)	**PWR**	Insufficient Switchover Power
E5T	Off Load External Operation (Start)	**ROT**	Phase Rotation
E6T	Off Load External Operation (Duration)	**RT**	Return Timer
E7T	Off Load External Operation (End)	**RTE**	Back Transfer
EET	Programming Genset Starting Time Delay	**ST**	Start Timer
EOF	External Off Load	**TFT**	Test Off Load Timer
EON	External On Load	**THD**	Total Harmonic Distortion
FT/ FLT	Fault Time	**TOF**	Off Load Test
Hz and F	Frequency	**TON**	On Load Test
LCD	Liquid Crystal Display (LCD)	**TOT**	Test On Load Timer
LED	Light Emitting Diode	**TON**	On Load Test
LST	Load Shedding Timer		

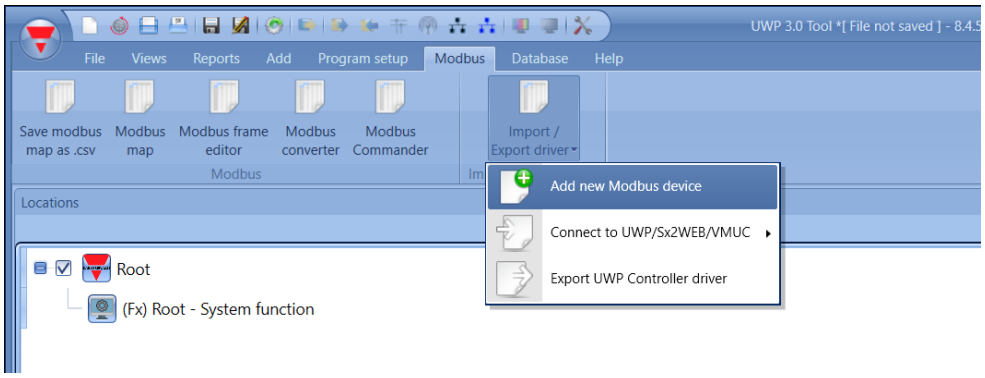
Adding the Driver to UWP 3.0 Software

1. Download SOCOMEC_ATyS_P_Vx_y-Ethernet.xml file from the NHP Energy management website.

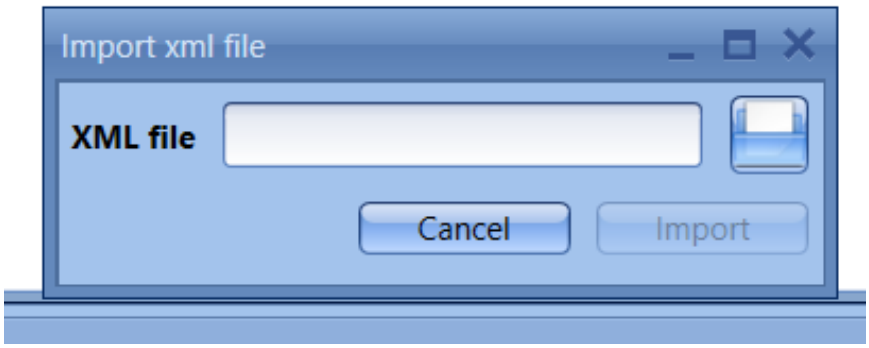
2. In the UWP Tool, go to the Modbus tab, then Import/Export Driver.



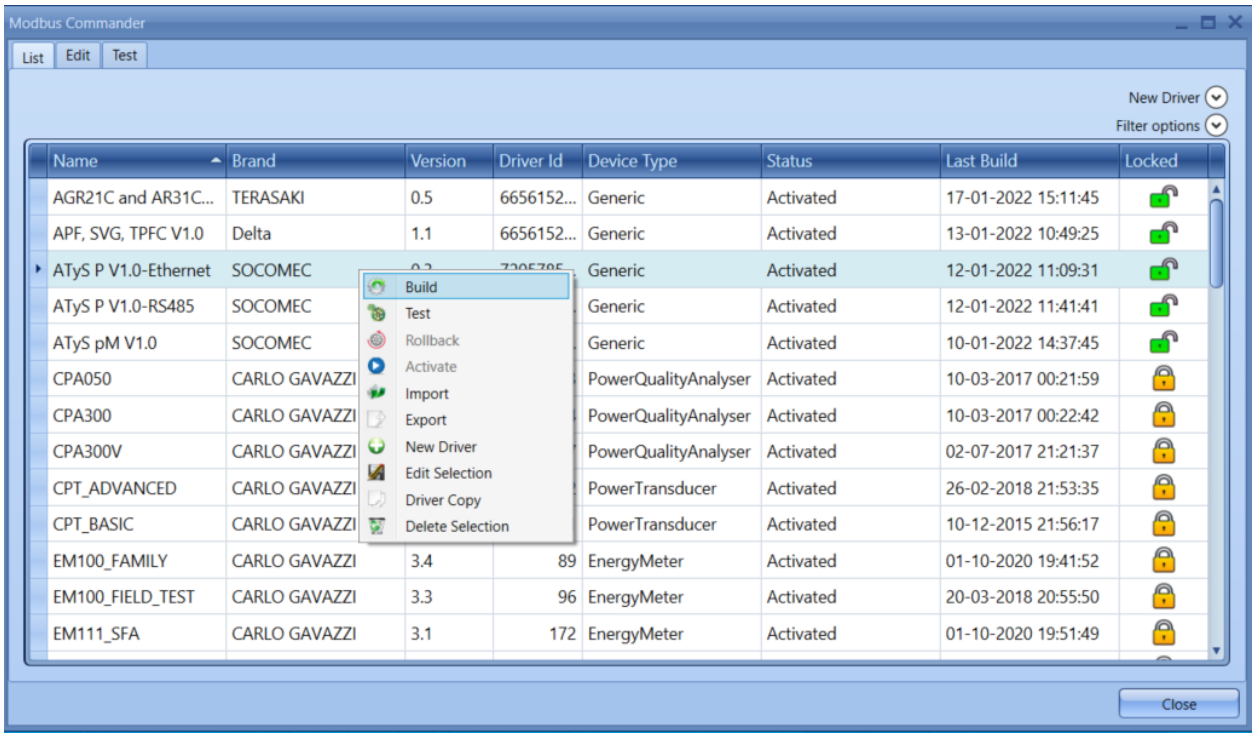
3. Select, Add new Modbus device.



