

AC ELWA[®]-E

Electrical Photovoltaic-Excess Hot-Water-Device Documentation of Controls



Disclosure to third parties requires the express consent of my-PV!

http control

In the Web interface the kind of control has to be set to http.

The control happens via the sub-page /control.html

/control.html?power=n n 0...3000 Set power of the device

/control.html?pid_power=n The regulation is carried out by the pid-controller of AC ELWA-E (since 00202.00)

/control.html?boost=1 activate Boost-Backup manually

NOTE:

For firmware versions 00200.00 forward, the xml query is replaced by json (data.json)!

Status info is queried via [IP]/data.json

```

device:      "AC ELWA-E"          surplus:      -2
fwversion:   "00202.00"         m0sum:       -2
status:      3                  m01:         null
power:       0                  m02:         null
boostpower:  0                  m03:         null
temp1:       245                m0bat:       null
wvtarget:    586                m1sum:       null
boostactive: 0                  m11:         null
legboostnext: "off"           m12:         null
loctime:     "00:19:11"        m13:         null
unixtime:    981238751         m1devstate:  null
ctrlstate:   "Conn. to Power Meter. Pa2"
blockactive: 0                  m2sum:       null
meter1_id:   1438514           m21:         null
meter1_ip:   "192.168.2.5"     m22:         null
meter2_id:   null              m23:         null
meter2_ip:   "null"            m2soc:        null
meter3_id:   null              m2state:     null
meter3_ip:   "null"            m2devstate:  null
meter4_id:   null              m3sum:       null
meter4_ip:   "null"            m31:         null
meter5_id:   "null"            m32:         null
meter5_ip:   "null"            m33:         null
meter6_id:   null              m3soc:        null
meter6_ip:   "null"            m3devstate:  null
m4sum:       null              m41:         null
m5sum:       null              m51:         null
m6sum:       null              m61:         null
m7sum:       null              m71:         null
m8sum:       null              m81:         null
m9sum:       null              m91:         null
m10sum:      null              m101:        null
m11sum:      null              m111:        null
m12sum:      null              m121:        null
m13sum:      null              m131:        null
m14sum:      null              m141:        null
m15sum:      null              m151:        null
m16sum:      null              m161:        null
m17sum:      null              m171:        null
m18sum:      null              m181:        null
m19sum:      null              m191:        null
m20sum:      null              m201:        null
m21sum:      null              m211:        null
m22sum:      null              m221:        null
m23sum:      null              m231:        null
m24sum:      null              m241:        null
m25sum:      null              m251:        null
m26sum:      null              m261:        null
m27sum:      null              m271:        null
m28sum:      null              m281:        null
m29sum:      null              m291:        null
m30sum:      null              m301:        null
m31sum:      null              m311:        null
m32sum:      null              m321:        null
m33sum:      null              m331:        null
m34sum:      null              m341:        null
m35sum:      null              m351:        null
m36sum:      null              m361:        null
m37sum:      null              m371:        null
m38sum:      null              m381:        null
m39sum:      null              m391:        null
m40sum:      null              m401:        null
m41sum:      null              m411:        null
m42sum:      null              m421:        null
m43sum:      null              m431:        null
m44sum:      null              m441:        null
m45sum:      null              m451:        null
m46sum:      null              m461:        null
m47sum:      null              m471:        null
m48sum:      null              m481:        null
m49sum:      null              m491:        null
m50sum:      null              m501:        null
m51sum:      null              m511:        null
m52sum:      null              m521:        null
m53sum:      null              m531:        null
m54sum:      null              m541:        null
m55sum:      null              m551:        null
m56sum:      null              m561:        null
m57sum:      null              m571:        null
m58sum:      null              m581:        null
m59sum:      null              m591:        null
m60sum:      null              m601:        null
m61sum:      null              m611:        null
m62sum:      null              m621:        null
m63sum:      null              m631:        null
m64sum:      null              m641:        null
m65sum:      null              m651:        null
m66sum:      null              m661:        null
m67sum:      null              m671:        null
m68sum:      null              m681:        null
m69sum:      null              m691:        null
m70sum:      null              m701:        null
m71sum:      null              m711:        null
m72sum:      null              m721:        null
m73sum:      null              m731:        null
m74sum:      null              m741:        null
m75sum:      null              m751:        null
m76sum:      null              m761:        null
m77sum:      null              m771:        null
m78sum:      null              m781:        null
m79sum:      null              m791:        null
m80sum:      null              m801:        null
m81sum:      null              m811:        null
m82sum:      null              m821:        null
m83sum:      null              m831:        null
m84sum:      null              m841:        null
m85sum:      null              m851:        null
m86sum:      null              m861:        null
m87sum:      null              m871:        null
m88sum:      null              m881:        null
m89sum:      null              m891:        null
m90sum:      null              m901:        null
m91sum:      null              m911:        null
m92sum:      null              m921:        null
m93sum:      null              m931:        null
m94sum:      null              m941:        null
m95sum:      null              m951:        null
m96sum:      null              m961:        null
m97sum:      null              m971:        null
m98sum:      null              m981:        null
m99sum:      null              m991:        null
m100sum:     null              m1001:       null
tempchip:    34
cur_ip:      "192.168.2.6"
cur_sm:      "255.255.0.0"
cur_gw:      "192.168.2.1"
cur_dns:     "192.168.2.1"
cloudstate:  4
debug_ip:    "0.0.0.0"

```

Modbus TCP control



In the Web-Interface the kind of control has to be set to Modbus TCP.



Mentioned register addresses are „real“ addresses. Depending on your data retrieval system it might be required to add 1 to the register addresses (e.g. 1001 instead of 1000)!

