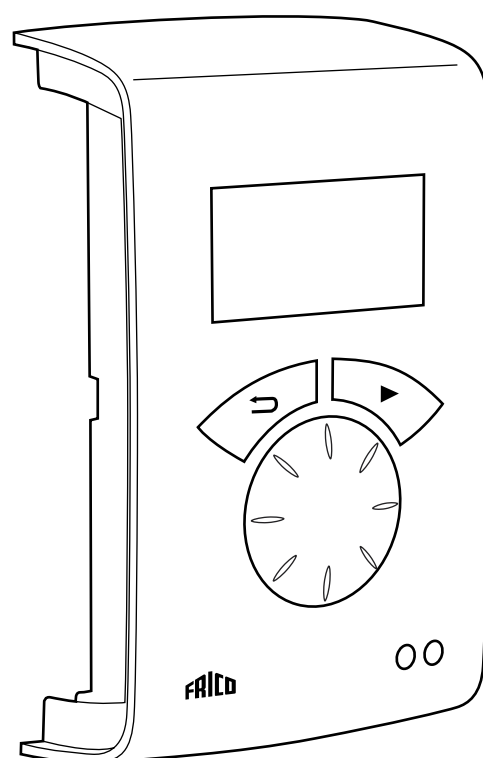


Original instructions

SIRe Advanced Air curtain

Modbus communication



SIRe Modbus

This manual describes how to connect SIRe Advanced with Modbus/RTU via RS485, the technical specification of the protocol in SIRe, the parameters and their use.

For more information about other functions in SIRe, please see the main manual.

For more information about Modbus please contact your BMS supplier or www.modbus.org

Connection

Modbus/RTU via RS485 connects with a RJ45 (8p/8c) modular contact on terminal [BUS] on the SIReA1X.

What information is presented

Please see list of parameters.

What information is not presented

Information regarding run times for each individual unit is stored on the B1-pcb and can only be viewed locally.

Modbus Information

Supported functions

Function codes 01, 02, 03, 04, 05, 06, 08, 15, and 16 are supported. Diagnostics (08) supports sub-codes 0, 2, 10, 11, 12, 13, and 14.

PDU length

Maximum PDU length is 256 bytes.

Supported network topology

General 2-wire topology described in Modbus specifications is supported. Multiple slaves are supported.

Software supports only RTU mode; ASCII mode serial transmission is not supported.

Ground level

Internal and external bus shares the same common ground, the RS-485 signals are not isolated.

Start and stop bits

One start bit, one stop bit.

Parity

Current software uses only 'None' parity mode.

Broadcast

Broadcast not supported because A1 fails to not to respond broadcast.

Setting values outside valid range

If written values are outside their allowed range, they will be set to the nearest value which is in the range.