4. Select the folder to browse your documents for the downloaded file. Then click import.



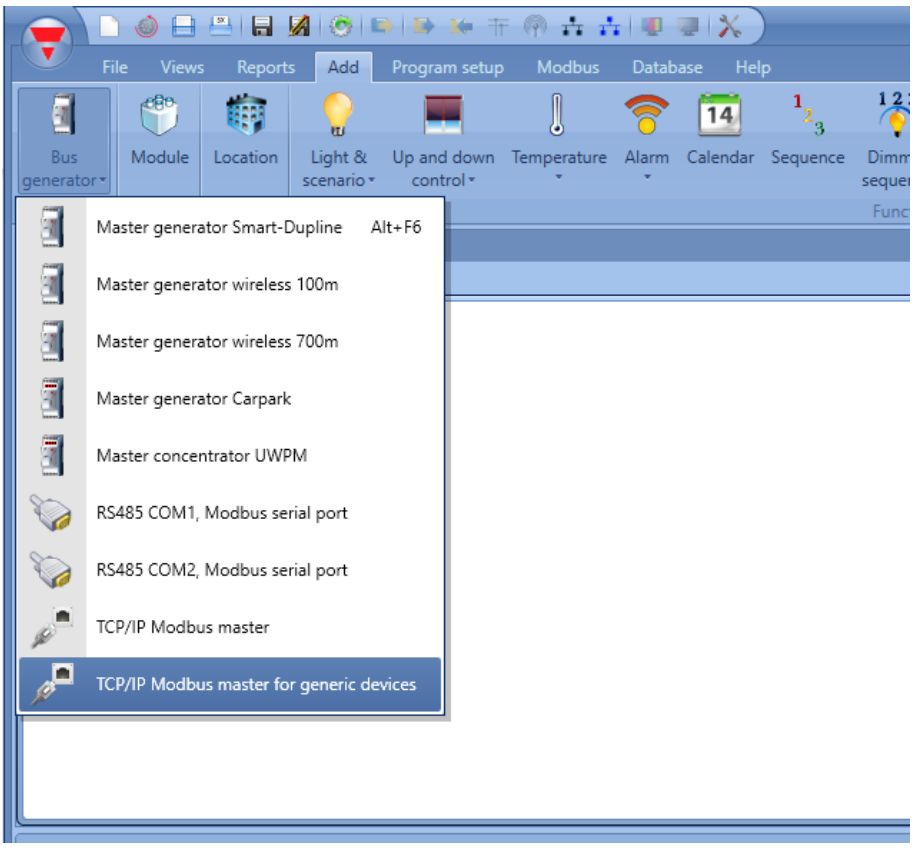
5. Open the Modbus Commander. Select the newly imported driver from the list. Right-click to Build and Activate.



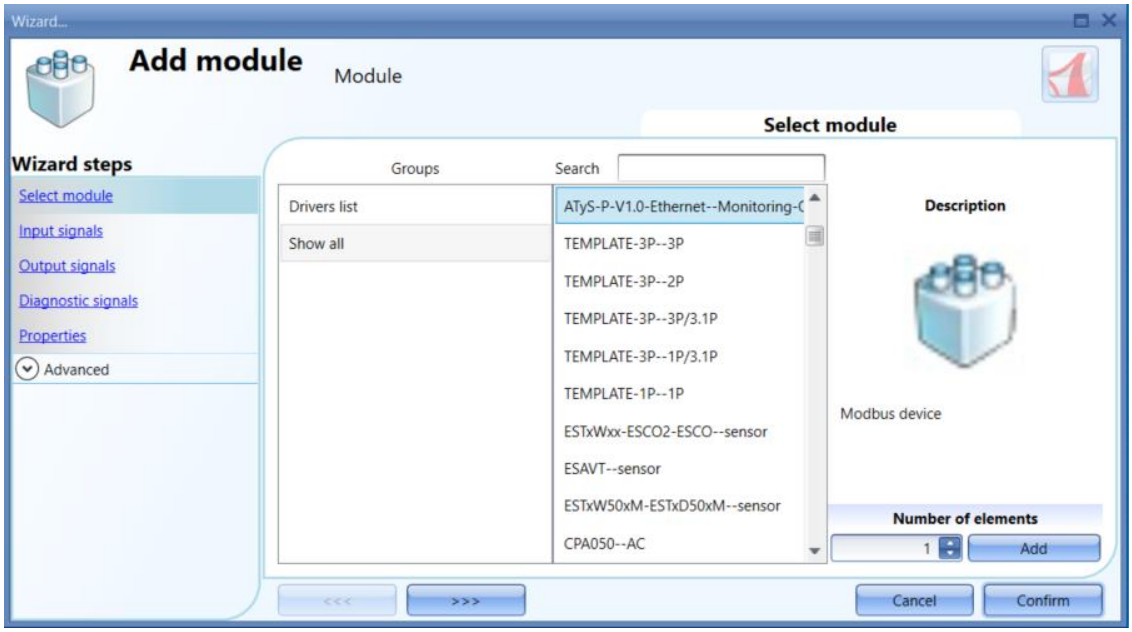
It is now available to be added as a Modbus TCP/IP module into the project.

