

ELR 9000 3U / EL 9000 B register list for devices with KE firmware from V2.24 (standard) or V2.08 (with GPB)

(check the installed version in your device's MENU in item ABOUT HW, SW)

Modbus address	Read coils (0x01)	Read holding registers (0x03)	Write single coil (0x05)	Write single register (0x06)	Write multiple registers (0x10)	Description	Access	Data type	Data length in bytes	Number of registers	Data	Example	Profibus slot / Profinet subnet	Profibus/Profinet index in slot	EtherCAT SDO/PDO?	
0	x					Device class	R	uint16	2	1	20, 32, 34, 36 = ELR 9000 39 = EL 9000 B	1	0	x		
1	x					Device type	R	string	40	20	ASCII		2	4	x	
21	x					Manufacturer	R	string	40	20	ASCII		1	2	x	
41	x					Manufacturer address	R	string	40	20	ASCII		1	3	x	
61	x					Manufacturer ZIP code	R	string	40	20	ASCII		1	4	x	
81	x					Manufacturer phone number	R	string	40	20	ASCII		1	5	x	
101	x					Manufacturer website	R	string	40	20	ASCII		1	6	x	
121	x					Nominal voltage	R	float	4	2	Floating point number IEEE754	80	1	6	x	
123	x					Nominal current	R	float	4	2	Floating point number IEEE754	170	1	6	x	
125	x					Nominal power	R	float	4	2	Floating point number IEEE754	150	1	9	x	
127	x					Max. internal resistance	R	float	4	2	Floating point number IEEE754	32	1	10	x	
129	x					Min. internal resistance	R	float	4	2	Floating point number IEEE754	0.005	1	11	x	
131	x					Article no.	R	string	40	20	ASCII	33230401	1	12	x	
151	x					Serial no.	R	string	40	20	ASCII	100010502	1	13	x	
171	x		x			User test	RW	string	40	20	ASCII		1	14	x	
191	x					Firmware version (KE)	R	string	40	20	ASCII	V2.01.05.09.2012	1	15	x	
211	x					Firmware version (RM)	R	string	40	20	ASCII	V2.02.10.08.2012	1	16	x	
231	x					Firmware version (DR)	R	string	40	20	ASCII	V1.5.6	1	17	x	
402	x	x				Remote mode	RW	uint16	2	1	Coils - Remote	0x0000 = off; 0x0001 = on	2	1	x	
405	x	x				DC input	RW	uint16	2	1	Coils - Input	0x0000 = off; 0x0001 = on	2	4	x	
407	x	x	x			Condition of DC input after power fail alarm	RW	uint16	2	1	Coils - Auto-On	0x0000 = off; 0x0001 = auto-on	3	30	x	
408	x	x				Condition of DC input after powering the device	RW	uint16	2	1	Reg - Power-On	0x0FFF = off; 0x0FFF = restore	2	6	x	
410	x	x				Operation mode (UPI/UR)	RW	uint16	2	1	Coils - Operation mode	0x0000 = UPI; 0x0001 = UR	2	7	x	
409	x					Restart of the device (warm start)	W	uint16	2	1	Coils - Restart	0x0001 = execute	2	8	x	
410	x					Acknowledge alarms	W	uint16	2	1	Coils - Alarms	0x0001 = acknowledge	2	9	x	
416	x	x				Analog interface: Reference voltage (pin VREF)	RW	uint16	2	1	Coils - VREF	0x0000 = 10V; 0x0001 = 5V	2	14	x	
417	x	x				Analog interface: REM-SB level	RW	uint16	2	1	Coils - REM-SB Level	0x0000 = normal; 0x0001 = inverted	2	36	x	
418	x	x				Analog interface: REM-SB action	RW	uint16	2	1	Coils - REM-SB Action	0x0000 = DC off; 0x0001 = DC auto	2	37	x	
422	x	x				Speed of internal voltage controller	RW	uint16	2	1	Coils - Controller speed	0x0000 = slow; 0x0001 = fast	2	38	x	
425	x	x				DC input after leaving remote	RW	uint16	2	1	Coils - Condition	0x0000 = off; 0x0001 = unchanged				
440	x		x			Analog interface: Pin 14 configuration	RW	uint16	2	1	Alarms 1	0x0001 = OVP (default); 0x0011 = OCP; 0x0002 = OPP; 0x0003 = OVP + OCP; 0x0004 = OVP + OPP; 0x0005 = OCP + OPP; 0x0006 = OVP + OCP + OPP;				