Bus termination

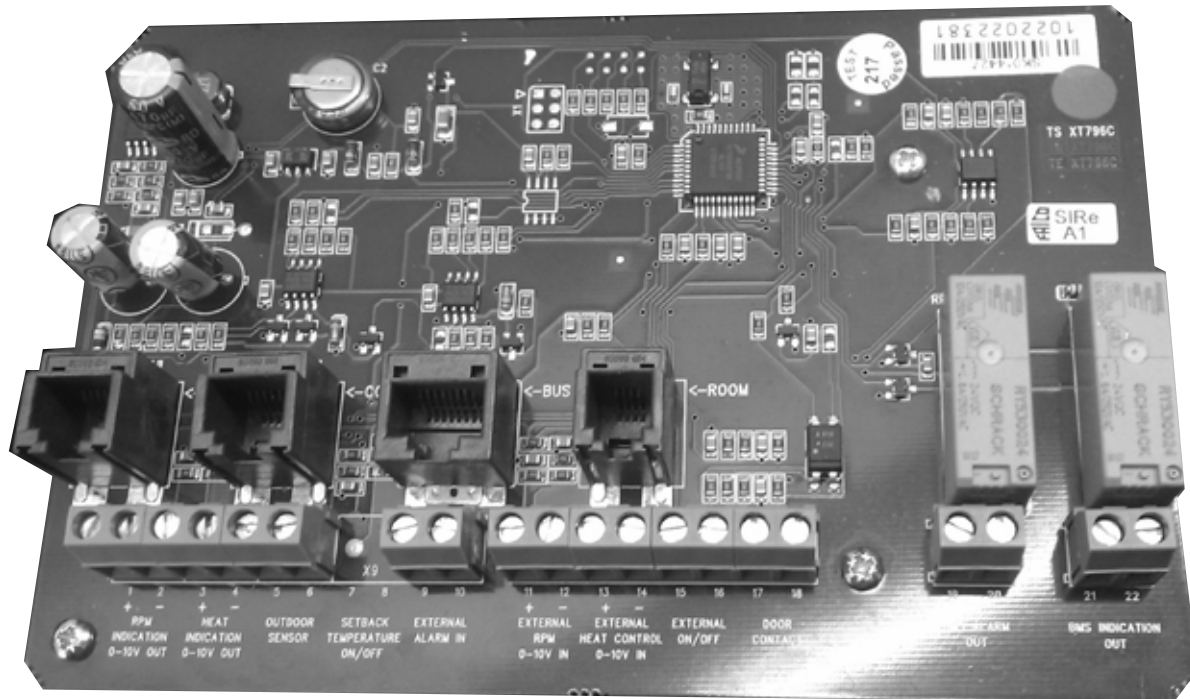
Bus is not terminated but it has 4.7 kohm pull-up and pull-down resistors.

Registers used

Coils, discrete inputs, and input registers are supported, but there are no registers. So the response is always "Illegal data address".

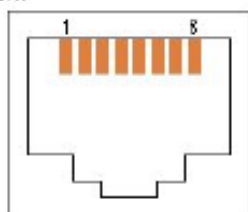
Holding register

16 bit integer register R/W

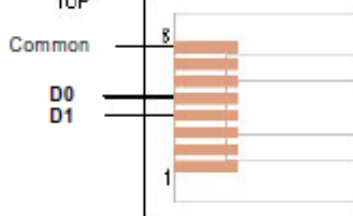


Device side - female connector

FRONT



TOP



- o Pin 4 = '-' = 'TxD-/RxD-' = inverting pin.
- o Pin 5 = '+' = 'TxD+/RxD+' = non-inverting pin.
- o Pin 8 = 'G' = 'GND' = reference pin.

SIReUA1 Menu structure - Gateway functions

> Installer menu
Mixing cabinet
External control
 General settings

> Installer menu > External control
 0-10V fan control
 0-10V heat control
Gateway functions

> Installer menu > External control > Gateway functions
System on/off enable
 Room temp. enable
 Outdoor temp. enable

> Installer menu > External control > Gateway functions
Heating step enable
Door position enable
 Week program enable

> Installer menu > External control > Gateway functions
System on/off enable
Room temp. enable
 Outdoor temp. enable

> Installer menu > External control > Gateway functions
Door position enable
Week program enable
 Modbus ID

> Installer menu > External control > Gateway functions
 Room temp. enable
Outdoor temp. enable
 Fan speed enable

> Installer menu > External control > Gateway functions
 Week program enable
Modbus ID
 Baud rate

> Installer menu > External control > Gateway functions
Outdoor temp. enable
Fan speed enable
 Heating step enable

> Installer menu > External control > Gateway functions
 Week program enable
Modbus ID
Baud rate

> Installer menu > External control > Gateway functions
Fan speed enable
Heating step enable
 Door position enable