Adding ATyS p metering module as a Module to your project

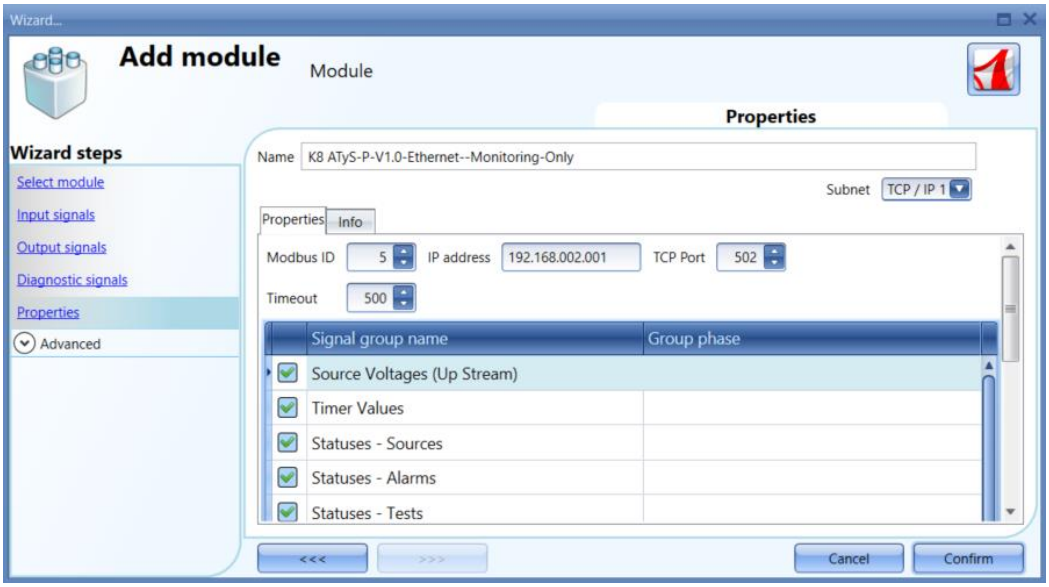
6. Go to Add, then Bus generator – Name the bus and click confirm. Using Modbus TCP in this example:



7. Select the new bus and click Module. Select the ATyS p Ethernet driver

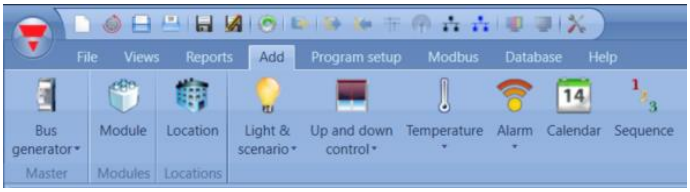


8. Before clicking on confirm go to properties and check the Modbus ID matches that of the ATyS p module (please refer to Annexe I – 12. Communication menu – keypad navigation on page 99 of the ATyS p instruction manual for communication address and designation details). Click confirm.



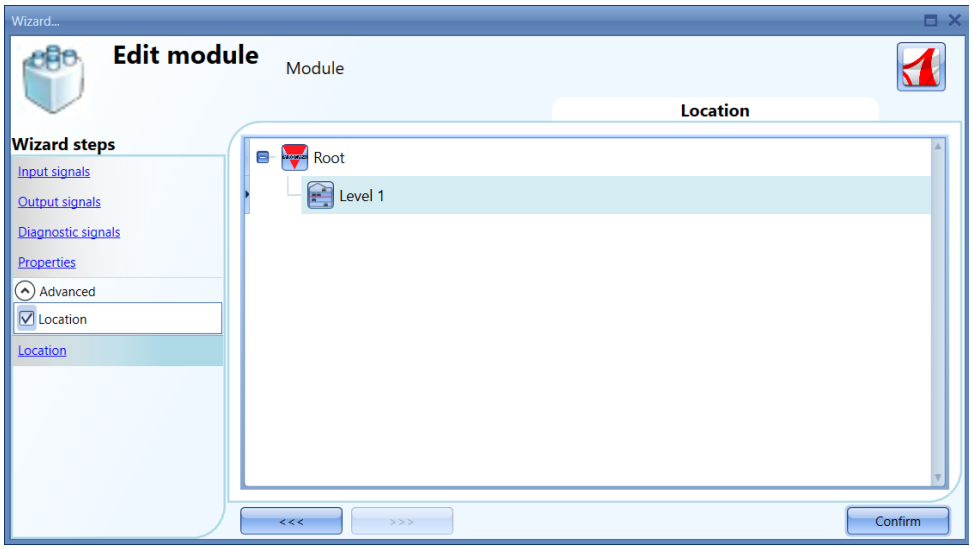
9. For ease of monitoring and future maintenance, the location and naming conventions of the module can be changed at this stage.

    a. To add a location, click Location. Name and select the location type - you can choose room or building names. Here we have chosen to represent the modules by levels. Click confirm.



    b. Once the location is added, click on the module icon.

    c. Go to advanced → tick location → select the location for the module to be assigned to. Click confirm.

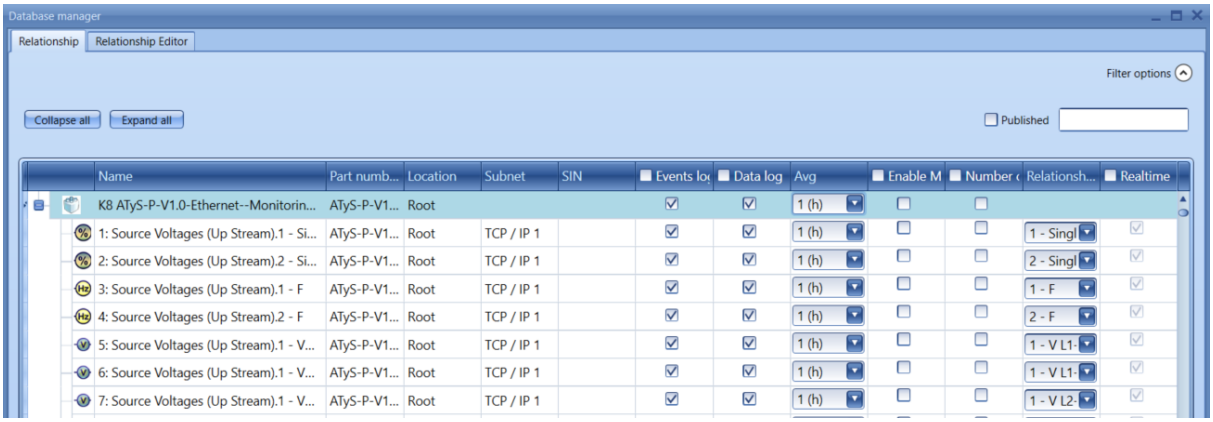


10. Before the setup can be compiled and sent to the controller, you will need to choose how often the data needs to be read.

    a. Under the Database tab, go to Database Management

    b. Tick events and data log for the variables to be read and pick a sampling time (1 hour)

    c. Confirm



11. Under the File menu, compile the project and download to controller.

Modbus Communication Address Map

The grouping of the variables has been changed from the original map for the ease of monitoring and grouping on the UWP WebApp. The descriptions in this document are more detailed than the driver as this can be used as a reference.

