

FCU

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The background of the top half of the page is a purple-tinted aerial view of a city with a river and bridges.

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Part 01

Introduction



M/FCU01.10.1

Functions:

- can be used as one FCU controller or 7 channels floor heating controller
- for FCU, high-medium-low fan speeds and heating/cooling modes are available
- for floor heating, norml, day, night, away modes are available
- support 7 digital temperature sensors.
- 5 channels relay output and 2 channels DC0-10V.
- 2 channels DC 0-10V for fan speed or 0-10V valves

1.1.3 AC M/FCU01.10.1 > General

General	Sending and switching delay after bus voltage recovery (3..100s)	5
Actual temperature	Cycle send general telegram (1..65535s, 0-invalid)	0
Setpoint	Control mode :	
Fan (Relay)	Enable passive control	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Heating/Cooling valve (relay)	Supported functions	Heating and Cooling
	HVAC-System	<input checked="" type="radio"/> 2-pipe system <input type="radio"/> 4-pipe system

control mode: for HVAC, select heating and cooling function

HVAC system:

2 pipe system- there is one single water circuit that is filled with cooling or heating medium according to the season, use one channel to control the same valve

4 pipe system- the system consists of two separated water circuits for heating and cooling, use two channels to control two different valves

General	Sending and switching delay after bus voltage recovery (3..100s)	5
Actual temperature	Cycle send general telegram (1..65535s, 0-invalid)	0
Setpoint	Control mode :	
Fan (Relay)	Enable passive control	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Heating/Cooling valve (relay)	Supported functions	Heating and Cooling
Function status	HVAC-System	<input checked="" type="radio"/> 2-pipe system <input type="radio"/> 4-pipe system
Channel D	Fan channel select	Channel A-C (relay)
	Heating/Cooling valve channel select	<input checked="" type="radio"/> Channel E (relay) <input type="radio"/> Channel G (0-10v)

fan channel select:

select channel A-C if the fan is controlled by relay, select channel F if it's controlled by 0-10V

heating valve channel select:

select channel E if the valve is controlled by relay, select channel G if it's controlled by 0-10V

cooling valve channel select:

select channel D if the valve is controlled by relay, select channel F if it's controlled by 0-10V

1.1.3 AC M/FCU01.10.1 > Actual temperature

General	Sensor for measuring the actual temperature (AverageValue=Sum/Count)	Local sensor (0 < Count <= 7) ▼
Actual temperature	Temperature 1 correction value (-5..5 °C)	Local sensor (0 < Count <= 7) ✓
Setpoint	Temperature measure interval(3..100 s)	One sensor via EIB (Count = 1)
Fan (Relay)	Sending of the actual temperature :	Two sensor via EIB (Count = 2)
	Cyclical sending	<input checked="" type="radio"/> No <input type="radio"/> Yes

local sensor:

read the temp from the connected temp sensor TS/C 1.0, up to 7 sensors can be connected

sensor via EIB:

read the temp from EIB bus

1.1.3 AC M/FCU01.10.1 > Setpoint		
General	Base setpoint temperature (10..35 'C)	25
Actual temperature	Controller status at power on	Comfort mode
Setpoint	Extended comfort mode time (2..255 min)	2
Fan (Relay)	Heating :	
	Reduced heating in standby mode (0..10 'C)	2
Heating/Cooling valve (relay)	Reduced heating during the night mode (0..10 'C)	4
Function status	Actual temperature threshold in frost protection mode (2..10 'C)	7
Channel D	Limit value for maximum setpoint heating (5..45 'C)	35

base setpoint temp: the setpoint temp for comfort mode

heating: the standby/night mode setpoint temp is reduced base on the base setpoint temp

protection mode temp: set the protection temp, when room temp is lower than it, HVAC will start heating, when room temp is higher than it, will stop working

