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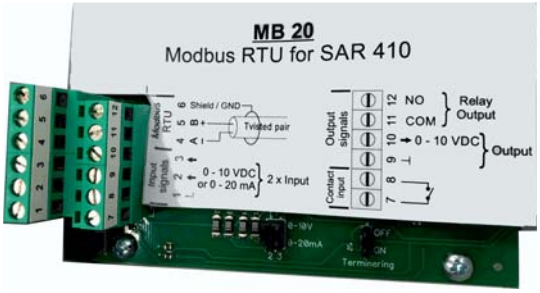
MB 20

MODBUS RTU LIITYNTÄYKSIKKÖ SAR 410:LLE

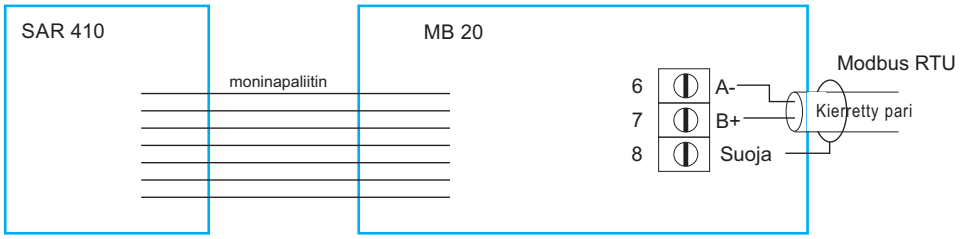
MB 20 on liityntäkortti painesäädin SAR 410:n liittämiseksi Modbus RTU väylään.

Luettavia ja ohjelmoitavia tietoja ovat huonesäätimen SAR sekä vetokaappisäätimien FHR ja näihin liittyneiden säätöpeltien arvot.



TEKNISET TIEDOT

Käyttöjännite	24 VAC SAR 410 kautta
Tehonkulutus	2 VA
Ympäristön lämpötila	0 - 50 °C
Kotelointi	SAR 410 sisällä , IP 65
Liikennöintinopeus	9600, 19200, 38400, 57600
Laiteosoitteet	1-247
Databitit	8
Stop-bitit	1 tai 2 (2 stop-bittiä jos pariteettia ei ole asetettu)
Pariteetti	Ei mikään/parillinen/pariton



TOIMINTAKUVAUS

MB 20 on SAR 410 huonesäätimen ja huoneväylään liitettyjen laitteiden liityntäyksikkö Modbus RTU väylälle.