Counter Values

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
5C05	1	Cycles in Auto Mode (Including Control Mode)		Annexe II – 23. Product counters
5C0F	1	Cycles in Control Mode		Annexe II – 23. Product counters
5C0A	1	Cycles in Manual Mode		Annexe II – 23. Product counters
CB00	1	Input Count		Annexe II – 4. Input/Output State
CB02	1	Output Count		Annexe II – 4. Input/Output State
5C06	1	Position 0 Switches in Auto Mode (Including Control Mode)		Annexe II – 23. Product counters
5C10	1	Position 0 Switches in Control Mode		Annexe II – 23. Product counters
5C0B	1	Position 0 Switches in Manual Mode		Annexe II – 23. Product counters
5C07	1	Position I Switches in Auto Mode (Including Control Mode)		Annexe II – 23. Product counters
5C11	1	Position I Switches in Control Mode		Annexe II – 23. Product counters
5C0C	1	Position I Switches in Manual Mode		Annexe II – 23. Product counters
5C08	1	Position II Switches in Auto Mode (Including Control Mode)		Annexe II – 23. Product counters
5C12	1	Position II Switches in Control Mode		Annexe II – 23. Product counters
5C0D	1	Position II Switches in Manual Mode		Annexe II – 23. Product counters
5C16	1	Start Order Activation		Annexe II – 23. Product counters
5C00	1	Total Cycles counter		Annexe II – 23. Product counters
5C01	1	Total Position 0 Switches		Annexe II – 23. Product counters
5C02	1	Total Position I Switches		Annexe II – 23. Product counters
5C03	1	Total Position II Switches		Annexe II – 23. Product counters
5C04	1	Total Switches		Annexe II – 23. Product counters
5C09	1	Total Switches in Auto Mode (Including Control Mode)		Annexe II – 23. Product counters
5C13	1	Total Switches in Control Mode		Annexe II – 23. Product counters
5C0E	1	Total Switches in Manual Mode		Annexe II – 23. Product counters

Load Affected by CT Part 1

For these values to be accurate the CTs for ATyS p are required to be installed.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
C55E	2	F (Frequency)	Hz	Annexe II – 1. Metrology Affected by current and voltage transformers
C560	2	I L1 (Current: I1)	mA	Annexe II – 1. Metrology Affected by current and voltage transformers
C562	2	I L2 (Current: I2)	mA	Annexe II – 1. Metrology Affected by current and voltage transformers
C564	2	I L3 (Current: I3)	mA	Annexe II – 1. Metrology Affected by current and voltage transformers
C566	2	In (Neutral Current: In)	mA	Annexe II – 1. Metrology Affected by current and voltage transformers
C570	2	P1 (Active Power phase 1 ±: P1)	kW	Annexe II – 1. Metrology Affected by current and voltage transformers
C572	2	P2 (Active Power phase 2 ±: P2)	kW	Annexe II – 1. Metrology Affected by current and voltage transformers
C574	2	P3 (Active Power phase 3 ±: P3)	kW	Annexe II – 1. Metrology Affected by current and voltage transformers
C576	2	Q1 (Reactive Power phase 1 ±: Q1)	kVAr	Annexe II – 1. Metrology Affected by current and voltage transformers
C578	2	Q2 (Reactive Power phase 2 ±: Q2)	kVAr	Annexe II – 1. Metrology Affected by current and voltage transformers
C57A	2	Q3 (Reactive Power phase 3 ±: Q3)	kVAr	Annexe II – 1. Metrology Affected by current and voltage transformers
C57C	2	S1 (Apparent Power phase 1: S1)	kVA	Annexe II – 1. Metrology Affected by current and voltage transformers
C57E	2	S2 (Apparent Power phase 2: S2)	kVA	Annexe II – 1. Metrology Affected by current and voltage transformers
C580	2	S3 (Apparent Power phase 3: S3)	kVA	Annexe II – 1. Metrology Affected by current and voltage transformers
C568	2	System P (∑ Active Power ±: P)	kW	Annexe II – 1. Metrology Affected by current and voltage transformers
C56E	2	System PF (∑ Power Factor: -: leading et +: lagging: PF)		Annexe II – 1. Metrology Affected by current and voltage transformers
C56A	2	System Q (∑ Reactive Power ±: Q)	kVAr	Annexe II – 1. Metrology Affected by current and voltage transformers
C56C	2	System S (∑ Apparent Power: S)	kVA	Annexe II – 1. Metrology Affected by current and voltage transformers
C552	2	V L1 – L2 (Phase to Phase Voltage: U12 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers
C558	2	V L1 – N (Simple voltage: V1 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers
C554	2	V L2 – L3 (Phase to Phase Voltage: U23 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers
C55A	2	V L2 – N (Simple voltage: V2 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers
C556	2	V L3 – L1 (Phase to Phase Voltage: U31 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers
C55C	2	V L3 – N (Simple voltage: V3 (load))	V	Annexe II – 1. Metrology Affected by current and voltage transformers

Load Affected by CT Part 2

For these values to be accurate CTs must be installed and connected to the ATyS p.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
C662	2	Partial Ea- (Partial Negative Active Energy)	kWh	Annexe II – 2. Energy
C65C	2	Partial Ea+ (Partial Positive Active Energy)	kWh	Annexe II – 2. Energy
C664	2	Partial Er- (Partial Negative Reactive Energy)	kVArh	Annexe II – 2. Energy
C65E	2	Partial Er+ (Partial Positive Reactive Energy)	kVArh	Annexe II – 2. Energy
C660	2	Partial Es (Partial Apparent Energy)	kVAh	Annexe II – 2. Energy
C582	2	PF1 (Power Factor phase 1 -: leading and +: lagging)		Annexe II – 1. Metrology Affected by current and voltage transformers
C584	2	PF2 (Power Factor phase 2 -: leading and +: lagging)		Annexe II – 1. Metrology Affected by current and voltage transformers
C586	2	PF3 (Power Factor phase 3 -: leading and +: lagging)		Annexe II – 1. Metrology Affected by current and voltage transformers
C656	2	Total Es (Non-Resettable) (Apparent Energy)	kVAh	Annexe II – 2. Energy
C658	2	Total Ea- (Non-Resettable) (Total Negative Active Energy)	kWh	Annexe II – 2. Energy
C652	2	Total Ea+ (Non-Resettable) (Total Positive Active Energy)	kWh	Annexe II – 2. Energy
C65A	2	Total Er- (Non-Resettable) (Total Negative Reactive Energy)	kvarh	Annexe II – 2. Energy
C654	2	Total Er+ (Non-Resettable) (Total Positive Reactive Energy)	kVArh	Annexe II – 2. Energy