Setpoint	Extended comfort mode time (2..255 min)	2
Fan (Relay)	Heating :	
Heating/Cooling valve (relay)	Reduced heating in standby mode (0..10 'C)	2
Function status	Reduced heating during the night mode (0..10 'C)	4
Channel D	Actual temperature threshold in frost protection mode (2..10 'C)	7
	Limit value for maximum setpoint heating (5..45 'C)	35
	Cooling :	
	Increased cooling in standby mode (0..10 'C)	2
	Increased cooling during the night mode (0..10 'C)	4
	Actual temperature threshold in heat protection mode (35..40 'C)	40
	Limit value for minimum setpoint cooling (5..45 'C)	15

Cooling:

the standby/night mode setpoint temp is increased base on the base setpoint temp

protection mode temp: set the protection temp, when room temp is higher than it, HVAC will start cooling; when room temp is lower than it, will stop working

1.1.3 AC M/FCU01.10.1 > Fan (Relay)

General	Fan speed relay output	3-Speed fan
Actual temperature	Fan control type	1-Speed fan
Setpoint	Fan control encoded mode	2-Speed fan
Fan (Relay)	--> Fan speed-1 value(0..255)	3-Speed fan ✓
Heating/Cooling valve (relay)	--> Fan speed-2 value(0..255)	85
	--> Fan speed-3 value(0..255)	170
		255

1-Speed fan: The fan only has 1 speed (Channel A -> Speed 1).

2-Speed fan: The fan has 2 speeds (Channel A -> Speed 1, Channel B -> Speed 2).

3-Speed fan: The fan has 3 speeds (Channel A -> Speed 1, Channel B -> Speed 2, Channel C -> Speed 3).

General	Types of control	<input checked="" type="radio"/> Two-step (ON/OFF) control
Actual temperature		<input type="radio"/> PWM control
Setpoint	Valve type	<input type="radio"/> Inverted(de-energized opened)
Fan (Relay)	Reaction on bus voltage failure	<input checked="" type="radio"/> Normal(de-energized closed)
Heating/Cooling valve (relay)	Enable valve purge	Contact closed
Function status	NOTE: No use PI control	<input checked="" type="radio"/> No <input type="radio"/> Yes
Channel D		

control type-

two step control: will control the valve working all the time until reaching the desired temp

PWM control: use PI algorithm, will control the valve working and stopping in a cycle, maintain the room temp fluctuating around the desired temp. recommend to tick this option.

1.1.3 AC M/FCU01.10.1 > Heating/Cooling valve (relay)

General	Types of control	<input checked="" type="radio"/> Two-step (ON/OFF) control
Actual temperature		<input type="radio"/> PWM control
Setpoint	Valve type	<input type="radio"/> Inverted(de-energized opened)
Fan (Relay)		<input checked="" type="radio"/> Normal(de-energized closed)
	Reaction on bus voltage failure	Contact closed
	Enable valve purge	<input checked="" type="radio"/> No <input type="radio"/> Yes
Heating/Cooling valve (relay)	NOTE: No use PI control	
Function status		
Channel D		

control type-

two step control: will control the valve working all the time until reaching the desired temp

PWM control: use PI algorithm, will control the valve working and stopping in a cycle, maintain the room temp fluctuating around the desired temp. recommend to tick this option.

1.1.3 AC M/FCU01.10.1 > General

General

Actual temperature

Setpoint

Fan (Relay)

Heating/Cooling valve (relay)

Function status

Channel D

Sending and switching delay after bus voltage recovery (3..100s)

Cycle send general telegram (1..65535s, 0-invalid)

Control mode :

Enable passive control Disable Enable

Supported functions

HVAC-System 2-pipe system 4-pipe system

Fan channel select

Heating/Cooling valve channel select Channel E (relay) Channel G (0-10v)

Controller setting for heating/cooling (PI control):

Heating speed (for PI)

Cooling speed (for PI)

1.1.3 AC M/FCU01.10.1 > Actual temperature

Read temp from DLP

General	Sensor for measuring the actual temperature (AverageValue=Sum/Count) One sensor via EIB (Count = 1)
Actual temperature	Temperature 1 correction value (-5..5 'C) 0.0
Setpoint	Read temperature cyclically via EIB <input checked="" type="radio"/> No <input type="radio"/> Yes
Fan (Relay)	Monitoring of actual temperature :
Heating/Cooling valve (relay)	Monitoring period of actual temperature (2..255 min) 2
Function status	Sending of error signal cycles (1..255,0-Unlimited) 0
Channel D	

