

FLEXIT[®]



FLEXIT CS 1000

E User Guide Modbus Operation



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Overview of Modbus for Flexit standard application

Op Mode is read only. To change (start / stop the unit) the Op Mode you need to write to "BMSTime" (this block is used for LON/Modbus/OPC only) Page 13

Parameter-name	Function	Range	Unit	Default value	OPC-Tag	MODBUS Register Read Write
Operating information						
Op Mode :	Current operating mode	Off / Eco / Comf / Night Purge / Unoccupied			OP07	InputStatus 30147 Off = 0 Eco = 1 Comf = 2 Night = 3 Purge = 4 Unoccp. = 5
Menu Time Channels Parameter name						
01.06.2003 13:00:00	Set actual time	Day.Month.Year Hour:Min:Sec			-	
Menu Time Channels Daytime Scheduler Parameter name						
T1	Switching point 1 Start: Mode: Enbl:	00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv		07.00	TD01	
T2	Switching point 2 Start: Mode: Enbl:	00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv		17.00	TD02	
T3	Switching point 3 Start: Mode: Enbl:	00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TD03	
T4	Switching point 4 Start: Mode: Enbl:	00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TD04	

Menu	Time Channels	Weektime Scheduler	Parameter name			
T1	Switching point 1	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2	06.00	TW0 1	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					
T2	Switching point 2	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2	19.00	TW0 2	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					
T3	Switching point 3	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2		TW0 3	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					
T4	Switching point 4	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2		TW0 4	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					
T5	Switching point 5	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2		TW0 5	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					
T6	Switching point 6	Start:	dd.00:00...23:59 dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2		TW0 6	
	Stop:		---- / Actv			
	Mode:					
	Enbl:					

Menu	Time Channels	YearTimeScheduler	Parameter name		
T1	Switching point 1 Start: Stop: Mode: Enbl:	mm.dd.00:00...23:59 mm.dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TY01
T2	Switching point 2 Start: Stop: Mode: Enbl:	mm.dd.00:00...23:59 mm.dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TY02
T3	Switching point 3 Start: Stop: Mode: Enbl:	mm.dd.00:00...23:59 mm.dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TY03
T4	Switching point 4 Start: Stop: Mode: Enbl:	mm.dd.00:00...23:59 mm.dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TY04
T5	Switching point 5 Start: Stop: Mode: Enbl:	mm.dd.00:00...23:59 mm.dd.00:00...23:59 Off/Ec1/Ec2/Co1/Co2 ---- / Actv			TY05

Parameter-name	Function	Range	Unit	Default value	OPC-Tag	MODBUS Register Read Write	
Menu	Operating Status	Control Input	Parameter name				
ExtendedOp	Extended operation	Off / On			OP03	InputStatus 10030	
ForcedOp	Forced operation	Off / On			OP16	InputStatus 10029	

