EL 9	900	00			egister list for devices with KE fir	rmw	vare	fro	m	V3.05 (check the installed version	on in your device's MENU in item INFO HW, SW)
dress	(0×01)	ng registers	single coil (0x05)	single register (0x06) multiple registers				in bytes	registers		
Modbus address	Read coils (	Read holding registers	Write single	Write single Write multip	Description	Access	Data type	Data length in	Number of	Data	Example or description
0 1 21 41 61 81		x x x x x			Device class Device type Manufacturer Manufacturer address Manufacturer ZIP code Manufacterer phone number	R R R R R	uint(16) char char char char char	40 40 40 40 40	20 20 20 20	ASCII ASCII ASCII ASCII ASCII ASCII	44 = EL 9000 DT series, 51 = EL 9000 T series EL 9080-60 DT
101 121 123 125 127		X X X X			Manufacturer website Nominal voltage Nominal current Nominal power Max. Internal resistance	R R R R	char float float float float	40 4 4 4 4	20 2 2 2	ASCII Floating point number IEEE754	80 60 1200 30
129 131 151 171 191		X X X		x	Min. Internal resistance Article no. Serial no. User text Firmware version (KE)	R R R RW	float char char char char	4 40 40 40 40	20 20 20	Floating point number IEEE754 ASCII ASCII ASCII ASCII	33210506 1234567890 V3.02 16.08.2016
211 231 402	х	X X	x		Firmware version (HMI) Firmware version (DR) Remote mode	R R R	char char uint(16)	40 40 2	20 20 1	ASCII ASCII Coils : Remote	V2.08 22.09.2016 V1.0.4.1 30.06.2016 0x0000 = off; 0xFF00 = on
405 407 408 409 410	x x x	х	x x x	x	DC input Condition of DC input after power fail alarm Condition of DC input after powering the device Operation mode (UIP/UIR) Restart of the device (warm start)	RW RW RW W	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2 2	1 1 1	Coils : Output/input Coils : Auto on Reg : Power on Coils : Operation mode Coils : Restart	0x0000 = off; 0xFF00 = on 0x0000 = off; 0xFF00 = auto-on 0xFFFF = off; 0xFFFE = Restore 0x0000 = UIP; 0xFF00 = UIR 0xFF00 = execute
411 416 417 418 422	X X X X		x x x x		Acknowledge alarms Analog interface: Reference voltage (pin VREF) Analog interface: REM-SB level Analog interface: REM-SB action Speed of internal voltage controller	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2 2	1 1 1	Coils         : Alarms           Coils         : VREF           Coils         : REM-SB Level           Coils         : REM-SB Action           Coils         : Controller speed	0xFF00 = acknowledge 0x0000 = 10V; 0xFF00 = 5V 0x0000 = normal; 0xFF00 = inverted 0x0000 = DC off; 0xFF00 = DC auto 0x0000 = slow; 0xFF00 = fast
500 501 502 503	X	x x x	X	x x x	DC input after leaving remote Set voltage value Set current value Set power value Set resistance value	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2 2	1 1	Coils : Condition  0x0000 - 0xD0E5 (0 - 102%)  0x0000 - 0xD0E5 (0 - 102%)  0x0000 - 0xD0E5 (0 - 102%)  minimum - 0xD0E5 (x - 102%)	0x0000 = off; 0xFF00 = unchanged  Voltage value (for translation see programming guide)  Current value (for translation see programming guide)  Power value (for translation see programming guide)  Resistance value
505		х			Device state	R	uint(32)	4		Bit 0-4: Control location  Bit 7 : DC input state  Bit 9-10 : Regulation mode	(the minimum value varies from model to model and can be calculated from the technical specification in the manual)  0x00 = free; 0x01 = local; 0x02 = remote; 0x03 = USB; 0x04 = analog; 0x06 = Ethernet  0 = off; 1 = on  00 = CV; 01 = CR; 10 = CC; 11 = CP
										Bit 11 : Remote Bit 13 : Function generator Bit 14 : Remote sensing Bit 15 : Alarms Bit 16 : OVP	0 = off; 1 = on 0 = stopped; 1 = running 0 = off; 1 = on 0 = none; 1 = active 0 = none; 1 = active
										Bit 17 : OCP Bit 18 : OPP Bit 19 : OT Bit 21 : Power fail Bit 22 : Power fail	0 = none; 1 = active
										Bit 23 : Power fail Bit 24 : UVD Bit 25 : OVD Bit 26 : UCD Bit 27 : OCD	0 = none; 1 = active
507 508 509		x x x			Actual voltage Actual current Actual power	R R R	uint(16) uint(16) uint(16)	2 2 2	1	Bit 28 : OPD Bit 30 : REM-SB 0x0000 - 0xFFFF (0 - 125%) 0x0000 - 0xFFFF (0 - 125%) 0x0000 - 0xFFFF (0 - 125%)	0 = none; 1 = active 0 = DC enabled; 1 = REM-SB disables DC output/input Actual voltage (for translation see programming guide) Actual current (for translation see programming guide) Actual power (for translation see programming guide)
