**Controller Communication Protocol**

**Acronym:**

*Air-conditioning Controller (ACC)*

*Indoor Environment Controller (Touch Screen) (**IEC)*

*Solution Level Controller (SLC)*

*Solution Regeneration Controller (SRC)*

*Safety Alarm Controller (SAC)*

**Introduction:**

Each dehumidification unit has three controllers, a ACC, a SLC and an IEC. All of these 3 has the same unit code, or to say they share same data package header and trailer. The regeneration unit has its own controller SRC and a corresponding IEC, and they have the same unit code.The SAC is in charge of the whole system, can recognize the terminal type through the specific unit code.

**Format:**

The protocol among the controllers are fixed 24-byte, with a form as

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Byte [0] | Byte [1] | Byte [2] | Data bytes | Byte [21] | Byte [22] | Byte [23] |
| 0x55 | Unit Code | Function code |  | Check byte | Unit Code | 0x55 |

***Unit Code:***

Current dehumidifier unit code 0x66, current regenerator 0x77, which means in a 1 vs 1 system, we have four boards with header 0x55 0x66, and two with 0x55 0x77.

***Function code:***

0x01 Frequency generator and ACC real-time data group

0x02 Send the set values of IEC to ACC or SRC shake hand group

0x03 Send the Start command set from IEC to ACC or SRC shake hand group

0x04 Send the Stop command set from IEC to ACC or SRC shake hand group

0x05\* Send the Emergency Start command set from IEC to ACC or SRC shake hand group

0x06\* Send the Emergency Stop command set from IEC to ACC or SRC shake hand group

0x07 Real time data from ACC and SLC group

0x08 Real time data from ACC , SRC and control command from SAC group

\*A three-pages IEC is required

***Check byte:***

Calculation method of Check byte : (sum from Byte[3] to Byte [20])%100

***Data bytes :***

**Type 1 (ACC real time data package ) & (IEC set Point package )**

This type of package includes the indexes of monitor and control

**Data byte**

**Byte[3] Outlet Air Humidity Ratio set pointx10**

**Byte[4] Outlet Air Temperature Set Point Integer**

**Byte[5] Outlet Air Temperature Set Point decimal**

Byte[6] Inlet Air humidity ratio x10

Byte[7] Outlet Air humidity ratio x10

Byte[8] Inlet Air Temperature Integer

Byte[9] Inlet Air Temperature decimal

Byte[10] Outlet Air Temperature Integer

Byte[11] Outlet Air Temperature decimal

Byte[12] deviceRun|localcontrol (Is the specific dehumidifier unit running or not )

Byte[13] Reserved

Byte[14] Reserved

Byte[15] Reserved

Byte[16] Reserved

Byte[17] Reserved

Byte[18] Reserved

Byte[19] Reserved

Byte[20] ACC Alarm

**The type2 (solution level)**

This type of package includes the indexes of solution level among the components , used in **(ACC->SAC) and (SLC->ACC).** The bytes in blue are functional bytes used when in the communication pair of **(SLC->ACC)**

**Data byte**

Byte[3] Humidity Ratio set point \*10

Byte[4] Temperature Set Point Integer

Byte[5] Temperature Set Point decimal

Byte[6] Regenerator Target Concentration/Reserved

Byte[7] Reserved

**Byte[8] De solution Level Integer**

**Byte[9] De solution Level decimal**

Byte[10] De buffer Level Integer

Byte[11] De buffer Level decimal

**Byte[12] Status: Trasfer pump|Strong solution tank to buffer**

**Byte[13] Status**: **Trasfer pump Fault|**Strong solution buffer to de tank

Byte[14] Reserved

Byte[15] Reserved

Byte[16] Reserved

Byte[17] Reserved

Byte[18] Reserved

Byte[19] Reserved

**Byte[20] Panelcontrol**

**The type3 (solution level)**

**This type of package includes the indexes of solution level among the components , for (SAC -> ACC) and (ACC -> SLC) .**The bytes in blue are functional bytes used when in the communication pair of **(ACC -> SLC) ,** and in green are **(SAC -> ACC).**

**Data byte**

Byte[3] Humidity Ratio set point \*10

Byte[4] Temperature Set Point Integer

Byte[5] Temperature Set Point decimal

Byte[6] Regenerator Target Concentration/Reserved

Byte[7] Reserved

**Byte[8] De buffer Level Integer**

**Byte[9] De buffer Level decimal**

**Byte[10] Weak solution tank Level Integer**

**Byte[11] Weak solution tank Level decimal**

**Byte[12] Strong solution tank Level Integer**

**Byte[13] Weak solution tank Level Integer**

**Byte[14] Solution level of Re tank Integer**

**Byte[15] Solution level of Re tank decimal**

Byte[16] Reserved

**Byte[17] Buffer with lowest level**

**Byte[18] CaseSolutionTransfer**

**Byte[19] CaseEmegency**

**Byte[20] Panelcontrol**