Load Not Affected by CT Part 1

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
C857	1	F (Frequency)	Hz	Annexe II – 3. Metrology not Affected by current and voltage transformers
C858	1	I L1 (Current: I1)	mA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C859	1	I L2 (Current: I2)	mA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C85A	1	I L3 (Current: I3)	mA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C85B	1	In (Neutral Current)	mA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C860	1	P1 (Active Power Phase 1 ±)	kW	Annexe II – 3. Metrology not Affected by current and voltage transformers
C861	1	P2 (Active Power phase 2 ±)	kW	Annexe II – 3. Metrology not Affected by current and voltage transformers
C862	1	P3 (Active Power phase 3 ±)	kW	Annexe II – 3. Metrology not Affected by current and voltage transformers
C863	1	Q1 (Reactive Power phase 1 ±)	kVAr	Annexe II – 3. Metrology not Affected by current and voltage transformers
C864	1	Q2 (Reactive Power phase 2 ±)	kVAr	Annexe II – 3. Metrology not Affected by current and voltage transformers
C865	1	Q3 (Reactive Power phase 3 ±)	kVAr	Annexe II – 3. Metrology not Affected by current and voltage transformers
C866	1	S1 (Apparent power phase 1)	kVA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C867	1	S2 (Apparent power phase 2)	kVA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C868	1	S3 (Apparent power phase 3)	kVA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C85C	1	System P (∑ Active Power ±)	kW	Annexe II – 3. Metrology not Affected by current and voltage transformers
C85F	1	System PF (∑ Power Factor: -: leading and +: lagging)		Annexe II – 3. Metrology not Affected by current and voltage transformers
C85D	1	System Q (∑ Reactive Power ±)	kVAr	Annexe II – 3. Metrology not Affected by current and voltage transformers
C85E	1	System S (∑ Apparent Power)	kVA	Annexe II – 3. Metrology not Affected by current and voltage transformers
C851	1	V L1 – L2 (Phase to Phase Voltage: U12 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers
C854	1	V L1 – LN (Simple Voltage: V1 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers
C852	1	V L2 – L3 (Phase to Phase Voltage: U23 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers
C855	1	V L2 – LN (Simple Voltage: V2 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers
C853	1	V L3 – L1 (Phase to Phase Voltage: U31 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers
C856	1	V L3 – LN (Simple Voltage: V3 (load))	V	Annexe II – 3. Metrology not Affected by current and voltage transformers

Load Not Affected by CT Part 2

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
C869	1	PF 1 (Power Factor phase 1 -: leading and +: lagging)		Annexe II – 3. Metrology not Affected by current and voltage transformers
C86A	1	PF 2 (Power Factor phase 2 -: leading and +: lagging)		Annexe II – 3. Metrology not Affected by current and voltage transformers
C86B	1	PF 3 (Power Factor phase 3 -: leading and +: lagging)		Annexe II – 3. Metrology not Affected by current and voltage transformers
C871	1	Total Ea- (Non-Resettable) (Total Negative Active Energy)	MWh	Annexe II – 3. Metrology not Affected by current and voltage transformers
C86F	1	Total Ea+ (Non-Resettable) (Total Positive Active Energy)	MWh	Annexe II – 3. Metrology not Affected by current and voltage transformers
C872	1	Total Er- (Non-Resettable) (Total Negative Reactive Energy)	MVArh	Annexe II – 3. Metrology not Affected by current and voltage transformers
C870	1	Total Er+ (Non-Resettable) (Total Positive Reactive Energy)	MVArh	Annexe II – 3. Metrology not Affected by current and voltage transformers

Load I and V (Down Stream – not affected by CT/VT)

These variables will give the same values as the variables in group “Load Not Affected by CT Part 1 and 2”.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
5102	1	V L1 – L2 (Phase to Phase Voltage: U12 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5103	1	V L2 – L3 (Phase to Phase Voltage: U23 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5104	1	V L3 – L1 (Phase to Phase Voltage: U31 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5105	1	V L1 – LN (Simple Voltage: V1 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5106	1	V L2 – LN (Simple Voltage: V2 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5107	1	V L3 – LN (Simple Voltage: V3 (load))	V	Annexe II - 11. Measurement table (no CT/VT affected)
5108	1	F (Frequency)	Hz	Annexe II - 11. Measurement table (no CT/VT affected)
5117	1	I L1 (Current: I1)	mA	Annexe II - 11. Measurement table (no CT/VT affected)
5118	1	I L2 (Current: I2)	mA	Annexe II - 11. Measurement table (no CT/VT affected)
5119	1	I L3 (Current: I3)	mA	Annexe II - 11. Measurement table (no CT/VT affected)
511A	1	In (Neutral Current)	mA	Annexe II - 11. Measurement table (no CT/VT affected)

Power

For these values to be accurate CTs must be installed and connected to the ATyS p.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
511B	2	P1 (Active Power phase 1)	W	Annexe II - 11. Measurement table (no CT/VT affected)
511D	2	P2 (Active Power phase 2)	W	Annexe II - 11. Measurement table (no CT/VT affected)
511F	2	P3 (Active Power phase 3)	W	Annexe II - 11. Measurement table (no CT/VT affected)
512D	1	PF1 (Power Factor phase 1 - (-: leading and +: lagging))	%	Annexe II - 11. Measurement table (no CT/VT affected)
512E	1	PF2 (Power Factor phase 2 - (-: leading and +: lagging))	%	Annexe II - 11. Measurement table (no CT/VT affected)
512F	1	PF3 (Power Factor phase 3 - (-: leading and +: lagging))	%	Annexe II - 11. Measurement table (no CT/VT affected)
5121	2	Q1 (Reactive Power phase 1)	VAr	Annexe II - 11. Measurement table (no CT/VT affected)
5123	2	Q2 (Reactive Power phase 2)	VAr	Annexe II - 11. Measurement table (no CT/VT affected)
5125	2	Q3 (Reactive Power phase 3)	VAr	Annexe II - 11. Measurement table (no CT/VT affected)
5127	2	S1 (Apparent power phase 1)	VA	Annexe II - 11. Measurement table (no CT/VT affected)
5129	2	S2 (Apparent power phase 2)	VA	Annexe II - 11. Measurement table (no CT/VT affected)
512B	2	S3 (Apparent power phase 3)	VA	Annexe II - 11. Measurement table (no CT/VT affected)
5130	2	Total P (Total Active Power)	W	Annexe II - 11. Measurement table (no CT/VT affected)
5136	1	Total PF (Total Power Factor - (-: leading and +: lagging))	%	Annexe II - 11. Measurement table (no CT/VT affected)
5132	2	Total Q (Total Reactive Power)	VAr	Annexe II - 11. Measurement table (no CT/VT affected)
5134	2	Total S (Total Apparent Power)	VA	Annexe II - 11. Measurement table (no CT/VT affected)

