Singapore
DBA Electric PTE. LTD.
Website: www.dba.sg
Tel: +65 6772 9962
Whatsapp: +65 8985 9886
Email: dba@dba.sg

Hong Kong
Debiasia Green Technology (HK) Company Limited
Website: www.dba.hk
Tel: +852 2541 1611
Email: dba@dba.hk
Whatsapp: +852 5488 0850

RS485 Communication Protocol
UTC/GEC Series

1. Communication Parameters

Parameter	Value
Communication Method	RS485 — Modbus RTU
Baud Rate	9600 bps
Start Bit	1 bit
Data Bits	8 bits
Parity	None
Stop Bit	1 bit
Communication Address	Default: 1

2. Read Device Status — Frame Format

Request Frame

Device Address	Function Code	Register Address	Register Quantity	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes
1–99	0x03	Start address	Max 20 registers	CRC High / CRC Low

Response Frame

Device Address	Function Code	Byte Count	Data	CRC16
1–99	0x03	—	—	CRC High / CRC Low

Note: Address 0 is reserved for broadcast and reading device address only; otherwise it is fixed as the unit address.

3. Read Device Address — Frame Format

Request Frame

Device Address	Function Code	Register Address	Register Quantity	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes
0x00	0x25	0x00 0xDF	0x00 0x01	CRC High / CRC Low

Response Frame

Device Address	Function Code	Register Quantity	Data	CRC16
0x00	0x25	0x01	Current address (1–200)	CRC High / CRC Low

4. Power On/Off Broadcast

Request Frame

Device Address	Function Code	Register Address	Register Value	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes
0x00	0x06	0x00 0xEE	0x00 0xAA = Power ON 0x00 0x55 = Power OFF	CRC High / CRC Low

Response: None (broadcast command — no response).

5. Control Command — Frame Format

Request Frame

Device Address	Function Code	Register Address	Register Value	CRC16
1 byte	1 byte	2 bytes	2 bytes	2 bytes
1–99	0x06	0x00 0x01–0x00 0xFF	XX XX	CRC High / CRC Low

Response Frame

The device echoes the original command back as acknowledgment.

6. Control Command Reference — Register Map

Register Address	Register Value (High byte, Low byte)	Value Range	R/W
0x00 0x00	0x00 0x01 = Unit Start; 0x00 0x00 = Unit Stop	—	W/R
0x00 0x01	0x00 XX (hex — Set Humidity Value)	10–95%	W/R
0x00 0x02	0x00 XX (hex — Set Temperature Value)	5–60°C	W/R
0x00 0x03	0xXX XX (hex — Humidity Calibration)	±15%	W/R
0x00 0x04	0xXX XX (hex — Temperature Calibration)	±10°C	W/R
0x00 0x05	Operating Status Bit	Bit0: 1=Heating; 0=Not heating Bit1: 1=UV lamp active; 0=UV lamp inactive Bit2: 1=Defrosting; 0=Not defrosting Bit3: 1=Dehumidifying; 0=Not dehumidifying Bit4: 1=Low fan speed Bit5: 1=Medium fan speed Bit6: 1=High fan speed Bit7: 1=Humidifier ON; 0=Humidifier OFF Bit8: 1=Fresh air valve open; 0=Closed Bit others: Reserved	R
0x00 0x06	Ambient Humidity. 00 XX = Ambient humidity; Fault = 00FF	—	R
0x00 0x07	Ambient Temperature. 00 XX = Ambient temperature; Fault = 00FF	—	R
0x00 0x08	Fault Code. 0=Normal, other=Fault. Faults include:	Bit0: 1=Temp/humidity sensor fault Bit1: 1=Pressure protection Bit2: 1=Over-temp protection Bit3: 1=High pressure protection Bit4: 1=Low pressure protection Bit5: 1=Phase sequence protection Bit6: 1=Phase loss protection Bit7: 1=Maintenance alert Bit8: 1=Coil fault Bit9: 1=Water full alarm Bit10: 1=Water shortage alarm Bit11: 1=Fire alarm Bit12: 1=Exhaust temp fault	R
0x00 0x09	Modify Communication Address. 0x00 XX (hex — New address, range 1–99)	—	W/R
0x00 0x0A	Actual Fan Speed (Hz)	—	R
0x00 0x0B	Set Circulation Fan Speed: 25–50 Hz; 0x00 0x00 = Stop. If not variable frequency: 1=Low; 2=Medium; 3=High; 0=Stop	—	W/R
0x00 0x0C	Set Exhaust Fan Speed: 25–50 Hz; 0x00 0x00 = Stop	—	W/R
0x00 0x0D	Set Swing Switch: 1=ON; 0=OFF	—	W/R
0x00 0x0E	Set Baud Rate	0=1200; 1=2400; 2=4800; 3=9600	W/R
0x00 0x0F	Operating Mode	0=Auto; 1=Ventilation; 2=Dehumidification; 3=Humidification; 4=Heating; 5=Cooling	W/R
0x00 0x10	Timed Power On. Hour-based: Low byte = hours, high byte = 0. Real-time: High byte = hours, low byte = minutes.	—	W/R
0x00 0x11	Timed Power Off. Hour-based: Low byte = hours, high byte = 0. Real-time: High byte = hours, low byte = minutes.	—	W/R
0x00 0x12	Forced Control	0=Auto; 1=Forced Dehumidification; 2=Forced Humidification; 3=Forced Ventilation	W/R
0x00 0xEE	0x00AA = Power ON; 0x0055 = Power OFF	Broadcast use	W

All other register address values are reserved for future use.

7. CRC16 Checksum — C Language Reference Code

```
unsigned char CRC_data[40];    // Data array for CRC calculation
unsigned char CRC_H;           // CRC checksum high byte
unsigned char CRC_L;           // CRC checksum low byte
unsigned char temp;            // N bytes of data to be checked
unsigned int  CRC_16;          // CRC preset value
#define CRC_DXS 0xA001

// CRC16 checksum calculation sub-function
void modbus_CRC16(unsigned char temp)
{
   unsigned char t_1;
   unsigned char t_2;
   unsigned char data;

   CRC_16 = 0xFFFF;            // Preset value

   for (t_1 = 0; t_1 < temp; t_1++)
   {
      CRC_16 ^= CRC_data[t_1];
      for (t_2 = 0; t_2 < 8; t_2++)
      {
         data = CRC_16 & 0x0001;
         CRC_16 >>= 1;
         if (data == 1)
         {
            CRC_16 ^= CRC_DXS;
         }
      }
   }

   CRC_H = CRC_16;             // CRC checksum high byte
   CRC_16 >>= 8;
   CRC_L = CRC_16;             // CRC checksum low byte
}
```