MODBUS REGISTER SET

EN

ISOM K-15EV

Product reference: 47250105

Version: 02

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Table of contents

1. Modbus measured values registers (read only)

Register	Function	Channel description (last two bytes)
1000-1003	Insulation measurement	71 = no fault 1 = alarm or fault 102 = PE disconnection
1008-1011	Under/over voltage	76 = no fault 77 = undervoltage 78 = overvoltage
1016-1019	Voltage PE to L+	76 = no fault
1020-1023	Voltage PE to L-	76 = no fault
1032-1035	Device status	1022 = Measured value update counter 115 = Device error

2. Modbus parameter registers

Register	Property	Description	Format	Unit	Value range
3000	RO	Test status	UINT16	---	0 = None 1 = Self Test 2 = Relay
3005	RW	Insulation resistance Alarm value (Ran2)	UINT16	kΩ	Ran1…500
3007	RW	Insulation resistance Fault value (Ran1)	UINT16	kΩ	1…Ran2
3008	RW	Undervoltage detection enabled / disabled	UINT16	---	0 = disabled 1 = enabled Default = 0
3009	RW	Undervoltage detection level “U<”	UINT16	V	30…U>
3010	RW	Overvoltage detection enabled / disabled	UINT16	---	0 = disabled 1 = enabled Default = 0
3011	RW	Overvoltage detection level “U>”	UINT16	V	U< … 1150
3012	RW	Unit latches on fault condition	UINT16	---	0 = disabled 1 = enabled Default = 0
3013	RW	Operating mode of RLY1	UINT16	---	0=N.O, 1=N.C (default = 1)
3014	RW	Operating mode of RLY2	UINT16	---	0=N.O, 1=N.C (default = 1)
3015	RW	Bus address	UINT16	---	0..247 (0=Broadcast) Default = 3
3016	RW	Baud rate	UINT16	---	1=1.2k 2=2.4k 3=4.8k 4=9.6k (default) 5=19.2k 6=38.4k 7=57.6k 8=115.2k
3017	RW	Parity	UINT16	---	0=8N1 (default) 1=8O1 2=8E1 3=8N2
3018	RW	Startup delay “t” during service start	UINT16	S	0..10 (default = 0)
3019	RW	Response delay “ton” for relays 1 & 2	UINT16	S	0..99 (default = 0)
3020	RW	Delay on release “toff” for relays 1 & 2	UINT16	S	0..99 (default = 0)
3021	RW	Repetition period for automatic self-test	UINT16	S	0=OFF (default) 1=1h 2=24h
3023	RW	Monitoring mode	UINT16	---	0 = CCS/DC 1 = CHAdeMO 1 2 = CHAdeMO 2

3026	RW	Request stop mode	UINT16	---	0=Stop, 1=Enable
3027	RW	Function assignment for RLY1	UINT16	---	Bit 15...Bit 0 – see 11.2.1 (default = 0x0004)
3028	RW	Function assignment for RLY2	UINT16	---	Bit 15...Bit 0 – see 11.2.1 (default = 0x0010)
8003	WO	Factory setting for all parameters, including Modbus comms parameters	UINT16	---	0x6661 “fa”
8004	WO	Factory setting for user parameters only (no comms parameter change)	UINT16	---	0x4653 “FS”
8005	WO	Start device test	UINT16	---	0x5445 “TE”
8006	WO	Clear all alarm and fault indications	UINT16	---	0x434C “CL”
8010	RW	Lock / unlock			Set anti-tamper lock. 0xAA55 = lock Writing to following 3 registers sets passcode 0x1122 = unlock request Following 3 registers must form correct passcode to unlock settings.
8011	WO	Passcode digit 1	UINT16		0-9
8012	WO	Passcode digit 2	UINT16		0-9
8013	WO	Passcode digit 3	UINT16		0-9 Writing this register will activate the lock if locking requested in register 10000. If unlocking requested, and passcode is correct then device will be unlocked.
9800-9809	RO	Device name:	UINT16 - ASCII		SOCOMEC K15EV 2 characters per word, low byte is first character
9820	RO	Software ID number	UINT16	---	
9821	RO	Software version #	UINT16	---	
9822	RO	Software version: year	UINT16	---	
9823	RO	Software version: month	UINT16	---	
9824	RO	Software version: day	UINT16	---	
9825	RO	Modbus driver version	UINT16	---	

3. Anti-tamper Lock

To comply with UL 2231, the Anti-tamper lock must be set to prevent un-authorised changes to the user settings.

1. Locking

To set the Anti-tamper lock, first check if Modbus field/register is set to 0xAA55. If register 8010 is already set to 0xAA55 then the unlock procedure must be followed (see “2. Un-locking”).

Correct setting of the anti-tamper lock requires that registers 8010-8013 must be written as a consecutive pattern (write multiple registers – Modbus function code 16):

8010 = 0xAA55
8011 = BCD passcode digit 1 (0-9)
8012 = BCD passcode digit 2 (0-9)
8013 = BCD passcode digit 3 (0-9)

Once the lock has been set, any attempts to change any of the settings will result in a Modbus “Illegal Function” response code (01).

2. Un-Locking

To remove the Anti-tamper lock, registers 8010-8013 must be written as a consecutive pattern of words (write multiple registers – Modbus function code 16):

8010 = 0x1122
8011 = BCD passcode digit 1 (0-9)
8012 = BCD passcode digit 2 (0-9)
8013 = BCD passcode digit 3 (0-9)

If the correct pattern is written, no exception code will be indicated in the response and the device will be unlocked. In the event of incorrect passcode, Modbus exception code “Illegal Data Value (03)” will be set, and the unit will not be unlocked.