520 521 522 523 524		x x x x			Count of OV alarms since power up Count of OC alarms since power up Count of OP alarms since power up Count of OT alarms since power up Count of PF alarms since power up	R R R R	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2 2	1 1	0x0000 - 0xFFFF 0x0000 - 0xFFFF 0x0000 - 0xFFFF 0x0000 - 0xFFFF 0x0000 - 0xFFFF	Count Count Count Count Count Count Count
550 553 556 559 560		X X X X		x x x x x x x	Overvoltage protection threshold (OVP) Overcurrent protection threshold (OCP) Overpower protection threshold (OPP) Undervoltage detection (UVD) Adjustable UVD notification	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2	1 1 1	0x0000 - 0xE147 (0 - 110%) 0x0000 - 0xD0E5 (0 - 102%) Reg : Adjustable UVD notification	OVP threshold (for translation see programming guide) OCP threshold (for translation see programming guide) OPP threshold (for translation see programming guide) UVD threshold (for translation see programming guide) UVD threshold (for translation see programming guide) 0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 =
561 562 563		x x		x x	Overvoltage detection (OVD) Adjustable OVD notification Undercurrent detection (UCD)	RW RW	uint(16) uint(16) uint(16)	2 2	1 1	0x0000 - 0xD0E5 (0 - 102%)  Reg : Adjustable OVD notification  0x0000 - 0xD0E5 (0 - 102%)	alarm  OVD threshold (for translation see programming guide)  0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm  UCD threshold (for translation see programming guide)
564 565 566 567		x x x		x x x	Adjustable UCD notification  Overcurrent detection (OCD)  Adjustable OCD notification  Overpower detection (OPD)	RW RW RW	uint(16) uint(16) uint(16) uint(16)	2 2 2	1	Reg : Adjustable UCD notification  0x0000 - 0xD0E5 (0 - 102%)  Reg : Adjustable OCD notification  0x0000 - 0xD0E5 (0 - 102%)	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm  OCD threshold (for translation see programming guide)  0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm  OPD threshold (for translation see programming guide)
568 850 851	х	x	x x	X	Adjustable OPD notification  Function generator Arbitary: Start/stop Function generator Arbitrary: Select U	RW RW	uint(16) uint(16) uint(16)	2 2 2	1 1	Reg : Adjustable OPD notification  Coils : Start/Stop  Coils : Select U	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm  0x0000 = Stop; 0xFF00 = Start  0x0000 = not assigned; 0xFF00 = Assign function to voltage
852 859 860 861 900	X	x x x	X	x x x x x	Function generator Arbitrary: Select I Function generator Arbitrary: Start sequence Function generator Arbitrary: End sequence Function generator Arbitrary: Sequence cycles Function generator Arbitrary: Setup for sequence 1	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) float	2 2 2 2 32	1 1 1	Coils : Select I 0x00010x0064 0x00010x0064 0x00000x03E7 Bytes 0-3: Us/ls(AC) in V	0x0000 = not assigned; 0xFF00 = Assign function to current  0x0000 = infinite  Floating point number in IEEE754 format, see device manual for
										Bytes 4-7: Ue/le(AC) in V Bytes 8-11: fs(1/T) in Hz Bytes 12-15: fe(1/T) in Hz Bytes 16-19: Angle in degrees Bytes 20-23: Us/ls(DC) in V	Value range, chapter about function generator Integer in IEEE754 format: 010000Hz  Integer in IEEE754 format: 0°359° Floating point number in IEEE754 format, see device manual for
↓ 2468	1	↓ x	<b>↓</b>	↓ ↓ x	↓ Function generatorArbitrary: Setup for sequence 99	↓ RW	↓ float	↓ 32	↓ 16	Bytes 24-27: Ue/le(DC) in V  Bytes 28-31: Sequence time in µs  ↓  Bytes 0-3: Us/ls(AC) in V  Bytes 4-7: Ue/le(AC) in V	Value range, chapter about function generator  136000000 (36 Mio.)  Floating point number in IEEE754 format, see device manual for value range, chapter about function generator
										Bytes 8-11: fs(1/T) in Hz Bytes 12-15: fe(1/T) in Hz Bytes 16-19: Angle in degrees Bytes 20-23: Us/Is(DC) in V Bytes 24-27: Ue/Ie(DC) in V Bytes 28-31: Sequence time in µs	Integer in IEEE754 format: 010000Hz  Integer in IEEE754 format: 0°359° Floating point number in IEEE754 format, see device manual for value range, chapter about function generator 136000000 (36 Mio.)
