
Communication Protocol Definitions:

Number	Specification	Protocol Definition
1	Media	RS485
2	Baud Rate	9600BPS
3	Byte format	1 start bit +8 data bit +1 stop bit
4	Parity	None
5	Address	1-254
6	Data format	Modbus RTU/TCP

03 Data Unit:

Code	Address	Specification	Details
3	0	Room Temp	0-500 (235: 23.5 degrees)
3	1	Floor Temp	0-500 (235: 23.5 degrees)
3	2	Humidity	0-99
3	3	4FCU Heating valve Status	1:on, 0:off
3	4	4FCU Cooling valve Status	1:on, 0:off
3	5	2FCU Valve Status	1:on, 0:off
3	6	High Fan Status	1:on, 0:off
3	7	Med Fan Status	1:on, 0:off
3	8	Low Fan Status	1:on, 0:off
3	9	Heating output Status	1:on, 0:off
3	10	HW Heat Status	1:active, 0:inactive
3	11	HW Hot Water Status	1:active, 0:inactive
3	12	Touch Lock	1:active, 0:inactive
3	13	Window open function	1:active, 0:inactive
3	14	Holiday function	1:active, 0:inactive
3	15	Holding function	1:active, 0:inactive
3	16	Boost function	1:active, 0:inactive
3	17	Floor overheat	1:active, 0:inactive
3	18	Device Type	hotwater:2;eheat:3;eheat-timer:31;fcu-2:4;fcu-4:5;
3	19	Work Mode	0x50(80):HEATING; 0x51(81):WORKMODE_TIMER
3	20	Fan Speed	0: 0-10V 1: 3speed 2 :EC
3	21	System Error	0:No Bit0:Built in Sensor Error Bit1:Floor Sensor Error Bit2:Remote Air Sensor Error Bit3:Humidity Sensor Error
3	22	CO2	0-9999
3	23	0-10V Fan Output	0-100
3	24	0-10V Valve Output	0-100

3/16 Data Unit:

Code	Address	Specification	Details
3\16	58	Temperature Format	1:F, 0:C
3\16	59	CO2 Cali	0-9999
3\16	60	CO2 setpoint	0-9999
3\16	61	Status	1:on, 0:off
3\16	62	System Mode	0:heat; 1:cool; 2:vatilate; 3:dehumidity; 4:auto
3\16	63	Fan speed	0:high; 1:med; 2:low; 3:auto
3\16	64	Set temperature	50-350
3\16	65	Away	1:yes; 0:no
3\16	66	Away Temperature	50-350
3\16	67	Hold End Time-Hi	Hold End Time is time stamp, if Timestamp is 1642765619 (61ea9d33) , the time is 2022-01-21 19:46:59 , this Hold End Time-Hi is 61ea, Hold End Time-Low is 9d33
3\16	68	Hold End Time-Low	
3\16	69	Holding Temperature	50-350
3\16	70	Holiday Start Time-Hi	Holiday start time is the minutes, if the hold time is 1642765619 (61ea9d33) , the hold time is 1642765619 minutes , this Holiday Start Time-Hi is 61ea , Holiday Start Time--Low is 9d33
3\16	71	Holiday Start Time-Low	
3\16	72	Holiday End Time-Hi	Holiday end time Timestamp high data, if Timestamp is 1642765619 (61ea9d33) , the time is 2022-01-21 19:46:59 , this Holiday End Time_Hi is 61ea , Holiday End Time -Low is 9d33
3\16	73	Holiday End Time-Low	
3\16	74	Optimum Start	1:on, 0:off
3\16	75	Boost End Time-Hi	Boost end time is Timestamp high data, if Timestamp is 1642765619 (61ea9d33) , the time is 2022-01-21 19:46:59 , this Boost End Time-Hi is 61ea , Boost End Time-Low is 9d33
3\16	76	Boost End Time-Low	
3\16	77	Boost	1:on, 0:off
3\16	78	Touch panel Lock	1:yes, 0:no
3\16	79	Lock Pin_1	0-'9'
3\16	80	Lock Pin_2	0-'9'
3\16	81	Lock Pin_3	0-'9'
3\16	82	Lock Pin_4	0-'9'
3\16	83	Maximum Set Temperature Limitation	50-350
3\16	84	Minimum Set Temp Limitation	50-350
3\16	85	Floor Temperature Limitation	50-350
3\16	86	Schedule Mode	0:weekday/weekend, 1:7days, 2:24hrs, 3:none