1.1.31 DLP Panel M/DLP04.1 > General2

General1	=>Temperature show mode:	=====
General2	Temperature show mode	<input checked="" type="radio"/> Degrees Celsius <input type="radio"/> Degrees Fahrenheit
Functions	=>Local temperature:	=====
Rocker A	The local temperature correction(-5C..+5C)	0C
Rocker B	Local temperature report(In range)	<input type="radio"/> No <input checked="" type="radio"/> Yes
Rocker C	->Temperature>=Threshold1(-30C..+99C)	0
Rocker D	->Temperature<=Threshold2(-30C..+99C)	50
[FCU]	--Temperature report mode	<input type="radio"/> Report when changed <input checked="" type="radio"/> Report cyclic
	--Temperature report period(1..65535s)	5
	=>Information zone of rocker page:	=====
	Display date and time	<input checked="" type="radio"/> No <input type="radio"/> Yes
	Display temperature(Celsius degree)	<input type="radio"/> No <input checked="" type="radio"/> Yes
	Display temperature(Celsius degree)	<input checked="" type="radio"/> Local sensor <input type="radio"/> Via EIB
	Scrolling information displayed time interval(5..255s)	10

enable the temp report function, so that the FCU can refer to its temp

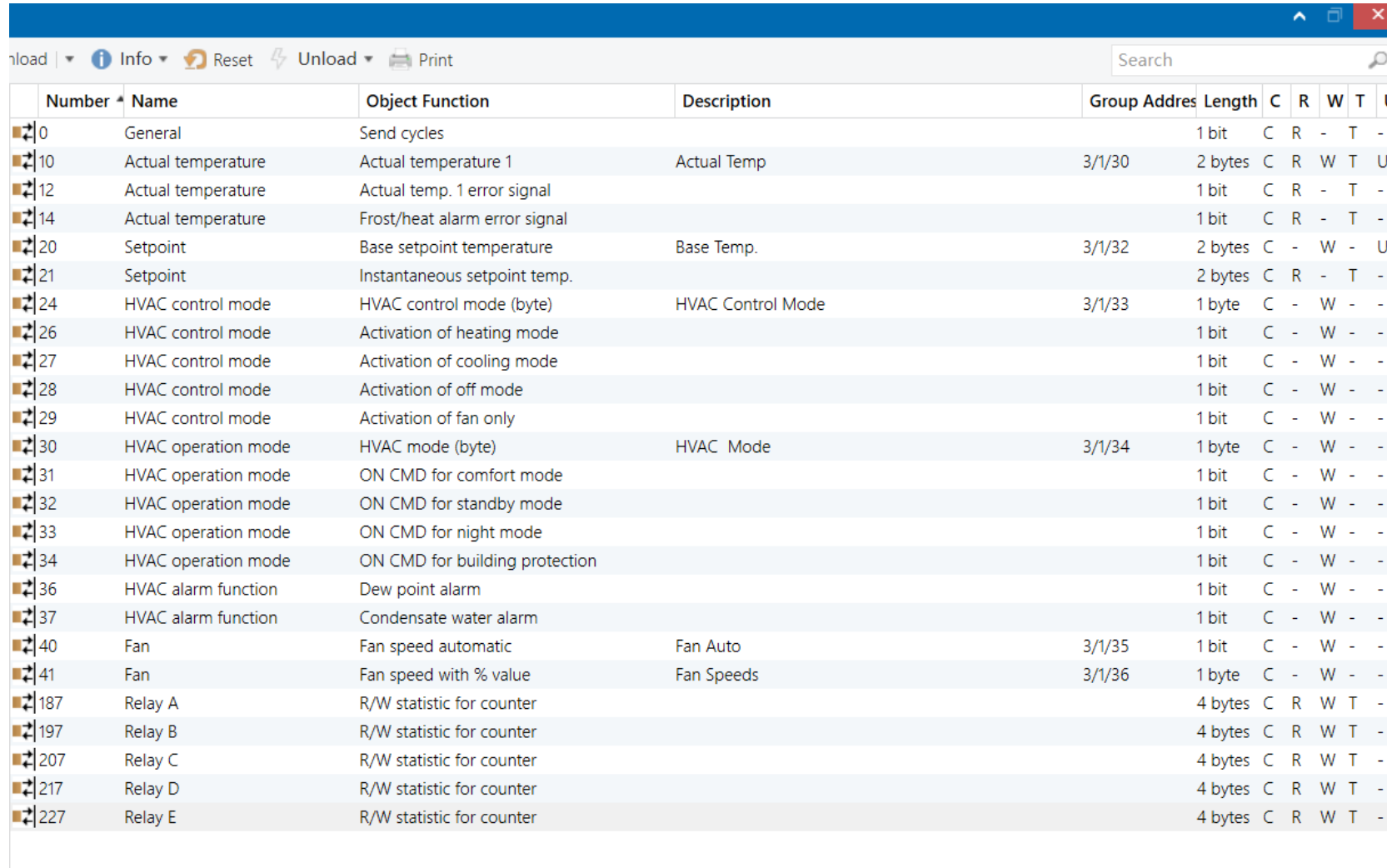
1.1.31 DLP Panel M/DLP04.1 > [FCU]