441	x		x			Analog interface: Pin 6 configuration	RW	uint16	2	1	Alarms 2	0x0000 = OT + PF (default); 0x0011 = OT; 0x0002 = PF;				
442	x		x			Analog interface: Pin 15 configuration	RW	uint16	2	1	Status DC	0x0000 = CV; 0x0001 = DC output status				
500	x	x	x			Set voltage value	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Voltage value (for translation see programming guide)	2	23	x	
501	x	x	x			Set current value	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Current value (for translation see programming guide)	2	24	x	
502	x	x	x			Set power value	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Power value (for translation see programming guide)	2	25	x	
503	x	x	x			Set resistance value	RW	uint16	2	1	variable - 0x00CC (x - 100%)	Resistance value (for translation see programming guide)	2	26	x	
505	x					Device state	R	uint32	4	2	Bit 0-4: Control location  Bit 5 : - Bit 6 : Master-slave type Bit 7 : Input state Bit 8 : Bit 9-10: Regulation mode Bit 11 : Remote Bit 12 : - Bit 13 : Function generator Bit 14 : External sense Bit 15 : Alarm Bit 16 : OVP Bit 17 : OCP Bit 18 : OPP Bit 19 : OT Bit 20 : - Bit 21 : Power fail 1 Bit 22 : Power fail 2 Bit 23 : Power fail 3 Bit 24 : UVD Bit 25 : OVD Bit 26 : UCD Bit 27 : OCD Bit 28 : OPD Bit 29 : REM-SB Bit 30 : REM-SB Bit 31 : REM-SB 0 = DC enabled; 1 = REM-SB disables power output	0x00 = free; 0x01 = local; 0x03 = USB; 0x04 = analog; 0x05 = Profibus; 0x06 = Ethernet; 0x08 = Master/Slave; 0x09 = RS232; 0x0A = CANopen; 0x12 = Modbus TCP; 0x13 = Profinet 1R; 0x14 = Ethernet 1P; 0x15 = Ethernet 2P; 0x16 = Modbus TCP 2P; 0x17 = Profinet 2P; 0x18 = GPB; 0x19 = CAN; 0x1A = EtherCAT	2	27	x	
507	x					Actual voltage	R	uint16	2	1	0x0000 - 0x0FFF (0 - 125%)	Actual voltage (for translation see programming guide)	2	28	x	
508	x					Actual current	R	uint16	2	1	0x0000 - 0x0FFF (0 - 125%)	Actual current (for translation see programming guide)	2	29	x	
509	x					Actual power	R	uint16	2	1	0x0000 - 0x0FFF (0 - 125%)	Actual power (for translation see programming guide)	2	30	x	
520	x					Count of OV alarms since power up	R	uint16	2	1	0x0000 - 0xFFFF	Count	3	20	x	
521	x					Count of OC alarms since power up	R	uint16	2	1	0x0000 - 0xFFFF	Count	3	21	x	
522	x					Count of OP alarms since power up	R	uint16	2	1	0x0000 - 0xFFFF	Count	3	22	x	
523	x					Count of OT alarms since power up	R	uint16	2	1	0x0000 - 0xFFFF	Count	3	23	x	
524	x					Count of PF alarms since power up	R	uint16	2	1	0x0000 - 0xFFFF	Count	3	24	x	
550	x	x	x			Overvoltage protection threshold (OVP)	RW	uint16	2	1	ELR: 0x0000 - 0xE147 (0 - 110%); EL9B: 0x0000 - 0xD2F1 (0 - 103%)	OVP threshold (for translation see programming guide)	3	0	x	
553	x	x				Overcurrent protection threshold (OCP)	RW	uint16	2	1	0x0000 - 0xE147 (0 - 110%)	OCP threshold (for translation see programming guide)	3	3	x	
556	x	x				Overpower protection threshold (OPP)	RW	uint16	2	1	0x0000 - 0xE147 (0 - 110%)	OPP threshold (for translation see programming guide)	3	6	x	
559	x	x				Undervoltage detection (UVD)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	UVD threshold (for translation see programming guide)	3	0	x	
560	x	x				Adjustable UVD notification	RW	uint16	2	1	Adjustable UVD notification	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm	3	10	x	