3/16 Schedule data - Weekday/weekend

Code	Address	Specification	Details	
3\16	87	Timer 1: Hour	0-23	weekday
3\16	88	Timer 1: Min	0-59	weekday
3\16	89	Timer 1: Settemp	50-350	weekday
3\16	90	Timer 2: Hour	0-23	weekday
3\16	91	Timer 2: Min	0-59	weekday
3\16	92	Timer 2: Settemp	50-350	weekday
3\16	93	Timer 3: Hour	0-23	weekday
3\16	94	Timer 3: Min	0-59	weekday
3\16	95	Timer 3: Settemp	50-350	weekday
3\16	96	Timer 4: Hour	0-23	weekday
3\16	97	Timer 4: Min	0-59	weekday
3\16	98	Timer 4: Settemp	50-350	weekday
3\16	99	Timer 1: Hour	0-23	weekend
3\16	100	Timer 1: Min	0-59	weekend
3\16	101	Timer 1: Settemp	50-350	weekend
3\16	102	Timer 2: Hour	0-23	weekend
3\16	103	Timer 2: Min	0-59	weekend
3\16	104	Timer 2: Settemp	50-350	weekend
3\16	105	Timer 3: Hour	0-23	weekend
3\16	106	Timer 3: Min	0-59	weekend
3\16	107	Timer 3: Settemp	50-350	weekend
3\16	108	Timer 4: Hour	0-23	weekend
3\16	109	Timer 4: Min	0-59	weekend
3\16	110	Timer 4: Settemp	50-350	weekend

3/16 Schedule data - 24Hours

Code	Address	Specification	Details
3\16	87	Timer 1: Hour	0-23
3\16	88	Timer 1: Min	0-59
3\16	89	Timer 1: Settemp	50-350
3\16	90	Timer 2: Hour	0-23
3\16	91	Timer 2: Min	0-59
3\16	92	Timer 2: Settemp	50-350
3\16	93	Timer 3: Hour	0-23
3\16	94	Timer 3: Min	0-59
3\16	95	Timer 3: Settemp	50-350
3\16	96	Timer 4: Hour	0-23
3\16	97	Timer 4: Min	0-59
3\16	98	Timer 4: Settemp	50-350

3/16 Schedule data-7Days

Code	Address	Specification	Details	
3\16	87	Timer 1: Hour	0-23	Monday
3\16	88	Timer 1: Min	0-59	Monday
3\16	89	Timer 1: Settemp	50-350	Monday
3\16	90	Timer 2: Hour	0-23	Monday
3\16	91	Timer 2: Min	0-59	Monday
3\16	92	Timer 2: Settemp	50-350	Monday
3\16	93	Timer 3: Hour	0-23	Monday
3\16	94	Timer 3: Min	0-59	Monday
3\16	95	Timer 3: Settemp	50-350	Monday
3\16	96	Timer 4: Hour	0-23	Monday
3\16	97	Timer 4: Min	0-59	Monday
3\16	98	Timer 4: Settemp	50-350	Monday
3\16	99	Timer 1: Hour	0-23	Tuesday
3\16	100	Timer 1: Min	0-59	Tuesday
3\16	101	Timer 1: Settemp	50-350	Tuesday
3\16	102	Timer 2: Hour	0-23	Tuesday
3\16	103	Timer 2: Min	0-59	Tuesday
3\16	104	Timer 2: Settemp	50-350	Tuesday
3\16	105	Timer 3: Hour	0-23	Tuesday
3\16	106	Timer 3: Min	0-59	Tuesday
3\16	107	Timer 3: Settemp	50-350	Tuesday
3\16	108	Timer 4: Hour	0-23	Tuesday
3\16	109	Timer 4: Min	0-59	Tuesday
3\16	110	Timer 4: Settemp	50-350	Tuesday
3\16	111	Timer 1: Hour	0-23	Wednesday
3\16	112	Timer 1: Min	0-59	Wednesday
3\16	113	Timer 1: Settemp	50-350	Wednesday
3\16	114	Timer 2: Hour	0-23	Wednesday
3\16	115	Timer 2: Min	0-59	Wednesday
3\16	116	Timer 2: Settemp	50-350	Wednesday
3\16	117	Timer 3: Hour	0-23	Wednesday
3\16	118	Timer 3: Min	0-59	Wednesday
3\16	119	Timer 3: Settemp	50-350	Wednesday
3\16	120	Timer 4: Hour	0-23	Wednesday
3\16	121	Timer 4: Min	0-59	Wednesday
3\16	122	Timer 4: Settemp	50-350	Wednesday
3\16	123	Timer 1: Hour	0-23	Thursday
3\16	124	Timer 1: Min	0-59	Thursday
3\16	125	Timer 1: Settemp	50-350	Thursday
3\16	126	Timer 2: Hour	0-23	Thursday
3\16	127	Timer 2: Min	0-59	Thursday