Modbus	Register	Min	Max	Unit	Notes
4x00001	Room temperature	-1500	1500	0.1°C	SIRe to receive room temp. from BMS
4x00002	Outdoor temperature	-1500	1500	0.1°C	SIRe to receive outdoor temp. from BMS
4x00003	Fan speed	0	100	%	SIRe to receive fan speed from BMS
4x00004	Heating step	0	100	%	SIRe to receive heat step from BMS
4x00005	Door position	0	1		0 = Closed, 1 = Open SIRe to receive door position
4x00006	System on/off	0	1		0 = Off, 1 = On SIRe to receive on/off signal from BMS
4x00007	Week program	0	2		0 = Off, 1 = Day, 2 = Night SIRe to receive day/night
4x00008	Room temp. day SET	5	35	°C	
4x00009	Room temp. night SBT	5	35	°C	
4x00010	High speed limit	0	100	%	
4x00011	Speed closed door Low	0	100	%	
4x00012	Summer/Winter Season	0	1		0 = Summer (no heat), 1 = Winter (Heat available)
4x00013	Door mode	0	2		0 = Auto, 1 = Fix Open/Close, 2 = Fix open
4x00014	Fan mode FanMode	0	3		0 = Auto, 1 = Thermostat, Manual fan, 2 = Thermostat Manual
4x00015	Stepless fan control	0	1		0 = Off, 1 = On
4x00016	T max speed winter TmaxH	-30	30	°C	
4x00017	T min speed winter TminH	-30	30	°C	
4x00018	T min speed summer TminC	-30	30	°C	
4x00019	T max speed summer TmaxC	-30	30	°C	
4x00020	Over run mode Auto/fix	0	1		0 = Auto, 1 = User
4x00021	High speed over run Hdelay	0	180	s	Reads currently used delay, not the value set if auto. Rounds to nearest multiple of 10.
4x00022	Low speed over run Ldelay	0	500	s	
4x00023	Outdoor temp. limit TLIMH	5	35	°C	
4x00024	Eco / Comfort TcomfortMode	0	1		0 = Eco, 1 = Comfort
4x00025	Open door setp. diff. DiffS	0	100	0,1°C	
4x00026	Heating step diff. DiffH	0	100	0,1°C	
4x00027	Room temp. sensor SensorCalib	-100	100	0,1°C	Room sensor adjustment
4x00028	Outdoor temp. sensor SensorCalib	-100	100	0,1°C	Outdoor sensor adjustment
4x00029	Return temp. sensor	0	1		0 = Room, 1 = Return water
4x00030	Return temp. limit	0	90	°C	ReturnWaterLimit
4x00031	Heating step limit	0	5	Step	
4x00032	Stepless heat control	0	1		0 = Off, 1 = On
4x00033	Control range limit	5	35	°C	
4x00034	Filter timer on/off	0	1		0 = Off, 1 = On
4x00035	Filter timer setting	0	9950	h	Rounds to nearest multiple of 50.
4x00036	External filter guard	0	1		0 = Off, 1 = On
4x00037	Last filter change HCFL			h	Read only
4x00038	Mixing cabinet ctrl ON/OFF	0	1		0 = Off, 1 = On
4x00039	Min outlet temp.	5	35	°C	

	Description
	Write/Read to/from BMS. To write: set parameter 4x00046=1
	Write/Read to/from BMS. To write: set parameter 4x00047=1
	Write/Read to/from BMS. To write: set parameter 4x00048=1
	Write/Read to/from BMS. To write: set parameter 4x00049=1
on from BMS	Write/Read to/from BMS. To write: set parameter 4x00050=1
a BMS	Write/Read to/from BMS. To write: set parameter 4x00051=1
ight/off from BMS	Write/Read to/from BMS. To write: set parameter 4x00052=1
	Temperature setpoint during Day time
	Temperature setpoint during Night time
	Limits the fans maximum speed (For AC at open door)
	Speed limit at closed door (Only AC)
e)	Parameter finns ej i Adv. Och verkar inte påverka ngt när den ställs om.
	Set depending on use of door (Always open, open/closed or a mix.)
ostat, Auto fan, 3 =	Function on the fan heater
	Used for controlling a unit with frequency inverter, EC-motors or other 0-10VDC controlled fan
	At what outside temperature the AC should run at high speed during winter conditions
	At what outside temperature the AC should run at low speed during winter conditions
	At what outside temperature the AC should run at high speed during summer conditions
	At what outside temperature the AC should run at low speed during summer conditions
	See main manual for function description.
omatic delays used.	Set overruntime for High speed when parameter 4x00020=1
	Set overruntime for low speed when parameter 4x00020=1
	Blocks the heat when value on outdoorsensor is above set value
	See main manual for function description.
	Increase of temperature set value when the door opens.
	The temperature difference between activation of electrical heating steps
	Offset of the room temperature value
	Offset of the outdoor temperature value
	If WTA is used, set 4x00029=1
	Maximum temperature of return water (higher temp. Reduces the waterflow)
	Limit the heat, when using stepless heat, 0-100%
	For water heated units 4x00032=1, electrical units require external 0-10VDC controlled heat
	Limits a Users maximum set value
	Activates the filter rimer
	Set countdown time for the filter alarm
	Activate if external filter guard is connected to terminals 9 and 10
	Time since last filter change
	Activate when fan heater is used together with mixing cabinette.
	Set minimum air outlet temperature.