Parameter-name	Function	Range	Unit	Default value	OPC-Tag	MODBUS Register Read Write
Externals	External start stop	Auto / Stop			OP12	InputStatus 10027
ServiceSwitch	HMI Start stop	Auto / Stop			OP01	InputStatus 10028
Menu Operating Status Actual Value Parameter name						
Room/ExtrTemp	Room/extract temperature	-50...150.0	°C	–	GT30	InputRegister 30027
OutTemp	Outside temperature	-50...150.0	°C	–	GT90	InputRegister 30025
SupplyAirTemp	Supply air temperature	-50...150.0	°C	–	GT10	InputRegister 30029
WaterFrostTemp	Water frost alarm temperature	-50...150.0	°C	–	GT80	InputRegister 30023
HRCFrostTemp	Anti-icing protection temperature	-50...150.0	°C	–	GT41	InputRegister 30031
SupplyPressure	Supply air Pressure	0.0 ...1000	Pa	–	GP10	InputRegister 30007
ExtractPressure	Extract air Pressure	0.0 ...1000	Pa	–	GP20	InputRegister 30001
SupplyVol	Supply air Flow	0.0 ...15	l/s	–	GF10	InputRegister 30009
ExtractVol	Extract air Flow	0.0 ...15	l/s	–	GF20	InputRegister 30003
SupplyCO2	Extended input supply	0.0...100.0	%		GQ10	InputRegister 30011
ExtractCO2	Extended input extract	0.0...100.0	%		GQ20	InputRegister 30005
SupFilterPres	Supply filter pressure	0.0 ...1000	Pa	–	GP15	InputRegister 30013
ExtFilterPres	Extract filter pressure	0.0 ...1000	Pa	–	GP25	InputRegister 30015
Menu Operating Status Outputs Digital Parameter name						
HeatingPump	Heating pump	Off / On		–	CP10	InputStatus 10020
ElecHeaterStage2	Electric heater stage 2	Off / On			EB12	InputStatus 10021
ElecHeaterStage3	Electric heater stage 3	Off / On			EB13	InputStatus 10022
Fans	Fans	Off / St1 / St2		–	OP02	InputRegister 30146 0 = Off 1 = Low Speed 2 = High Speed
OutsideAirDamper	Outside air damper	Off / On		–	ST10	InputStatus 10023
DX1	Cooling step 1	Off / On		–	DX10	InputStatus 10024
DX2	Cooling step 2	Off / On		–	DX20	InputStatus 10025
A-Alarm	Alarm priority A	OK / alarm		–	AL16	InputStatus 10014
B-Alarm	Alarm priority B	OK / alarm		–	AL15	InputStatus 10017
Menu Operating Status Outputs ControlSignal Parameter name						
CoolingValve	Output signal cooling	0.0...100.0	%	–	SV20	InputRegister 30047
HeatRecovery	Output signal heat recovery	0.0...100.0	%	–	HD10	InputRegister 30041
HeatValve	Output signal heat valve/battery	0.0...100.0	%	–	SV10	InputRegister 30037
PWMHtrBatt	Output signal heat. Battery SSR	0.0...100.0	%	–	VK10	InputRegister 30039
FU ExtractFan	Freq.converter supply air	0.0...100.0	%	–	FO20	InputRegister 30051
FU SupplyFan	Freq.coverter extract air	0.0...100.0	%	–	FO10	InputRegister 30049
SupFlowInd	Supply flow indication	0.0...100.0	%	–	IF10	InputRegister 30043
ExtFlowInd	Extract flow indication	0.0...100.0	%	–	IF20	InputRegister 30045
Menu Operating Status Service-run counter Parameter name						
Service-run counter	Service-run counter	0.0... xxxx	h	–	OC07	InputRegister 30065

<i>Parameter-name</i>	<i>Function</i>	<i>Range</i>	<i>Unit</i>	<i>Default value</i>	<i>OPC-Tag</i>	<i>MODBUS Register Read Write</i>
ResetCounter	Reset of counter	No / Yes			OC07	Read:- InputStatus 10026 Write (reset):- HoldingReg 40083 Bit 0
Unit Total Hours	Unit Total Hours	0.0... xxxx	h	–	OC08	InputRegister 30067
Menu Operating Status HRC Efficiency Parameter name						
HRC Efficiency	Heat recovery efficiency	0.0...100	%		GE61	InputRegister 30017
Menu Setpoints ControlType Parameter name						
Extract/RomAir, SupplyAir, FRT, Comp	Control type:			SupplyAir	OP04	Read Only. InputRegister 30143 0 = Extract/Room 1 = Supply 2 = FRT 3 = Comp. Sup. Air
Menu Setpoints MainController Parameter name						
ActualSetpoint	Current setpoint		°C	–	OP06	Read Only. InputRegister 30019
HeatingComfort	Comfort setpoint heating	10.0...40.0	°C	20.0	TSC1	Read: InputRegister 30083 Write:- HoldingReg. 40031
CoolingComfort	Comfort setpoint cooling	10.0...40.0	°C	22.0	TSC2	Read: InputRegister 30085 Write:- HoldingReg. 40033
HeatingEconomy	Economy setpoint heating	10.0...40.0	°C	18.0	TSE1	Read: InputRegister 30079 Write:- HoldingReg. 40027
CoolingEconomy	Economy setpoint cooling	10.0...40.0	°C	24.0	TSE2	Read: InputRegister 30081 Write:- HoldingReg. 40029
MinComNzone	Minimum Temp between heating – cooling Comfort	1.0..10.0	°C	2.0	DK10	Read: InputRegister 30075 Write:- HoldingReg. 40023
MinEcoNzone	Minimum Temp between heating – cooling Economy	1.0..10.0	°C	4.0	DE10	Read: InputRegister 30073 Write:- HoldingReg. 40021
MinUnocNZone	Minimum Temp between Unoccupied heating and cooling	1.0..10.0	°C	10.0	DS10	Read: InputRegister 30077 Write:- HoldingReg. 40025