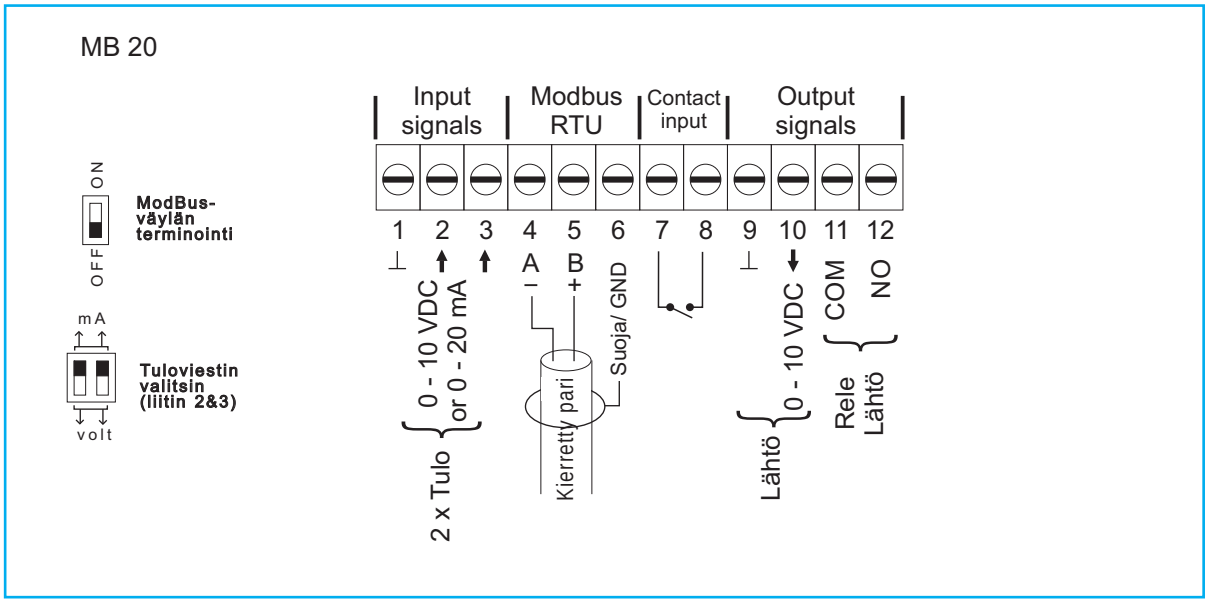
ASETUSTEN MÄÄRITTÄMINEN

Asetukset liikennöintinopeudelle, laiteosoitteelle ja pariteetille asetataan erillisellä SAR 410:n ohjelmointilaitteella SAR ID 15 parametrillä.

ModBus-väylän päätyterminointi ja tuloviestien valinta tehdään piirikortilla olevilla jumppereilla.

Analogisia viestiä liittimeen 2 ja 3 käytetään esimerkiksi analogisten säätöpeltien asennon luentaan.

KYTKENTÄKAAVIO



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Modbus rekisteri

Modbus communication

Interface:	RTU, RS-485
Baud rates:	9600, 19200, 38400, 57600
Data bits:	8 bits
Stop bits:	1 or 2 (2 stop bits with no parity)
Parity:	None, Even, Odd

Slave address, baud rate and parity must setup in LabVent SAR Id 15 by Fanison

Modbus function codes

Code	Description
03	Read Holding Registers
06	Write Single Holding Register (maybe partially limited)

Modbus exception codes

Code	Description
01	Illegal Function (for example if you try and write to a read-only register)
02	Illegal Address (if you try and read/write to an unmapped register)
06	Slave Device Busy (if you request external (FHR, ACU) registers too often)

Modbus external node mapping

Holding registers 1 - 164 are fixed SAR registers.
Registers 200 and above are mapped to either an FHR or an ACU.
Next node starts at +100 from the previous node.

Node 1 will have registers 200-299
Node 2 will have 300-399
Node 3 will have 400-499
...

The node map is found in SAR registers 100-163 as 32 bit registers containing node type, connection status and serial number.
100 = Node 1 type & status: low byte = type code (see list to the right) , high byte = status
101 = Node 1 serial number
102 = Node 2 type & status
103 = Node 2 serial number
...

Code	Name
2	FHR
3	ACU

Example (4 pcs. FHR + 1 pc ACU):
Register 100 reads: 258 (01 02 hex) => 02 = FHR, 01 = ONLINE
Register 101 reads: 501 => Serial number 501
Register 108 reads: 259 (01 03 hex) => 03 = ACU, 01 = ONLINE
Register 109 reads: 500 => Serial number 500

Register 200-250 will contain data from an FHR with serial number 501.
Reigster 600-611 will contain data from an ACU with serial number 500.

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Modbus rekisteri / SAR Holding registers 40001-40041