Modbus	Register	Min	Max	Unit	Notes
4x00040	Day damper pos. DPD	0	100	%	(.DamperDay)
4x00041	Night damper pos. DPN	0	100	%	(.DamperNight)
4x00042	External on/off ON/OFF	0	1		0 = Off, 1 = On (ExternalOnOffEnable) A1X T1
4x00043	0-10V fan control ON/OFF	0	1		0 = Off, 1 = On (ExternalFanControlEnable) A1
4x00044	0-10V heat control ON/OFF	0	1		0 = Off, 1 = On (ExternalHeatControlEnable) A1
4x00045	Set point correction	-10	10	°C	
4x00046	Enable ext. room temp.	0	1		0 = Off, 1 = On
4x00047	Enable ext. outd. temp.	0	1		0 = Off, 1 = On
4x00048	Enable ext. fan speed	0	1		0 = Off, 1 = On
4x00049	Enable ext. heating step	0	1		1 = Off, 1 = On
4x00050	Enable ext. door contact	0	1		2 = Off, 1 = On
4x00051	Enable ext. on/off	0	1		3 = Off, 1 = On
4x00052	Enable ext. week prgm.	0	1		4 = Off, 1 = On
4x00053	Clock, year	2010	2099		Reading year copies system clock to internal buffer and writes are from/to internal buffer. Writing time from internal buffer to system clock.
4x00054	Clock, month	1	12		
4x00055	Clock, day of month	1	31		
4x00056	Clock, hours	0	23	h	
4x00057	Clock, minutes	0	59	m	
4x00058	Clock, seconds	0	59	s	
4x00059	Max over run time Delay/DelayF	10	300	s	Rounds to nearest multiple of 10.
4x00060	It over run stop T	10	40	°C	
4x00061	Time interval stages ET	1	10	min	
4x00062	Functionality mode Comp/Adv	0	1		0 = Advanced, 1 = Competent.
4x00063	Min. water flow 0-3 V, 0,1V step	0	30	0,1V	
4x00064	Door contact func. NC/NO	0	1		0 = NC, 1 = NO. (Only physical contact)
4x00065	It_react	5	15	°C	
4x00066	It_alarm	5	15	°C	
4x00067	RTG_react	5	20	°C	
4x00068	RTG_alarm	5	20	°C	
4x00069	Min. return temp.	5	30	°C	
4x00070	Device ID Read only:				1=AC1, 2=AC2..., 129=FH1, 130=FH2... 254/255 or error.
4x00071	Motor alarm TK	0	1		0 = Normal, 1 = Disabled
4x00072	Over heating alarm ON/OFF	0	1		0 = Normal, 1 = Disabled
4x00073	Outlet temp. Limit	20	100	°C	
4x00074	Outlet temp. limit Eco	20	100	°C	
4x00075	Outlet temp. limit Diff	0	100	0,1°C	
4x00076	Outlet temp. limit Alarm	30	100	°C	
4x00077	Installation year				Read only.
4x00078	Installation month				Read only.
4x00079	Installation day				Read only.
4x00080	Reserved for future use, no access.				Fan and heat run times are per BP, thus not available
4x00081	Reserved for future use, no access.				Modbus.