Address	r/w	Parameter	Value	Unit
1000	R/W	Power	W	
1001	R	actual water temperature	0,1	°C
1002	R	water target temperature (set on rotation knob)	0,1	°C
1003	R	Status (see below)	Number	
1004	R/W	Timeout control	10-600	sec
1005	R/W	Boost backup mode	0 off, 2 on	
1006	R/W	Boost backup target temperature	°C	
1007	R/W	Starting time boost backup	Hour	
1008	R/W	Ending time boost backup	Hour	
1009	R/W	actual time (hour)	Hour	
1010	R/W	actual time (minute)	Minute	
1011	R/W	actual time (seconds)	Second	
1012	W	manual boost backup start	1	
1013	R/W	ELWA number	AC ELWA Number; Standard is 1	
1014	R/W	Fusetype	13 or 16 A; Standard is 16A	
1015	R	tempchip	Controller temperature	
1016	R	IP firmware version	Software Version TCP Board	
1017	R	ELWA firmware version	Software Version Power Board	
1018	R	ELWA serial number 1-2	Serial number	
1019	R	ELWA serial number 3-4		
1020	R	ELWA serial number 5-6		
1021	R	ELWA serial number 7-8		
1022	R	ELWA serial number 9-10		
1023	R	ELWA serial number 11-12		
1024	R	ELWA serial number 13-14		
1025	R	ELWA serial number 15-16		
1026	R/W	2. Starting time boost backup	Hour	
1027	R/W	2. Ending time boost backup	Hour	
1028	R	Ip Firmware Sub Version		
1030	R	Meter measurement value (negative = feed-in)		
1069	R	Meter measurement value (negative = feed-in)		
1070	R/W	Control type	see Footnote 1	
1071	R	Pmax_abs; Max. power currently possible. Also includes power of slaves.	W	since version 00102.05
1078	R/W	Power high word since version 00200.00	W	see Footnote 2
1079	R/W	Power low word since version 00200.00	W	see Footnote 2
1081	R/W	Device state	0 / 1	
1082	R	Power without slaves	W	since version 00203.00
1087	R	Meter measurement value high word (negative = feed-in)	W	since version 00206.00 see Footnote 3
1088	R	Meter measurement value low word (negative = feed-in)	W	since version 00206.00 see Footnote 3

Registers can be read by Modbus command 0x03 (read holding registers) and written by Modbus commands 0x06 (write single register) or 0x10 (write multiple registers).

From Ethernet firmware 102.04, multiple devices can also be controlled via UDP broadcast.



All writable registers ("W") must not be written more than once a day except register 1000 ("power")! This is due to protect the lifespan of the non-volatile memory.

Footnote 1:

Autodetect	0	
HTTP	1	
Modbus TCP	2	
Fronius Auto	3	
Fronius Manual	4	
SMA Home Manager	5	
Steca Auto	6	
Varta Auto	7	
Varta Manual	8	
Slave	9	
RCT Power Manual	10	
Adjustable Modbus TCP	11	
my-PV Power Meter Auto	12	
my-PV Power Meter Manual	13	
my-PV Power Meter Direct	14	
SMA Direct meter communication Auto	15	
SMA Direct meter communication Manual	16	
Fronius Sunspec Manual	100	
KACO TL1 + TL3 Manual	101	
Kostal PIKO IQ Plenticore plus Manual	102	
Kostal Smart Energy Meter Manual	103	
MEC electronics Manual	104	
SolarEdge Manual	105	
Victron Energy 1ph Manual	106	
Victron Energy 3ph Manual	107	
Huawei (Modbus TCP) Manual	108	
Carlo Gavazzi EM24 Manual	109	
Sungrow Manual	111	
Fronius Gen24 Manual	112	since version 00202.00
GoodWe Manual	113	since version 00202.00

Footnote 2:

Only for large systems with several units (multi-mode) and output specifications greater than 65,535 watts. Power below this value is entered in register 1000.
1078 and 1079 form a 32-bit unsigned integer. Always write this registers consecutively.

Footnote 3:

For meter values below -32768 W and above 32767 W.
Power within this range can be read in register 1069.
1087 and 1088 form a 32-bit signed integer. Always read this registers consecutively.

Status number explanation

2	Heat
3	Standby
4	Boost heat
5	Heat finished
9	Setup
201	Error Overtemp Fuse blown
202	Error Overtemp measured

203 Error Overtemp Electronics
204 Error Hardware Fault
205 Error Temp Sensor
209 Mainboard Error

Discover in Network

The devices can be found in the network by an UDP Broadcast command.

Data format UDP Discover (broadcast to 255.255.255.255):

Search-Algorithms my-PV Devices	AC•THOR 9s	AC•THOR	my-PV Meter	AC ELWA-E
Protocol: UDP Broadcast				
Port Number:	16124	16124	16124	16124
Block length:	32bytes	32bytes	32bytes	32bytes
Data block:				
2bytes crc modbus type, high byte first, over following 30 bytes	0x84db	0xcb7a	0x401e	0x86d9
2bytes identification	0x4f4c	0x4e84	0x4e8e	0x3efc
16bytes string, fill the rest with 0x00	AC-THOR 9s	AC-THOR	my-PV Meter	AC ELWA-E
rest reserved 0x00				
reply:				
Block length	64 byte	64 byte	64 byte	64 byte
Port Number	16124	16124	16124	16124
Data block:				
0-1 2 bytes crc modbus type, high byte first, over 62 bytes				
2-3 2 bytes identification	0x4f4c	0x4e84	0x4e8e	0x3efc
4-7 4 bytes IP address				
8-23 16 bytes serial number string				
24-25 2 bytes firmware version comm high byte first				
26 byte ELWA number				
rest internally used				

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Subject to change.