9000 9001 9002 9003 9004		x x x x		X X X X	Upper limit of voltage set value (U-max) Lower limit of voltage set value (U-min) Upper limit of current set value (I-max) Lower limit of current set value (I-min) Upper limit of power set value (P-max)	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2 2	1 1 1	0x0000 - 0xD0E5 (0 - 102%) 0x0000 - 0xD0E5 (0 - 102%)	Voltage value (for translation see programming guide)  Voltage value (for translation see programming guide)  Current value (for translation see programming guide)  Current value (for translation see programming guide)  Power value (for translation see programming guide)
9006 10007 10008 10010	X X	X	X X X	x	Upper limit of resistance set value (R-max)  Ethernet: TCP keep-alive  Ethernet: DHCP  Protocol: Modbus  Protocol: SCPI	RW RW RW RW	uint(16) uint(16) uint(16) uint(16)	2 2 2 2	1 1 1	0x0000 - 0xD0E5 (0 - 102%) 0x0000 - 0xD0E5 (0 - 102%) Coils: Keep-alive on/off Coils: MODBUS on/off Coils: SCPI on/off	Now value (for translation see programming guide)  0x0000 = off; 0xFF00 = on
10017 10502 10504 10506	X	X X X	X	x x x	Ethernet: DHCP status Ethernet: IP address Ethernet: Subnet mask Ethernet: Gateway	R RW RW RW	uint(16) uint(16) uint(8) uint(8) uint(8)	2 4 4 4	1 2 2	Bit0: DHCP running Bytes 0 - 3: 0255	0 = manual; 1 = DHCP 192.168.0.2 (default) 255.255.255.0 (Standard) 192.168.0.1 (default)
10508 10535 10562 10566 10567		X X X X		x x x	Ethernet: Host name Ethernet: Domain name Ethernet: DNS USB: Connection timeout (in milliseconds) Ethernet: MAC	RW RW RW RW	char char uint(8) uint(16) uint(8)	54 54 4 2 6	27 2 1 3	ASCII ASCII Bytes 0 - 3: 0.255 5.65535 Bytes 0 - 5: 0.255	"Client" (default) "Workgroup" (default) 0.0.0.0 (default) Default: 5 ms 00:50:C2:C3:12:34 or 00-50-C2-C3-12-34
10572 10573 11000 11001		X X X		x x x x	Ethernet: Port Ethernet: TCP Socket timeout (in seconds)  MPP tracking: MPP-Mode MPP tracking: Uoc (setup)	RW RW RW	uint(16) uint(16) uint(16) uint(16)	2 2 2	1 1	0x0000 - 0xCCCC (0 - 100%)	5025 (default)  Default: 5 s  0 = MPPT off; 1 = MPP1; 2 = MPP2; 3 = MPP3; 4 = MPP4  Voltage value in % of Unor (for translation see programming
11002 11003 11004 11005 11006		x x x x		X X X X	MPP tracking: Isc (setup) MPP tracking: Umpp (setup) MPP tracking: Impp (setup) MPP tracking: Pmpp (setup) MPP tracking: Pmpp (setup) MPP tracking: DeltaP (setup)	RW RW RW RW	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2	1 1 1	0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0 - 50 Watt	Current value in % of Inom (for translation see programming guide) Voltage value in % of Unom (for translation see programming Current value in % of Inom (for translation see programming guide) Power value in % of Pnom (for translation see programming guide) Power value in % of Pnom (for translation see programming guide)
11007 11008 11009 11010 11011	х	x x	х		MPP tracking: Umpp (result of MPP1/2/4) MPP tracking: Impp (result of MPP1/2/4) MPP tracking: Pmpp (result of MPP1/2/4) MPP tracking: Start/Stop MPP tracking: Status (of MPP1/2/4)	R R R RW R	uint(16) uint(16) uint(16) uint(16) uint(16)	2 2 2 2	1 1 1	0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) Coils: Start/Stop Coils: Status	Voltage value in % of Unom (for translation see programming Current value in % of Inom (for translation see programming guide) Power value in % of Pnom (for translation see programming guide) 0x0000 = stop; 0xFF00 = start 0x0000 = running; 0xFF00 = finished