561	x	x				Overvoltage detection (OVD)	RW	uint16	2	1	Adjustable - 0x00E5 (0 - 102%)	OVD threshold (for translation see programming guide)	3	11	x	
562	x	x				Adjustable OVD notification	RW	uint16	2	1	Adjustable OVD notification	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm	3	12	x	
563	x	x				Undercurrent detection (UCD)	RW	uint16	2	1	Adjustable - 0x00E5 (0 - 102%)	UCD threshold (for translation see programming guide)	3	13	x	
564	x	x				Adjustable UCD notification	RW	uint16	2	1	Adjustable UCD notification	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm	3	14	x	
565	x	x				Overcurrent detection (OCD)	RW	uint16	2	1	Adjustable - 0x00E5 (0 - 102%)	OCD threshold (for translation see programming guide)	3	15	x	
566	x	x				Adjustable OCD notification	RW	uint16	2	1	Adjustable OCD notification	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm	3	16	x	
567	x	x				Overpower detection (OPD)	RW	uint16	2	1	Adjustable - 0x00E5 (0 - 102%)	OPD threshold (for translation see programming guide)	3	17	x	
568	x	x				Adjustable OPD notification	RW	uint16	2	1	Adjustable OPD notification	0x0000 = nothing; 0x0001 = signal; 0x0002 = warning; 0x0003 = alarm	3	18	x	
650	x	x				Master-slave: Link mode	RW	uint16	2	1	Coils - Mode	0x0000 = Slave; 0x0001 = Master	4	0	x	
652	x	x				Master-slave: Link mode of Share-Bus	RW	uint16	2	1	Coils - Mode	0x0000 = Slave; 0x0001 = Master	4	2	x	
653	x	x				Master-slave: Enable MS	RW	uint16	2	1	Coils - MS on/off	0x0000 = off; 0x0001 = on	4	3	x	
654	x	x				Master-slave: Init MS	W	uint16	2	1	Coils - MS start/init	0x0001 = Start init	4	4	x	
655	x	x	x			Master-slave: Condition	R	uint16	2	1	Reg - MS status	0x0000 = not initialised; 0x0001 = init running; 0x0003 = set default; 0x0004 = setup interface; 0x0005 = assignment; 0xFFFC = disabled; 0xFFFF = D = different models detected; init not OK; 0xFFFE = error; 0xFFFF = init OK	4	5	x	
656	x					Master-slave: Total voltage	R	float	4	2	Floating point number IEEE754	500	4	6	x	
655	x					Master-slave: Total current	R	float	4	2	Floating point number IEEE754	850	4	7	x	
660	x					Master-slave: Total power	R	float	4	2	Floating point number IEEE754	1400	4	8	x	
662	x	x				Master-slave: Number of initialised slaves	R	uint16	2	1		1 - 9	4	9	x	
850	x	x	x			Function generator: Arbitrary: Start/stop	RW	uint16	2	1	Coils - Start/Stop	0x0000 = Stop; 0x0001 = Start	5	0	x	
851	x	x	x			Function generator: Arbitrary: Select U	RW	uint16	2	1	Coils - U	0x0000 = not assigned; 0x0001 = Assign function to voltage	5	1	x	
852	x	x	x			Function generator: Arbitrary: Select I	RW	uint16	2	1	Coils - I	0x0000 = not assigned; 0x0001 = Assign function to current	5	2	x	
854	x	x	x			Function generator: XY: Select U mode	RW	uint16	2	1	Coils - U	0x0000 = not assigned; 0x0001 = Assign function to U-I curve	5	3	x	
855	x	x	x			Function generator: XY: Select I mode	RW	uint16	2	1	Coils - I	0x0000 = not assigned; 0x0001 = Assign function to I-U curve	5	4	x	
856	x	x				Function generator: XY: Submit curve data	W	uint16	2	1	Coils - Submit for XY	0x0001 = Submit curve data	5	5	x	
860	x	x	x			Function generator: Arbitrary: Start sequence	RW	uint16	2	1	0x0001 - 0x0003		5	9	x	
860	x	x	x			Function generator: Arbitrary: End sequence	RW	uint16	2	1	0x0001 - 0x0003		5	10	x	