<i>Parameter-name</i>	<i>Function</i>	<i>Range</i>	<i>Unit</i>	<i>Default value</i>	<i>OPC-Tag</i>	<i>MODBUS Register Read Write</i>
Menu	Setpoints	Min/Max SupplyAirTemp	Parameter name			
SupplyAirSetp	Setpoint supply air		°C	-	TS10	Read Only: InputRegister 30021
MinSupplyAirTemp	Min supply air temperature	-	°C	15.0	CT10	Read: InputRegister 30033 Write:- HoldingReg. 40001
MaxSupplyAirTemp	Max supply air temperature	-	°C	30.0	CT10	Read: InputRegister 30035 Write:- HoldingReg. 40003
CompSASStartWinter	Compensation start winter	-30.0...20.0	°C	10.0	GE39	Read: InputRegister 30053 Write:- HoldingReg. 40005
CompSASStopWinter	Compensation stop winter	-30.0...20.0	°C	-20.0	GE39	Read: InputRegister 30055 Write:- HoldingReg. 40007
CompSASStartSummer	Compensation start summer	10.0...50.0	°C	20.0	GE39	Read: InputRegister 30057 Write:- HoldingReg. 40009
CompSASStopSummer	Compensation stop summer	10.0...50.0	°C	30.0	GE39	Read: InputRegister 30059 Write:- HoldingReg. 40011
CompSASummerDiff	Compensation summer difference	-10.0...10.0	K	-2.0	GE39	Read: InputRegister 30061 Write:- HoldingReg. 40013
CompSAWinerDiff	Compensation winter difference	-10.0...10.0	K	2.0	GE39	Read: InputRegister 30063 Write:- HoldingReg. 40015
DeltaHeating	Delta heating	-5.0...5.0	K	0.0	GE43	Read: InputRegister 30089 Write:- HoldingReg. 40037
DeltaCooling	Delta Cooling	-5.0...5.0	K	0.0	GE44	Read: InputRegister 30091 Write:- HoldingReg. 40039

Parameter-name	Function	Range	Unit	Default value	OPC-Tag	MODBUS Register Read Write
Menu Setpoints SupFanMode	Parameter name					
SupFanMode :	Supply fan mode	Prsl / PrER / Cvol / CO2 / PrES	l/s / Pa		OP17	ReadOnly: InputRegister 30141 0 = Press Int Sens 1 = Press Extern Reg 2 = Constant Volume 3 = CO ₂ control 4 = Press Extern Sen
Menu Setpoints ExtFanMode	Parameter name					
ExtFanMode :	Extract fan mode	Prsl / PrER / Cvol / CO2 / PrES	l/s / Pa		OP18	ReadOnly: InputRegister 30142 0 = Press Int Sens 1 = Press Extern Reg 2 = Constant Volume 3 = CO ₂ control 4 = Press Extern Sen
Menu Setpoints VolController	Parameter name					
ActualStpSu	Actual flow setpoint supply air		l/s	-	OP08	ReadOnly: InputRegister 30125
ActSetpEx	Actual flow setpoint extract air		l/s	-	OP09	ReadOnly: InputRegister 30127
SuVolLoStp	Supply volume low-speed setpoint	0.0...10000	l/s	200	VS10	Read: InputRegister 30093 Write:- HoldingReg. 40041
SuVolHiStp	Supply volume high-speed setpoint	0.0...10000	l/s	800	VS11	Read: InputRegister 30095 Write:- HoldingReg. 40043
ExVolLoStp	Extract volume low-speed setpoint	0.0...10000	l/s	200	VS20	Read: InputRegister 30097 Write:- HoldingReg. 40045
ExVolHiStp	Extract volume high-speed setpoint	0.0...10000	l/s	800	VS21	Read: InputRegister 30099 Write:- HoldingReg. 40047
Menu Setpoints PressureController	Parameter name					
ActSetpSu	Pressure setpoint supply air	0.0...1000.0	Pa		OP08	same as above ReadOnly: InputRegister 30125
ActSetpEx	Pressure setpoint extract air	0.0...1000.0	Pa		OP09	same as above ReadOnly: InputRegister 30127
SuPressLoSt	Supply pressure low setpoint	0.0...1000.0	Pa	150.0	PS10	Read: InputRegister 30101 Write:- HoldingReg. 40049