3\16	128	Timer 2: Settemp	50-350	Thursday
3\16	129	Timer 3: Hour	0-23	Thursday
3\16	130	Timer 3: Min	0-59	Thursday
3\16	131	Timer 3: Settemp	50-350	Thursday
3\16	132	Timer 4: Hour	0-23	Thursday
3\16	133	Timer 4: Min	0-59	Thursday
3\16	134	Timer 4: Settemp	50-350	Thursday
3\16	135	Timer 1: Hour	0-23	Friday
3\16	136	Timer 1: Min	0-59	Friday
3\16	137	Timer 1: Settemp	50-350	Friday
3\16	138	Timer 2: Hour	0-23	Friday
3\16	139	Timer 2: Min	0-59	Friday
3\16	140	Timer 2: Settemp	50-350	Friday
3\16	141	Timer 3: Hour	0-23	Friday
3\16	142	Timer 3: Min	0-59	Friday
3\16	143	Timer 3: Settemp	50-350	Friday
3\16	144	Timer 4: Hour	0-23	Friday
3\16	145	Timer 4: Min	0-59	Friday
3\16	146	Timer 4: Settemp	50-350	Friday
3\16	147	Timer 1: Hour	0-23	Saturday
3\16	148	Timer 1: Min	0-59	Saturday
3\16	149	Timer 1: Settemp	50-350	Saturday
3\16	150	Timer 2: Hour	0-23	Saturday
3\16	151	Timer 2: Min	0-59	Saturday
3\16	152	Timer 2: Settemp	50-350	Saturday
3\16	153	Timer 3: Hour	0-23	Saturday
3\16	154	Timer 3: Min	0-59	Saturday
3\16	155	Timer 3: Settemp	50-350	Saturday
3\16	156	Timer 4: Hour	0-23	Saturday
3\16	157	Timer 4: Min	0-59	Saturday
3\16	158	Timer 4: Settemp	50-350	Saturday
3\16	159	Timer 1: Hour	0-23	Sunday
3\16	160	Timer 1: Min	0-59	Sunday
3\16	161	Timer 1: Settemp	50-350	Sunday
3\16	162	Timer 2: Hour	0-23	Sunday
3\16	163	Timer 2: Min	0-59	Sunday
3\16	164	Timer 2: Settemp	50-350	Sunday
3\16	165	Timer 3: Hour	0-23	Sunday
3\16	166	Timer 3: Min	0-59	Sunday
3\16	167	Timer 3: Settemp	50-350	Sunday
3\16	168	Timer 4: Hour	0-23	Sunday
3\16	169	Timer 4: Min	0-59	Sunday
3\16	170	Timer 4: Settemp	50-350	Sunday

Set the device address on BC117/BC217 :

Configuration menu → Network Settings → 05) Modbus Address

1) READ DATA ,use command 03

Tx: 01 03 00 00 00 03 05 CB

01: slave mac address, that set on BC117/BC217(05) Modbus Address)

03: command

00 00 : start register High 00 ,Low 00

00 03: data qty High 00 ,Low 03

05 CB: 05-CRC Low, CB – CRC high

Rx: 01 03 06 01 14 00 00 00 23 51 7E

01: slave mac address, that set on BC117/BC217(05) Modbus Address)

03: COMMAND

06: receive data qty

03 Data Unit:

$(1*16 + 4) = 276$, the register 0 is

tr:

Code	Address	Specification	Details
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00 00 : register 1 High , Low data, this is Hex data, the Decimal data is $(1* 0) + (0*16 + 0) = 0$, the register 1 is the floor temperature. so it should be 0C. this is because no floor sensor is connected to thermostat.

3	1	FloorTemp	0-500
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00 23 : register 2 High , Low data, this is Hex data, the Decimal data is $(0* 256) + (2*16 + 3) = 35$, the register 2 is the humidity sensor, so the humidity should be 35%

2) Write DATA, use command 16

Tx: 01 10 00 40 00 01 02 00 EB E8 DF

Rx: 01 10 00 40 00 01 00 1D

Tx: 01 10 00 40 00 01 02 00 EB E8 DF

01 : slave mac address, that set on BC117/BC217(05) Modbus Address

10 : COMMAND- 16

00 40 : start register High, Low

00 01 : data qty High, Low

02 :data amount

00 EB data : because this is Hex , the decimal should be $(00*256) + (14*16 +11) = 235$, because register 64 is the set temperature, so it should be 23.5°C

E8 DF CRC Low High

Rx: 01 10 00 40 00 01 00 1D

01 : slave mac address, that set on BC117/BC217(05) Modbus Address

10 : COMMAND- 16

00 40 : start register High, Low

00 01 : data qty High, Low

E8 DF CRC Low High