11012 11013 11014	X	x x		x x	MPP tracking: Error MPP tracking: Interval (setup)  MPP4 : Start  MPP4 : End	R RW RW	uint(16) uint(16) uint(16) uint(16)	2 2 2	1	Coils: Error 0x0005 – 0xEA60 0x0001 - 0x0064 0x0001 - 0x0064	0x0000 = no error; 0xFF00 = error  Regulation & measuring interval in milliseconds, either for tracking in modes 1 and 2 or for user curve progression in mode 4  Start voltage value out of 100 (related to registers 11100-11199) for use in MPP4 mode  End voltage value out of 100 (related to registers 11100-11199) for
11016 11100 11120 11140		x x x		x x x x x x	MPP4 : Repetitions MPP Tracking: User curve (MPP4 mode) voltage values 1-20 MPP Tracking: User curve (MPP4 mode) voltage values 21-	RW RW RW	uint(16) uint(16) uint(16) uint(16)	2 40 40 40	1 20 20		use in MPP4 mode  0x0000 = no repetitions  Voltage value in % of Unom (for translation see programming  Voltage value in % of Unom (for translation see programming  Voltage value in % of Unom (for translation see programming)
11160 11180 11200		x x		x	MPP Tracking: User curve (MPP4 mode) voltage values 61-	RW RW R	uint(16) uint(16) uint(16)	40 40 60	20 20	0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	Voltage value in % of Unom (for translation see programming Voltage value in % of Unom (for translation see programming Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom
11230		x			MPP Tracking: User curve (MPP4 mode) results 11-20 (10x Umon, Imon, Pmon)		uint(16)			0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	(for translation see programming guide) Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom (for translation see programming guide)
11290		x			MPP Tracking: User curve (MPP4 mode) results 21-30 (10x Umon, Imon, Pmon)  MPP Tracking: User curve (MPP4 mode) results 31-40 (10x Umon, Imon, Pmon)	R R	uint(16)	60		0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom (for translation see programming guide) Voltage value in % of Unom Current value in % of Inom
11320		х			MPP Tracking: User curve (MPP4 mode) results 41-50 (10x Umon, Imon, Pmon)	R	uint(16)	60	30	0x0000 - 0xCCCC (0 - 100%)	Power value in % of Pnom (for translation see programming guide)  Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom
11350		x			MPP Tracking: User curve (MPP4 mode) results 51-60 (10x Umon, Imon, Pmon)  MPP Tracking: User curve (MPP4 mode) results 61-70 (10x		uint(16)			0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	(for translation see programming guide)  Voltage value in % of Unom  Current value in % of Inom  Power value in % of Pnom  (for translation see programming guide)  Voltage value in % of Unom
11380		x			MPP Tracking: User curve (MPP4 mode) results 61-70 (10x Umon, Imon, Pmon)  MPP Tracking: User curve (MPP4 mode) results 71-80 (10x Umon, Imon, Pmon)		uint(16)			0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	Current value in % of Inom Power value in % of Pnom (for translation see programming guide) Voltage value in % of Unom Current value in % of Inom
11440		х			MPP Tracking: User curve (MPP4 mode) results 81-90 (10x Umon, Imon, Pmon)	R	uint(16)	60	30	0x0000 - 0xCCCC (0 - 100%)  0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	Power value in % of Pnom (for translation see programming guide) Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom
11470		х			MPP Tracking: User curve (MPP4 mode) results 91-100 (10x Umon, Imon, Pmon)	R	uint(16)	60	30	0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%) 0x0000 - 0xCCCC (0 - 100%)	(for translation see programming guide) Voltage value in % of Unom Current value in % of Inom Power value in % of Pnom (for translation see programming guide)