SAR	HEADER	REG	DESCRIPTION	CMD	FORMAT	UNIT	FORMAT NOTE	MIN	MAX	DEF	STEP
1	Serial number	1	Serial number	03	u16			0	32000	500	0
2	Program version	2	Program version	03	u16		Ex: 123 = 1.23	0	65535	100	0
3	Analog input 1 (Air volume)	4	Range	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	4000	0	20
		5	Current value	03	u16	%		0	100		0
4	Analog input 2 (Air volume)	7	Range	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	4000	0	20
		8	Current value	03	u16	%		0	100		0
5	Analog input 3 (Air volume or room pressure)	10	Range	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	4000	0	20
		11	Current value	03	u16	%		0	100		0
		13	Setpoint	03, 06	s16	Pa	Min and max depends on sensor type setting	-80	80	0	1
		15	Alarm level low	03, 06	s16	Pa	Min and max depends on sensor type setting	-100	100	-10	1
		16	Alarm level high	03, 06	s16	Pa	Min and max depends on sensor type setting	-100	100	10	1
		17	Alarm delay	03, 06	u16	seconds		10	240	20	1
6	Analog input 4 (air volume or room temperature)	19	Range	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	4000	0	20
		20	Current value	03	u16	%		0	100		0
		21	Setpoint	03, 06	u16	Celsius		15	30	24	4
		22	Max control output	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	8000	0	40
		23	Overtemperature	03, 06	u16	Celsius * 10	Celcius with 1 decimal point Ex 10 = 1.0 Ex 29 = 2.9	10	50	30	1
7	Analog input 5 (Air volume or zone pressure)	25	Range	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	4000	0	20
		26	Current value	03	u16	%		0	100		0
		27	Setpoint	03, 06	u16	Pa		100	400	200	2
		28	Manual control	03, 06	u16	%		0	100	50	1
		29	Alarm level	03, 06	u16	Pa		50	400	150	2
		30	Alarm delay	03, 06	u16	seconds		10	240	20	1
8	Constant air or door switch	34	Constant air 1 vol.	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	1000	0	5
		35	Constant air 2 vol.	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	1000	0	5
		36	Constant air 3 vol.	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	1000	0	5
9	Extra constant air	37	Extra exhaust	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	8000	0	32
		38	Extra inlet	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	8000	0	32
10	Min. exhaust from room	39	Min. exhaust	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	8000	0	32
		40	Min. external exhaust	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	8000	0	32
11	Max. Exhaust from	42	Max. exhaust	03, 06	u16	l/s or m3/h	Unit is set in SAR register 67	0	32000	0	128
15	Expansion module	53	Modbus address	03, 06	u16	1-247		1	247	1	1
		54	Modbus baud rate	03, 06	u16	0-3	0 = 9600 1 = 19200 2 = 38400 3 = 57600	0	3	0	1
		55	Modbus parity	03, 06	u16	0-2	0 = No parity 1 = Even parity 2 = Odd parity	0	2	0	1
16	Air balance	56	Adjust low	03, 06	s16	%		-100	100	0	1
		57	Adjust high	03, 06	u16	%		50	200	100	1
		58	Air balance	03, 06	s16	l/s or m3/h	Unit is set in SAR register 67	-3000	3000	0	25
17	Total exhaust	61	Total exhaust	03	u16	l/s or m3/h	Unit is set in SAR register 67				0
18	Total inlet	62	Total inlet	03	u16	l/s or m3/h	Unit is set in SAR register 67				0
19	Zone pressure	63	Zone pressure	03	u16	Pa					0
20	Zone damper ang.	64	Zone damper ang.	03	u16	deg					0
21	Room pressure	65	Room pressure	03	u16	Pa					0
22	Temperature	66	Temperature	03	u16	Celsius					0
		67	Global unit	03, 06	u16	0-1	0 = m3/h 1 = l/s	0	1	0	1
	Total nodes	68	Connected nodes	03	u16		Total number of nodes (FHR, ACU)				0
		-	-	-	-	-	-	-	-	-	-
	MB20 Inputs / Outputs	70	Analog input 1	03	u16	%	Terminal block 2 on MB20	0	100		0
		71	Analog input 2	03	u16	%	Terminal block 3 on MB20	0	100		
		72	Analog output 1	03, 06	u16	%	Terminal block 10 on MB20	0	100	0	1
		73	Digital input 1	03	u16		Terminal block 7 & 8 on MB20				
		74	Digital output 1	03, 06	u16	%	Terminal block 11 & 12 on MB20	0	1	0	1
		-	-	-	-	-	-	-	-	-	-
	Node map	100	Node 1 status	03	u16	bitfield	Low byte: Node type High byte: Connection status				0
		101	Node 1 serial	03	u16						0
		..	..	..	..	..	..	..	..	..	..
		162	Node 32 status	03	u16	bitfield	Low byte: Node type High byte: Connection status				0
		163	Node 32 serial	06	u16						0

Pidätämme oikeuden rajoittaa rekisterin kirjoitusoikeuksia. Puuttuvat registerit liittyvät start-up proseduuriin.