Source 1 Energy

For these values to be accurate CTs must be installed and connected to the ATyS p.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
521C	2	S1 Ea- Since Last Commutation	kWh	Annexe II - 12. Energies and time meters
5216	2	S1 Ea+ Since Last Commutation	kWh	Annexe II - 12. Energies and time meters
521E	2	S1 Er- Since Last Commutation	kVARh	Annexe II - 12. Energies and time meters
5218	2	S1 Er+ Since Last Commutation	kVARh	Annexe II - 12. Energies and time meters
521A	2	S1 Es Since Last Commutation	kVAh	Annexe II - 12. Energies and time meters
5206	2	S1 Total Apparent Energy Es	kVAh	Annexe II - 12. Energies and time meters
5208	2	S1 Total Neg Active Energy Ea-	kWh	Annexe II - 12. Energies and time meters
520A	2	S1 Total Neg Reactive Energy Er-	kVARh	Annexe II - 12. Energies and time meters
5202	2	S1 Total Pos Active Energy Ea+	kWh	Annexe II - 12. Energies and time meters
5204	2	S1 Total Pos Reactive Energy Er+	kVARh	Annexe II - 12. Energies and time meters
5210	2	S1 User Partial Apparent Energy Es	kVAh	Annexe II - 12. Energies and time meters
5212	2	S1 User Partial Neg Active Energy Ea-	kWh	Annexe II - 12. Energies and time meters
5214	2	S1 User Partial Neg Reactive Energy Er-	kVARh	Annexe II - 12. Energies and time meters
520C	2	S1 User Partial Pos Active Energy Ea+	kWh	Annexe II - 12. Energies and time meters
520E	2	S1 User Partial Pos Reactive Energy Er+	kVARh	Annexe II - 12. Energies and time meters

Source 2 Energy

For these values to be accurate CTs must be installed and connected to the ATyS p.

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place in ATyS p Modbus Map
523A	2	S2 Ea- Since Last Commutation	kWh	Annexe II - 12. Energies and time meters
5234	2	S2 Ea+ Since Last Commutation	kWh	Annexe II - 12. Energies and time meters
523C	2	S2 Er- Since Last Commutation	kVARh	Annexe II - 12. Energies and time meters
5236	2	S2 Er+ Since Last Commutation	kVARh	Annexe II - 12. Energies and time meters
5238	2	S2 Es Since Last Commutation	kVAh	Annexe II - 12. Energies and time meters
5224	2	S2 Total Apparent Energy Es	kVAh	Annexe II - 12. Energies and time meters
5226	2	S2 Total Negative Active Energy Ea-	kWh	Annexe II - 12. Energies and time meters
5228	2	S2 Total Negative Reactive Energy Er-	kVARh	Annexe II - 12. Energies and time meters
5220	2	S2 Total Pos Active Energy Ea+	kWh	Annexe II - 12. Energies and time meters
5222	2	S2 Total Pos Reactive Energy Er+	kVARh	Annexe II - 12. Energies and time meters
522E	2	S2 User Partial Apparent Energy Es	kVAh	Annexe II - 12. Energies and time meters
5230	2	S2 User Partial Negative Active Energy Ea-	kWh	Annexe II - 12. Energies and time meters
5232	2	S2 User Partial Negative Reactive Energy Er-	kVARh	Annexe II - 12. Energies and time meters
522A	2	S2 User Partial Positive Active Energy Ea+	kWh	Annexe II - 12. Energies and time meters
522C	2	S2 User Partial Positive Reactive Energy Er+	kVARh	Annexe II - 12. Energies and time meters

Source Voltages (Up Stream)

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
510F	1	1 – F (Source 1: F)	Hz	Annexe II - 11. Measurement table (no CT/VT affected)
5138	1	1 – Single Voltage Unbalance	%	Annexe II - 11. Measurement table (no CT/VT affected)
5109	1	1 – V L1-L2 (Source 1: U12)	V	Annexe II - 11. Measurement table (no CT/VT affected)
510C	1	1 – V L1-LN (Source 1: V1)	V	Annexe II - 11. Measurement table (no CT/VT affected)
510A	1	1 – V L2-L3 (Source 1: U23)	V	Annexe II - 11. Measurement table (no CT/VT affected)
510D	1	1 – V L2-LN (Source 1: V2)	V	Annexe II - 11. Measurement table (no CT/VT affected)
510B	1	1 – V L3-L1 (Source 1: U31)	V	Annexe II - 11. Measurement table (no CT/VT affected)
510E	1	1 – V L3-LN (Source 1: V3)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5116	1	2 – F (Source 2: F)	Hz	Annexe II - 11. Measurement table (no CT/VT affected)
513A	1	2 – Single Voltage Unbalance	%	Annexe II - 11. Measurement table (no CT/VT affected)
5110	1	2 – V L1-L2 (Source 2: U12)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5113	1	2 – V L1-LN (Source 2: V1)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5111	1	2 – V L2-L3 (Source 2: U23)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5114	1	2 – V L2-LN (Source 2: V2)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5112	1	2 – V L3-L1 (Source 2: U31)	V	Annexe II - 11. Measurement table (no CT/VT affected)
5115	1	2 – V L3-LN (Source 2: V3)	V	Annexe II - 11. Measurement table (no CT/VT affected)