Parameter-name	Function	Range	Unit	Default value	OPC-Tag	MODBUS Register Read Write
SuPressHiSt	Supply pressure hig setpoint	0.0...1000.0	Pa	200.0	PS11	Read: InputRegister 30103 Write:- HoldingReg. 40051
ExPressLoSt	Extract pressure low setpoint	0.0...1000.0	Pa	150.0	PS20	Read: InputRegister 30105 Write:- HoldingReg. 40053
ExPressHiSt	Extract pressure hig setpoint	0.0...1000.0	Pa	200.0	PS21	Read: InputRegister 30107 Write:- HoldingReg. 40055
SupMinLimit	Supply volume min limit	0.0...2200	l/s	200	G123	Read: InputRegister 30109 Write:- HoldingReg. 40057
SupMaxLimit	Supply volume max limit	0.0...2200	l/s	800	G124	Read: InputRegister 30111 Write:- HoldingReg. 40059
ExtMinLimit	Extract volume min limit	0.0...2200	l/s	200	G125	Read: InputRegister 30121 Write:- HoldingReg. 40069
ExtMaxLimit	Extract volume max limit	0.0...2000	l/s	800	G126	Read: InputRegister 30123 Write:- HoldingReg. 40071
Menu Setpoints CO2Controller Parameter name						
ActSetpSu	CO2 setpoint supply air	0.0...1000.0		-	OP08	same as above ReadOnly: InputRegister 30125
ActSetpEx	CO2 setpoint extract air	0.0...1000.0		-	OP09	same as above ReadOnly: InputRegister 30127
SuCO2LoSt	Supply CO2 low setpoint	0.0...100.0	%	50	LS10	Read: InputRegister 30113 Write:- HoldingReg. 40061
SuCO2HiSt	Supply CO2 high setpoint	0.0...100.0	%	70	LS11	Read: InputRegister 30115 Write:- HoldingReg. 40063
ExCO2LoSt	Extract CO2 low setpoint	0.0...100.0	%	50	LS20	Read: InputRegister 30117 Write:- HoldingReg. 40065

<i>Parameter-name</i>	<i>Function</i>	<i>Range</i>	<i>Unit</i>	<i>Default value</i>	<i>OPC-Tag</i>	<i>MODBUS Register Read Write</i>
ExCO2HiSt	Extract CO2 high setpoint	0.0...100.0	%	70	LS21	Read: InputRegister 30119 Write:- HoldingReg. 40067
SupMinLimit	Supply volume min limit	0.0...2200	l/s	200	G123	same as above Read: InputRegister 30109 Write:- HoldingReg. 40057
SupMaxLimit	Supply volume max limit	0.0...2200	l/s	800	G124	same as above Read: InputRegister 30111 Write:- HoldingReg. 40059
ExtMinLimit	Extract volume min limit	0.0...2200	l/s	200	G125	same as above Read: InputRegister 30121 Write:- HoldingReg. 40069
ExtMaxLimit	Extract volume max limit	0.0...2200	l/s	800	G126	same as above Read: InputRegister 30123 Write:- HoldingReg. 40071
Menu Parameters ForcedOperation Parameter name						
ForcedRunTime	Forced run time	0.0...12.0	H	1	G122	Read: InputRegister 30069 Write:- HoldingReg. 40017
CancelForcedOp	Cancel forced operation	No / Yes		No	G123	Read: InputStatus 10018 Write:- HoldingReg. 40081 bit 0
Menu Parameters TemperatureAlarm Parameter name						
TempAlarmSet	Deviating temperature alarm	0.0...10.0	°C	10.0	GE42	Read: InputRegister 30087 Write:- HoldingReg. 40035
Menu Parameters ExtendedOperation Parameter name						
ExtendRunTime	Extended run time	0.0...12	H	1	GE28	Read: InputRegister 30071 Write:- HoldingReg. 40019
CancelExtendOp	Cancel extended operation	No / yes		No	G121	Read: InputStatus 10019 Write:- HoldingReg. 40082 bit 0