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Modbus rekisteri / FHR Holding registers 4xx00-4xx50

FHR	HEADER	REG	DESCRIPTION	CMD	FORMAT	UNIT	FORMAT NOTE	MIN	MAX	DEF	STEP
		0	Connection status	03	u16	0-1	0 = OFFLINE 1 = ONLINE	0	1	0	0
1	Serial number	1	Serial number	03	u16						0
2	Program version	2	Program version	03	u16		Ex: 123 = 1.23				0
3	Setpoint	3	NORMAL	03, 06	u16	cm/s		30	150	50	1
		4	ECONOMY	03, 06	u16	cm/s		20	100	30	1
4	Anemometer (HPS 50)	5	Count	03, 06	u16			1	2	1	1
		6	Not for airvolume	03, 06	u16	0-1		0	1	0	1
		7	Mode	03, 06	u16	0-3	0 = Normal 1 = Normal Slow 2 = Analog 3 = Analog Slow	0	3	0	1
5	Alarm	8	Alarm level	03, 06	u16	%	Alarm level LED/Buzzer	20	90	80	1
		9	Delay LED	03, 06	u16	s		10	60	20	1
		10	Delay buzzer	03, 06	u16	s		10	60	20	1
		11	Buzzer reset	03, 06	u16	minutes OFF	0 = OFF	0	60	0	1
7	ECONOMY sensor	19	Count	03, 06	u16		Economy sensor, PD 30, IR 50, IR 60	0	2	1	1
		22	Onset delay	03, 06	u16	seconds		5	240	20	1
		23	Alarm sash high	03, 06	u16	cm or OFF	0 = OFF	0 | 10	50	0	1
10	Air limits	29	Min. air limit	03, 06	u16	(l/s or m^3/h) OFF	0 = OFF Unit set in SAR register 67	0 | 100	1000	0	20
		30	Max. air limit	03, 06	u16	(l/s or m^3/h) OFF	0 = OFF Unit set in SAR register 67	0 | 200	4000	0	20
		31	Max. air limit buzzer	03, 06	u16	0-1	0 = Not used 1 = Used	0	1	0	1
		32	Max. sash opening	03, 06	u16	cm OFF	0 = OFF	0 | 10	100	0	1
		33	Min. damper angle	03, 06	u16	deg		0	90	0	1
		34	Max. damper angle	03, 06	u16	deg		0	90	90	1
13	Sash pot. adjust	41	Sash pot. 1 adjust	03, 06	s16	cm	Signed integer	-10	10	0	1
		42	Sash pot. 2 adjust	03, 06	s16	cm	Signed integer	-10	10	0	1
14	Damper relation	43	FHD relation	03, 06	u16	%	FHD1 - FHD2 relation	50	200	100	1
15	Air flow adjust	44	Adjust low	03, 06	u16	%		50	200	100	1
		45	Adjust high	03, 06	u16	%		50	200	100	1
16	Damper 1	46	Damper 1 angle	03	u16	deg					0
17	Damper 2	47	Damper 1 angle	03	u16	deg					0
18	Air volume	48	Air volume	03	u16	l/s or m3/h	Unit set in SAR register 67				0
19	Sash 1	49	Sash 1 height	03	u16	cm					0
20	Sash 2	50	Sash 2 height	03	u16	cm					0

Modbus rekisteri / ACU Holding registers 4xx00-4xx11

ACU.X	HEADER	REG	DESCRIPTION	CMD	FORMAT	UNIT	FORMAT NOTE	MIN	MAX	DEF	STEP
		0	Connection status	03	u16	0-1	0 = OFFLINE 1 = ONLINE	0	1	0	1
1	Serial number	1	Serial number	03	u16			0	32000	500	1
2	Program version	2	Program version	03	u16		Ex: 123 = 1.23	0	65535	100	1
4	Group	5	Controller mode	03, 06	u16	0-3	0 = Normal 1 = Normal Slow 2 = Analog 3 = Analog Slow	0	3	0	1
5	Alarm	6	Alarm level	03, 06	u16	%		20	90	80	1
		7	Alarm delay	03, 06	u16	s		10	60	20	1
6	Damper angle	8	Damper angle	03	u16	deg					
7	Air volume	9	Air volume	03	u16	l/s or m3/h	Unit is set in SAR register 67				
8	Air velocity	10	Air velocity	03	u16	cm/s					
9	Setpoint	11	Setpoint	03	u16	cm/s					

Pidätämme oikeuden rajoittaa rekisterin kirjoitusoikeuksia. Puuttuvat registerit liittyvät start-up proseduuriin.