Status – Alarms

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
500A	1	**Alarm/Fault Code** *0x0001: Operating factor (Alarm)* *0x0002: Neutral position (Alarm)* *0x0004: External fault 1 (Fault)* *0x0008: External fault 2 (Fault)* *0x0010: Alarm 1 (Alarm)* *0x0020: Alarm 2 (Alarm)* *0x0040: Source 1 rotation (Alarm)* *0x0080: Source 2 rotation (Alarm)* *0x0100: Source 1 unbalanced 1 (Alarm)* *0x0200: Source 2 unbalanced 2 (Alarm)* *0x0400: Position 0 (Fault)* *0x0800: Position I (Fault)* *0x1000: Position II (Fault)* *0x2000: Main fault (Fault)* *0x4000: Motor fault (Fault)* *0x8000: Autoconfiguration failed (Alarm)*		Annexe II - 9. Status
5009	1	**Fault summary** *0: None* *1: Alarm* *2: Fault*		Annexe II - 9. Status
500B	1	**Last Switch over cause** *0: None* *1: Manual* *2: Remote controlled* *3: Under voltage source 1* *4: Under voltage source 2* *5: Over voltage source 1* *6: Over voltage source 2* *7: Under Frequency source 1* *8: Under Frequency source 2* *9: Over Frequency source 1* *10: Over Frequency source 2* *11: Unbalance Source 1* *12: Unbalance Source 2* *13: Rotation Source 1* *14: Rotation Source 2*		Annexe II - 9. Status

Status – BET

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5020	1	**BET** *0: Not available* *1: Available*		Annexe II - 9. Status
501F	1	**BET Mode** *0: Not present* *1: Auto* *2: Manual* *3: Remote control* *4: Locked*		Annexe II - 9. Status
5021	1	**Product** *0: Not available* *1: Available*		Annexe II - 9. Status

Status – Network Configuration

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5905	1	**Application Type** *0: M – M (main – main)* *1: M – G (main – genset)*		Annexe II - 20. Setup network
590A	1	**External Order on Load priority** *0: NO* *1: YES*		Annexe II - 20. Setup network
5906	1	**Generator start order inhibit** *0: NO* *1: YES*		Annexe II - 20. Setup network
5912	1	**Invert S1 and S2 (Invert Source 1 and Source 2)** *0: Not inverted* *1: Inverted*		Annexe II - 20. Setup network
590B	1	**Manual Retransfer** *0: NO* *1: YES*		Annexe II - 20. Setup network
5901	1	**Neutral Placement** *0: LEFT* *1: RIGHT* *2: AUTO*		Annexe II - 20. Setup network
5902	1	**Phase Rotation** *0: Verify Compatible ("Auto")* *1: Verify ABC* *2: Verify ACB*		Annexe II - 20. Setup network
5904	1	**Rated Frequency (Fnom)** *0: 50Hz* *1: 60Hz*		Annexe II - 20. Setup network
5903	1	Rated Voltage (Unom)	V	Annexe II - 20. Setup network
5909	1	**Test On Load priority** *0: NO* *1: YES*		Annexe II - 20. Setup network
5900	1	**Type of Network** *0: 1BL* *1: 2NBL* *2: 2BL* *3: 3NBL* *4: 3BL* *5: 4NBL* *6: 4BL* *7: 41NBL* *8: 42NBL*		Annexe II - 20. Setup network

Status – Sources

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5137	1	**Neutral position** *0: Left* *1: Right*		Annexe II - 11. Measurement table (no CT/VT affected)
5002	1	**Operating Mode** *0x0000: Manual Mode* *0x0001: Locked Mode* *0x0010: Auto Mode* *0x0020: Remote control mode* *0x0040: Inhibit Mode*		Annexe II - 9. Status
5018	1	**Power supply status** *0: No network present for DPS* *1: Source 1 present for DPS* *2: Source 2 present for DPS* *3: Sources 1+2 present for DPS*		Annexe II - 9. Status
5005	1	**Priority** *0: Network* *1: Source 1* *2: Source 2*		Annexe II - 9. Status
5019	1	**S1 Phase 1 presence** *1: Present* *0: Absent*		Annexe II - 9. Status
501A	1	**S1 Phase 2 presence** *1: Present* *0: Absent*		Annexe II - 9. Status
501B	1	**S1 Phase 3 presence** *1: Present* *0: Absent*		Annexe II - 9. Status
5139	1	**S1 Phases rotation** *0: N/A* *1: ABC* *2: ACB*		Annexe II - 11. Measurement table (no CT/VT affected)
5006	1	**S1 State** *0: Under threshold BusBar* *1: Present* *2: Available*		Annexe II - 9. Status
501C	1	**S2 Phase 1** *1: Present* *0: Absent*		Annexe II - 9. Status
501D	1	**S2 Phase 2** *1: Present* *0: Absent*		Annexe II - 9. Status
501E	1	**S2 Phase 3** *1: Present* *0: Absent*		Annexe II - 9. Status
513B	1	**S2 Phases rotation** *0: N/A* *1: ABC* *2: ACB*		Annexe II - 11. Measurement table (no CT/VT affected)
5004	1	**Source 2 Start Generator relay State** *0: Not Active* *1: Active*		Annexe II - 9. Status

5007	1	**S2 State** *0: Under Threshold BusBar* *1: Present* *2: Available*		Annexe II - 9. Status
5003	1	**Switch Position** *0: Unknown* *1: Position 0* *2: Position I* *3: Position II*		Annexe II - 9. Status

Source Tests

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5008	1	**Test in Progress** *0x0000: None* *0x0001: TOF* *0x0002: EOF* *0x0004: TON* *0x0008: EON*		Annexe II - 20. Setup network

Status – Time Delay Configuration

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5317	1	**External Order Off Load Duration (E6T)** *0: limited* *1: unlimited*		Annexe II - 13. Timers state
5313	1	**External Order On Load Duration (E2T)** *0: limited* *1: unlimited*		Annexe II - 13. Timers state
530F	1	**Test Off Load Duration (TOF)** *0: limited* *1: unlimited*		Annexe II - 13. Timers state
530C	1	**Test On Load Duration (TON)** *0: limited* *1: unlimited*		Annexe II - 13. Timers state