Others Modbus info					
Unitname					
Reset alarms 0 = Normal 1 = Reset				Read: InputRegister 30144 b0 Write:- HoldingReg. 40084 b0)
Timescheduler for BMS (SetpointEnum:- "BMSTime")	Auto (0) Off (1) Ec1 (2) Ec2 (3) Co1 (4) Co2 (5)			Read: InputRegister 30145 Write:- HoldingReg. 40085 Send the corresponding value to change status	Auto =0 Off =1 Ec1 =2 Ec2 =3 Co1 =4 Co2 =5
ALARMS					
A-Alarm				InputStatus 10014	
B-Alarm				InputStatus 10017	
Supply Temp				InputStatus 10009	
Fire/Smoke				InputStatus 10002	
RotorGuard				InputStatus 10003	
FanCommon				InputStatus 10016	
Sensor				InputStatus 10007	
Elechtr O/H				InputStatus 10004	
Supply FC				InputStatus 10005	
Exhaust FC				InputStatus 10006	
Frost				InputStatus 10008	
HRC Frost				InputStatus 10011	
HRC Efficiency				InputStatus 10012	
Elechtr Fire				InputStatus 10001	
UnitOverride				InputStatus 10010	
Supply Filter				InputStatus 10013	
Exhaust Filter				InputStatus 10015	

Op Mode is read only. To change (start / stop the unit) the Op Mode you need to write to "BMSTime" (this block is used for LON/Modbus/OPC only)

Modbus Connection ACX32

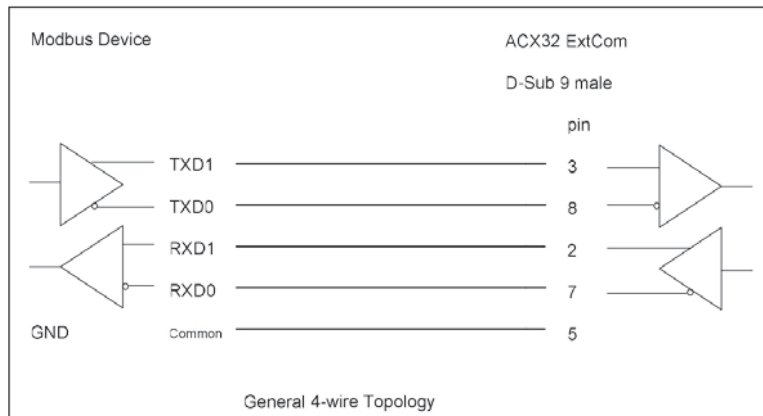
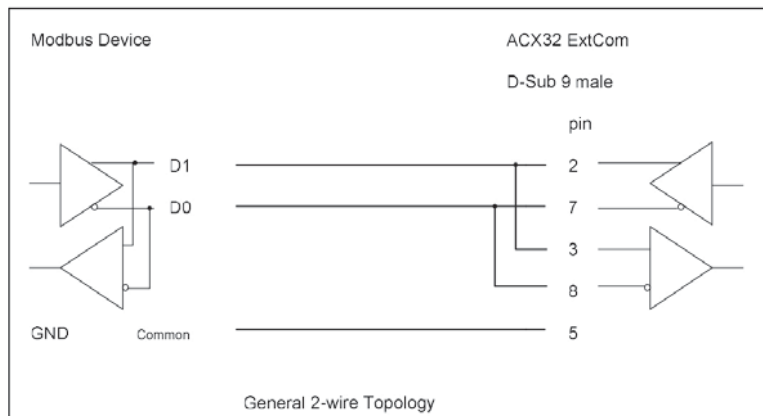
The ACX32 acts as a Modbus **slave** only in this application

You make the connection Via the Ext. Interface 9 pin connector



Onboard 9 pin D-Sub

Follow the instructions below to connect to the internal onboard 9-pin D-Sub interface (female onboard).
The hardware must be marked with RS422/RS485.



Pin assignment	Pin No.	Pin No. 9 pin D-Sub
	1	-
	2	TxD+
	3	RxD+
	4	-
	5	GND
	6	-
	7	TxD-
	8	RxD-
	9	-

A special cable can be ordered from Siemens. Order nr: SE2:103822

Configure

Follow the instructions below to configure RS485 and Modbus.

1. Commissioning unit with all settings before starting to configure Modbus.
2. Log in with password 2000.
Navigate to menu "Systemparameter – Communication – Modbus configuration".
3. Set communication port (Internal, 4Com)
4. Set the slave address for the device. (1-247, Must be unique).
5. Set Baudrate for RS485 (300-19200)
6. Set Parity for RS485 (None, Even, Odd)
7. Set number of Stopbit for RS485 (1 or 2)
8. Set the "Configuration done" to "Yes", to restart the Saphir.