11500 11502 11504 11506 11508		X X X X		x x x	Battery test (static): Max. current Battery test (static): Max. power Battery test (static): Max. resistance Battery test (static): Discharge voltage Battery test (static): Max. capacity to discharge Battery test (static): Max. discharge lime	RW RW RW RW	float float float float float	4 4 4 4 4	2 2 2 2	Floating point number IEEE754 Floating point number IEEE754 Floating point number IEEE754 Floating point number IEEE754	0 - rated current 0 - rated power Min max. resistance, 0 = OFF 0 - rated voltage 0 - 9999.99 0 - 9999.99 10 - 102.03 as HH-MM-SS equivalent to
11510 11512 11513		x		x x x		RW RW RW	uint(32) uint(16) uint(16)	2	1	Action when reaching max. discharge capacity  Action upon reaching the max.	0x00010203 = 01:02:03 as HH:MM:SS, equivalent to    [00][STD][MIN][SEC]
11514 11516 11518 11520		X X X		x x x	discharge time  Battery test (dynamic): Current level 1  Battery test (dynamic): Time of current level 1  Battery test (dynamic): Time of current level 1  Battery test (dynamic): Time of current level 2	RW RW RW	float float float	4 4 4	2 2 2	discharge time Floating point number IEEE754	0x0001 = Signal (see register 11544); 0x0002 = Stop test 0 - rated current 1 - 36000 s 1 - 36000 s
11522 11524 11526 11528		X X X X		X X X X	Battery test (dynamic): Max. power Battery test (dynamic): Discharge voltage Battery test (dynamic): Max. capacity to discharge Battery test (dynamic): Max. discharge time	RW RW RW RW	float float float float uint(32)	4 4 4	2 2 2 2	Floating point number IEEE754 Floating point number IEEE754 Floating point number IEEE754 0x00000000 - 0x000A0000 ( 0 - 10 h)	0 - rated power 0 - rated voltage 0 - 9999.99 0000010203 = 01:02:03 as HH:MM:SS, equivalent to [00][STD][MIN][SEC]
11530		x		x	Battery test (dynamic): Action upon reaching the max. discharge capacity  Battery test (dynamic): Action upon reaching the max. discharge time	RW	uint(16) uint(16)	2		Action upon reaching the max. discharge capacity  Action upon reaching the max. discharge time	0x0000 = Do nothing; 0x0001 = Signal (see register 11544); 0x0002 = Stop test 0x0000 = Do nothing; 0x0001 = Signal (see register 11544); 0x0002 = Stop test
11532 11533 11534 11535	Х	х	х	х	Battery test: Start/stop Battery test: Status 1 Battery test: Error status Battery test: Mode selection	RW R R R	uint(16) uint(16) uint(16) uint(16)	2 2 2 2	1	Coils: Start/Stop Coils: Test status Coils: Error status Mode selection	0x0000 = Stop; 0xFF00 = Run 0x0000 = Running or not started; 0x00FF = Finished 0x0000 = No error; 0x00FF = Error 0x0000 = Battery test mode off (default); 0x0001 = Staticmode;
11536 11538 11540		x x x			Battery test: Discharged capacity in Ah Battery test: Discharged energy in Wh Battery test: Time at end of test	R R R	float float uint(16)	4 4 8	2		0x0002 = Dynamic mode 10.5 Ah 23453.5 Wh Word 0 = Hours (0-10) Word 1 = Minutes (0-59) Word 2 = Seconds (0-59)
11544		х			Battery test: Status 2	R	uint(16)	2	1	Status	Word 3 = Milliseconds (0-999)  0x0000 = Battery test mode off (default);  0x0001 = running;  0x0002 = stopped;  0x0004 = error occurred;
											0x0008 = initalized; 0x0010 = maximum Ah reached (signal only); 0x0020 = maximum time reached (signal only); 0x0040 = maximum Ah reached (end of test); 0x0080 = maximum time reached (end of test)