Status – Timers

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5323	1	**DBT Timer / 0DT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532F	1	**EDT2 Duration / EDT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532E	1	**EET2 Timeout / EET State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532D	1	**EOFTOF Timer / E6T State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532A	1	**EOLTOT Timer / E2T State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532C	1	**ETOFT Timer / E7T State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5329	1	**ETOLT Timer / E3T** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5324	1	**Load Shedding / LST** *1: Active* *0: Not active*		Annexe II - 13. Timers state
531D	1	**S1 - 0RT Timer / 1OT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
531C	1	**S1 - SAT Timer / 1RT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
531B	1	**S1 – SFT Timer / 1FT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5321	1	**S2 - 0RT Timer / 2OT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5322	1	**S2 - FST Timer / 2ST State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5320	1	**S2 - LAT Timer / 2CT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
531F	1	**S2 - SAT Timer / 2RT or 2AT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
531E	1	**S2 – SFT Timer / 2FT State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
532B	1	**STOFT Timer / E5T State** *1: Active* *0: Not active*		Annexe II - 13. Timers state

5328	1	**STOLT Timer / E1T State** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5326	1	**T3T** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5327	1	**TOF** *1: Active* *0: Not active*		Annexe II - 13. Timers state
5325	1	**TON** *1: Active* *0: Not active*		Annexe II - 13. Timers state

Threshold Settings

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
570C	1	S1 Overfrequency	%	Annexe II - 18. Setup threshold for upstream Voltages
570D	1	S1 Overfrequency Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5700	1	S1 Overvoltage	%	Annexe II - 18. Setup threshold for upstream Voltages
5701	1	S1 Overvoltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5800	1	S1 Total Apparent Power	kVA	Annexe II - 18. Setup threshold for upstream Voltages
5801	1	S1 Total Apparent Power Hysteresis	kVA	Annexe II - 18. Setup threshold for upstream Voltages
5708	1	S1 Unbalanced voltage	%	Annexe II - 18. Setup threshold for upstream Voltages
5709	1	S1 Unbalanced Voltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
570E	1	S1 Underfrequency	%	Annexe II - 18. Setup threshold for upstream Voltages
570F	1	S1 Underfrequency Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5702	1	S1 Undervoltage	%	Annexe II - 18. Setup threshold for upstream Voltages
5703	1	S1 Undervoltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5710	1	S2 Overfrequency	%	Annexe II - 18. Setup threshold for upstream Voltages
5711	1	S2 Overfrequency Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5704	1	S2 Overvoltage	%	Annexe II - 18. Setup threshold for upstream Voltages
5705	1	S2 Overvoltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5802	1	S2 Total Apparent Power	kVA	Annexe II - 18. Setup threshold for upstream Voltages
5803	1	S2 Total Apparent Power Hysteresis	kVA	Annexe II - 18. Setup threshold for upstream Voltages
570A	1	S2 Unbalanced Voltage	%	Annexe II - 18. Setup threshold for upstream Voltages
570B	1	S2 Unbalanced Voltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5712	1	S2 Underfrequency	%	Annexe II - 18. Setup threshold for upstream Voltages
5713	1	S2 Underfrequency Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages
5706	1	S2 Undervoltage	%	Annexe II - 18. Setup threshold for upstream Voltages
5707	1	S2 Undervoltage Hysteresis	%	Annexe II - 18. Setup threshold for upstream Voltages

Time Meters

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
5242	2	Time on S1 Since Last Commutation	sec.	Annexe II - 12. Energies and time meters
5248	2	Time on S2 Since Last Commutation	sec.	Annexe II - 12. Energies and time meters
523E	2	Total Time on S1	sec.	Annexe II - 12. Energies and time meters
5244	2	Total Time on S2	sec.	Annexe II - 12. Energies and time meters
5240	2	User Partial Time on S1	sec.	Annexe II - 12. Energies and time meters
5246	2	User Partial Time on S2	sec.	Annexe II - 12. Energies and time meters

Timer Values

Function 3 Code (read only)

Hex. Address	Word Count	Description	Unit	Place on ATyS p user manual
530A	1	DBT Timer / 0DT	sec.	Annexe II - 13. Timers state
531A	1	EDT2 / EDT	sec.	Annexe II - 13. Timers state
5319	1	EET2 / EET	hours	Annexe II - 13. Timers state
5318	1	EOFTOF / E6T	sec.	Annexe II - 13. Timers state
5314	1	EOLTOT / E2T	sec.	Annexe II - 13. Timers state
5316	1	ETOFT / E7T	sec.	Annexe II - 13. Timers state
5312	1	ETOLT / E3T	sec.	Annexe II - 13. Timers state
530B	1	Load Shedding Timer (duration) / LST	sec.	Annexe II - 13. Timers state
5C14	2	Product Power On Time	sec.	Annexe II - 23. Product Counters
5C1D	2	S1 - Load Supplied Duration	sec.	Annexe II - 23. Product Counters
5303	1	S1 - SAT Timer / 1RT	sec.	Annexe II - 13. Timers state
5302	1	S1 - SFT Timer / 1FT	sec.	Annexe II - 13. Timers state
5309	1	S2 - FST Timer / 2ST	sec.	Annexe II - 13. Timers state
5307	1	S2 - LAT Timer / 2CT	sec.	Annexe II - 13. Timers state
5C1F	2	S2 - Load supplied duration	sec.	Annexe II - 23. Product Counters
5306	1	S2 - SAT Timer / 2RT Or 2AT	sec.	Annexe II - 13. Timers state
5305	1	S2 - SFT Timer / 2FT	sec.	Annexe II - 13. Timers state
5C1B	2	S2 Active Duration (Present and Switch at S2)	sec.	Annexe II - 23. Product Counters
5C19	2	Secondary source presence duration	sec.	Annexe II - 23. Product Counters
5C17	2	Start Order Active Duration	sec.	Annexe II - 23. Product Counters
5315	1	STOFT (Time before Ord. Ext Off Load) Timer / E5T	sec.	Annexe II - 13. Timers state
5311	1	STOLT (Time before Ord. Ext On Load) Timer / E1T	sec.	Annexe II - 13. Timers state
530E	1	T3T (Test on load end timer) Timer	sec.	Annexe II - 13. Timers state
5310	1	TOF (Test Off Load Duration) Timer	sec.	Annexe II - 13. Timers state
530D	1	TON (Test On Load Duration) Timer	sec.	Annexe II - 13. Timers state