General1	FCU functions selection	<input type="text" value="Heating and Cooling"/>
General2	Set for comfort temperature[MIN](0..99C)	<input type="text" value="21C"/>
Functions	Set for comfort temperature[MAX](0..99C)	<input type="text" value="30C"/>
Rocker A	Actual temperature(Celsius degree)	<input checked="" type="radio"/> Local sensor <input type="radio"/> Via EIB
Rocker B	HVAC-System	<input type="radio"/> 2-pipe system <input checked="" type="radio"/> 4-pipe system
Rocker C	->HVAC control mode type	<input type="radio"/> 1bit Command <input checked="" type="radio"/> 1byte mode
Rocker C	->HVAC mode type	<input type="radio"/> 1bit Command <input checked="" type="radio"/> 1byte mode
Rocker D	Fan speed	<input type="text" value="3-Fan speed"/>
[FCU]	-> Fan control type	<input type="radio"/> 1bit object <input checked="" type="radio"/> 1byte object

Same as FCU

Select 1 byte

Control setting



Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U
0	General	Send cycles			1 bit	C	R	-	T	-
10	Actual temperature	Actual temperature 1	Actual Temp	3/1/30	2 bytes	C	R	W	T	U
12	Actual temperature	Actual temp. 1 error signal			1 bit	C	R	-	T	-
14	Actual temperature	Frost/heat alarm error signal			1 bit	C	R	-	T	-
20	Setpoint	Base setpoint temperature	Base Temp.	3/1/32	2 bytes	C	-	W	-	U
21	Setpoint	Instantaneous setpoint temp.			2 bytes	C	R	-	T	-
24	HVAC control mode	HVAC control mode (byte)	HVAC Control Mode	3/1/33	1 byte	C	-	W	-	-
26	HVAC control mode	Activation of heating mode			1 bit	C	-	W	-	-
27	HVAC control mode	Activation of cooling mode			1 bit	C	-	W	-	-
28	HVAC control mode	Activation of off mode			1 bit	C	-	W	-	-
29	HVAC control mode	Activation of fan only			1 bit	C	-	W	-	-
30	HVAC operation mode	HVAC mode (byte)	HVAC Mode	3/1/34	1 byte	C	-	W	-	-
31	HVAC operation mode	ON CMD for comfort mode			1 bit	C	-	W	-	-
32	HVAC operation mode	ON CMD for standby mode			1 bit	C	-	W	-	-
33	HVAC operation mode	ON CMD for night mode			1 bit	C	-	W	-	-
34	HVAC operation mode	ON CMD for building protection			1 bit	C	-	W	-	-
36	HVAC alarm function	Dew point alarm			1 bit	C	-	W	-	-
37	HVAC alarm function	Condensate water alarm			1 bit	C	-	W	-	-
40	Fan	Fan speed automatic	Fan Auto	3/1/35	1 bit	C	-	W	-	-
41	Fan	Fan speed with % value	Fan Speeds	3/1/36	1 byte	C	-	W	-	-
187	Relay A	R/W statistic for counter			4 bytes	C	R	W	T	-
197	Relay B	R/W statistic for counter			4 bytes	C	R	W	T	-
207	Relay C	R/W statistic for counter			4 bytes	C	R	W	T	-
217	Relay D	R/W statistic for counter			4 bytes	C	R	W	T	-
227	Relay E	R/W statistic for counter			4 bytes	C	R	W	T	-