861	x	x	x			Function generator: Arbitrary: Sequence cycles	RW	uint16	2	1	0x0000 - 0x03E7	0x0000 = infinite	5	11	x	
900	x			x		Function generator: Arbitrary: Setup for sequence 1	R	float	32	16	Bytes 0-3: U/Ie(A/C) in V Bytes 4-7: U/Ie(A/C) in V Bytes 8-11: f <sub>u</sub> (1/f <sub>I</sub> ) in Hz Bytes 12-15: f <sub>I</sub> (1/f <sub>u</sub> ) in Hz Bytes 16-19: Angle in degrees Bytes 20-23: U/Ie(A/C) in V Bytes 24-27: U/Ie(A/C) in V  Bytes 28-31: Sequence time in µs	Floating point number in IEEE754 format, see device manual for value range, chapter about function generator Integer in IEEE754 format: 0...10000 Hz Integer in IEEE754 format: 0...10000 Hz Integer in IEEE754 format: 0°...359° Floating point number in IEEE754 format, see device manual for value range, chapter about function generator Floating point number in IEEE754 format ELR 9000: 100 µs...36.000.000.000 µs White current mode: EL 9000 B: 10 µs...36.000.000.000 µs	6	0	x	
1	1	1	1	1	1											
2468	x			x		Function generator: Arbitrary: Setup for sequence 9	R	float	32	16	Bytes 0-3: U/Ie(A/C) in V Bytes 4-7: U/Ie(A/C) in V Bytes 8-11: f <sub>u</sub> (1/f <sub>I</sub> ) in Hz Bytes 12-15: f <sub>I</sub> (1/f <sub>u</sub> ) in Hz Bytes 16-19: Angle in degrees Bytes 20-23: U/Ie(A/C) in V Bytes 24-27: U/Ie(A/C) in V  Bytes 28-31: Sequence time in µs	Floating point number in IEEE754 format, see device manual for value range, chapter about function generator Integer in IEEE754 format: 0...10000 Hz Integer in IEEE754 format: 0...10000 Hz Integer in IEEE754 format: 0°...359° Floating point number in IEEE754 format, see device manual for value range, chapter about function generator Floating point number in IEEE754 format ELR 9000: 100 µs...36.000.000.000 µs White current mode: EL 9000 B: 10 µs...36.000.000.000 µs	6	98	x	
1	1	1	1	1	1											
2600	x			x		Function generator: XY table, block 0	RW	uint16	32	16	U mode: set voltage value I mode: set current value (16 values block)	value = real set value of voltage * 0.8 / Unom * 32768 or value = real set value of current * 0.8 / Inom * 32768	7	0	x	
1	1	1	1	1	1											
6680	x			x		Function generator: XY table, block 255	RW	uint16	32	16	U mode: set voltage value I mode: set current value (16 values block)	value = real set value of voltage * 0.8 / Unom * 32768 or value = real set value of current * 0.8 / Inom * 32768	7	255	x	
9000	x	x	x			Upper limit of voltage set value (U-max)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Voltage value (for translation see programming guide)	2	31	x	
9001	x	x	x			Lower limit of voltage set value (U-min)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Voltage value (for translation see programming guide)	2	32	x	
9002	x	x	x			Upper limit of current set value (I-max)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Current value (for translation see programming guide)	2	33	x	
9003	x	x	x			Lower limit of current set value (I-min)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Current value (for translation see programming guide)	2	34	x	
9004	x	x	x			Upper limit of power set value (P-max)	RW	uint16	2	1	0x0000 - 0x00E5 (0 - 102%)	Power value (for translation see programming guide)	2	35	x	
9006	x	x	x			Upper limit of resistance set										