	Description
	sets damper position during day time or if no week program is used
	sets damper position during night time
5-16	Activate if external On/Off signal is connected to terminals 15 and 16
X T11-12	Activate if external fan rpm signal is connected to terminals 11 and 12
A1X T13-14	Activate if external heat signal is connected to terminals 13 and 14
	If central sensor is used and offset is required (Does this exist anymore?)
	Set =1 if BMS should write value to SIRE
	Set =1 if BMS should write value to SIRE
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	Set =1 if BMS should write value to SIRE
	Set =1 if BMS should write value to SIRE
ffer. All reads seconds copies	
	Fan overrun countdown after heat has been on
	If internal temp. Drops below set value during overrun countdown, the fan stops.
	During the function Stages (see main manual) the roomtemp is measured every [set value] minute
	Set functionlevel. If competent is set, the system ignore outdoor sensor value or errors
	Set minimum waterflow when valve is closed
	invert door contact function
	Frost protection: Internal temp sensor Set value opens valve
	Frost protection: Internal temp sensor Set value opens valve , stops fan and closes damper
	Frost protection: Return water sensor (WTA) Set value opens valve
	Frost protection: Return water sensor (WTA) Set value opens valve , stops fan and closes damper
	Frost protection: At stationary fan, [Set value] is the minimum return water temperature.
255=Unknown	Unit program, Reads from B1. Depends on unit. Should not be changed
	Activate/Deactivate motorprotection alarm
	Activate/Deactivate internal over heat alarm
	[Set value] limits the air outlet temperature in Comfort mode, overrides set
	[Set value] limits the air outlet temperature in Eco mode (32°C) Heat decreases
	[Set value] above outlet temp. Limit, Heat=0
	[Set value] = overheat alarm
	For information only.
	For information only.
	For information only.
lable through	

Modbus	Register	Min	Max	Unit	Notes
4x00082	Reserved for future use, no access.				
4x00083	Reserved for future use, no access.				
4x00084	Modbus ID				Read only.
4x00085	Baud rate				0 = 2400, 1 = 4800, 2 = 9600, 3 = 19200,
4x00086	Reserved for future use, no access.				
4x00087	Reserved for future use, no access.				
4x00088	Reserved for future use, no access.				
4x00089	Reserved for future use, no access.				
4x00090	Reserved for future use, no access.				
4x00100	Reset alarm	0	1		Reads 1 if at least one alarm is active. Wr
4x00101	E1 Communication				
4x00102	E2 Unreliable communication				
4x00103	E3 Bad or no configuration				
4x00104	E4/E6 Faulty Rt / RTG sensor				
4x00105	Always zero, writes ignored				
4x00106	E4/E6 Faulty Rt / RTG sensor				
4x00107	E7 RTG sensor error				
4x00108	E8 It sensor error				
4x00109	Always zero, writes ignored				
4x00110	E10 Non-identical B1s				
4x00111	Always zero, writes ignored				
4x00112	E12/E21 Room sensor error				
4x00113	Always zero, writes ignored				
4x00114	E14 Outdoor sensor error				
4x00115	Always zero, writes ignored				
4x00116	Always zero, writes ignored				
4x00117	Always zero, writes ignored				
4x00118	Always zero, writes ignored				
4x00119	Always zero, writes ignored				
4x00120	Always zero, writes ignored				E20 not available through Modbus.
4x00121	E12/E21 Room sensor error				
4x00122	Always zero, writes ignored				E22 not available through Modbus.
4x00123	E23 Incompatible B1				Units with software from different gener
4x00124	Always zero, writes ignored				
4x00125	Always zero, writes ignored				
4x00126	Always zero, writes ignored				
4x00127	Always zero, writes ignored				
4x00128	Always zero, writes ignored				
4x00129	A1 Motor alarm				
4x00130	A2 Overheat alarm	0	1		Writing 1 resets the alarm
4x00131	A3 Freeze alarm	0	1		Writing 1 resets the alarm
4x00132	A4 Filter alarm				
4x00133	A5 External alarm				
4x00134	Reserved for future use, no access.				
4x00135	Reserved for future use, no access.				

	Description
4 = 38400, 5 = 57600	
Write 1 to reset all alarms except overheat and freeze	To reset alarms from Modbus, Send 1
ations.	Require exchange of components, contact Frico