link the above objects between FCU and DLP

Buildings		Number	Name	Object Function	Description	Group Address	Length	C	R	W	T	U
Dynamic Folders		34	Local temperature	Temperature report	Actual Temp	3/1/30	2 bytes	C	R	-	T	-
Project File of Training Box		186	HVAC Valve Heating	Status valve purge			1 bit	C	-	W	T	U
1F		185	HVAC Valve Heating	Trigger valve purge			1 bit	C	-	W	T	-
Bathroom		184	HVAC Fan	Status fan speed automatic			1 bit	C	-	W	T	U
1.1.3 AC M/FCU01.10.1		182	HVAC Fan	Status fan speed 3			1 bit	C	-	W	T	U
1.1.21 Relay M/R4.10.1		181	HVAC Fan	Status fan speed 2			1 bit	C	-	W	T	U
1.1.30 PIR Sensor M/HS05.1		180	HVAC Fan	Status fan speed 1			1 bit	C	-	W	T	U
Bedroom		176	HVAC Fan	Fan speed with % value	Fan Speeds	3/1/36	1 byte	C	-	W	T	U
Dining Room		175	HVAC Fan	Fan speed automatic	Fan Auto	3/1/35	1 bit	C	-	W	T	U
Entrance		170	HVAC mode	HVAC mode (byte)	HVAC Mode	3/1/34	1 byte	C	-	W	T	U
Living Room		165	HVAC control mode	HVAC control mode (byte)	HVAC Control Mode	3/1/33	1 byte	C	-	W	T	U
1.1.23 2CH 3A Dimmer M/D02.1		187	HVAC Valve Cooling	Trigger valve purge			1 bit	C	-	W	T	-
1.1.24 DMX M/DMX512.1		164	HVAC Setpoint	Instantaneous setpoint temp.			2 bytes	C	-	W	T	U
1.1.25 AC M/FCU01.10.1		162	HVAC Actual temperature	Frost/heat alarm error signal			1 bit	C	-	W	T	U
1.1.31 DLP Panel M/DLP04.1		161	HVAC Actual temperature	Actual temp. error signal			1 bit	C	-	W	T	U
1.1.33 4-button Panel M/P04.2		71	Rocker D long	Switching			1 bit	C	-	W	T	U
1.1.34 Timmer M/TM04.1		70	Rocker D short	Switching			1 bit	C	-	W	T	U
1.1.56 2CH Curtain Module M/...		61	Rocker C long	Switching			1 bit	C	-	W	T	U
Trades		60	Rocker C short	Switching			1 bit	C	-	W	T	U
		51	Rocker B long	Switching			1 bit	C	-	W	T	U
		50	Rocker B short	Switching			1 bit	C	-	W	T	U
		41	Rocker A long	Switching			1 bit	C	-	W	T	U
		40	Rocker A short	Switching			1 bit	C	-	W	T	U
		163	HVAC Setpoint	Base setpoint temperature	Base Temp.	3/1/32	2 bytes	C	-	W	T	U
		188	HVAC Valve Cooling	Status valve purge			1 bit	C	-	W	T	U

link the above objects between FCU and DLP

THANKS