HDL®

M/FCHC.4.1　FCHC Actuator
综合控制器
Hardware Version: A / 硬件版本：A

KNX®
Datasheet
产品说明书
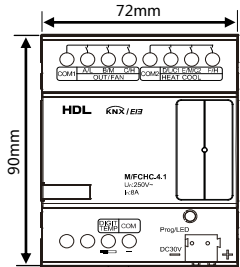Issued: December 21, 2018
发布：2018年12月21日
Edition V1.0.0

Figure 1. FCHC Actuator
图 1. 综合控制器

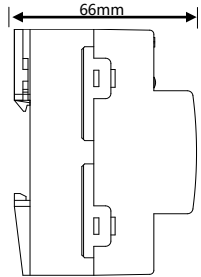Figure 2. Dimensions-Front View
图 2. 尺寸图-正面

Figure 3. Dimensions-Side View
图 3. 尺寸图-侧面

TS/C 1.0
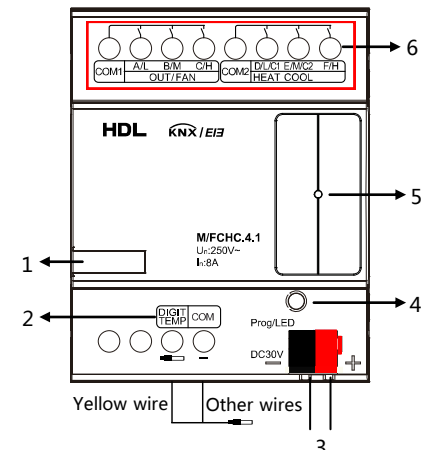Figure 4. 2.5 Meter Digital Thermometer for FCU Actuator
图 4. 2.5米FCU模块数字温度计

Yellow wire　Other wires
Figure 5. Wiring
图 5. 接线图

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Overview

FCHC Actuator (See Figure 1) adopts KNX/EIB communication and is used for controlling air conditioner, fan, compressor and floor heating. The module function is set via ETS software and can work in conjunctions with different panels. And up to 7 digital temperature sensors can be connected.

Functions

- Multiple control objects: HVAC, Fan, Compressor, Floor heating, one control mode for each control target.
- Control modes: HVAC mode, Fan mode, Compressor mode and Floor heating mode.
- Active control and passive control: More flexible to work in conjunction with different panels.
  When in active control mode, this module can work in conjunction with panels without PI algorithm such as HDL-M/DLP04.1.
  When in passive control mode, this module can work in conjunction with panels with algorithm such as Siemens 5WG1.
- Local temperature detection and limit temperature alarm. When the local temperature is too high or too low, the module will send an alarm signal to the bus. This module can connect to up to 7 temperature sensors.

Important Notes

- Programming - The device is compliant with KNX Standard and the parameters are set by the Engineering Tool Software (ETS).
- KNX cable - CAT5E or HDL Bus/ KNX special cable.
- KNX Bus voltage - 21-30V DC.
- When this module controls the compressor, it needs to connect the AC contactor first, and connect with the compressor control line through the AC contactor.

Product Information

Dimensions - See Figure 2 - 3
2.5 Meter Digital Thermometer for FCU Actuator - See Figure 4
Wiring - See Figure 5

1. Label area
2. Local temperature, can connect up to 7 digital temperature sensors
3. KNX/EIB interface: 21-30VDC
4. Programming button & Red programming LED & Green Local temperature LED: Red LED on when programming, green LED keeps on for 3 seconds when testing temperature.
5. Green working LED: When the module is in working mode, the LED flickers in with an interval of 1 second.
6. Output channels
   The function of each channel depends on the working mode.
   HVAC mode:
   Channel A, B, C control fan speed.
   Channel D is heating output and channel E is cooling output.
   Channel F is disabled.
   Fan mode:
   Channel A, B, C, control one fan group and D, E, F control another one.
   Channel A and D are low speed, channel B and E are middle speed, channel C and F are high speed.
   Compressor mode:
   Channel A, B, C controls fan speeds.
   Channel D, E are connected to compressors.
   Channel F is disabled.
   Floor heating mode:
   Channel A, B, C, D, E, F are all floor heating

Installation - See Figure 6 - 8

Step 1. Fix the din rail with screws.
Step 2. Buckle the bottom cap of the FCHC Actuator on the edge of the din rail.
Step 3. Press the device on the din rail, slide it and fix it up until an appropriate position is adjusted.

Safety Precautions ⚠

- The installation and commissioning of the device must be carried out by HDL or the organization designated by HDL. For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- The device should be installed with Din rail in DB box. HDL does not take responsibility for all the consequences caused by installation and wire connection that are not in accordance with this document.
- Please do not privately disassemble the device or change components, otherwise it may cause mechanical failure, electric shock, fire or body injury.
- Please resort to our customer service department or designated agencies for maintenance service. The warranty is not applicable for the product fault caused by private disassembly.

Package Contents

M/FCHC.4.1*1 / Datasheet*1

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产品概述

综合控制器（见图1）采用KNX/EIB通信方式，用来控制空调，风扇，压缩机和地暖。模块的功能需在ETS专用软件中设置。可与不同类型的面板配合使用。最多可连接7个数字温度传感器。

功能说明

- 多种控制对象：空调，风扇，压缩机，地暖，每个控制对象对应一种控制模式。
- 控制模式：空调模式，风扇模式，压缩机模式和地暖模式。
- 主动控制和被动控制：能够更加灵活地与不同的面板配合。主动控制：与没有PI算法的面板（比如HDL-M/DLP04.1）配合使用。被动控制：与带有PI算法的面板（比如西门子的5WG1）配合使用。
- 本地温度检测及极限温报警，当本地温度过高或过低时，模块将会向总线发送报警信号，本模块可以连接最多7个温度传感器。

注意事项

- 编程 - 本设备属于KNX标准系统设备，使用ETS软件进行编程
- KNX总线 - 使用CAT5E或HDL BUS/KNX专用电缆
- KNX总线电压 - 21-30V DC
- 当该模块控制压缩机时，需要先接交流接触器，通过交流接触器与压缩机控制线路连接

产品信息

产品尺寸 - 见图 2- 3
2.5米FCU模块数字温度计 - 见图 4
产品接线 - 见图 5

1. 标识区
2. 连接温度传感器，最多连接7个
3. KNX/EIB总线端子：21-30VDC
4. 编程按键&指示灯：编程时红灯亮，测试温度时绿灯持续3秒
5. 工作状态指示灯：正常工作时，每隔1秒闪烁一次
6. 输出回路
   工作模式不同，每回路的功能也不相同。
   HVAC 模式：
   回路A，B，C分别控制空调的中低高风速
   回路D是地暖输出，回路E制冷
   回路F无效
   风扇模式：
   回路A，B，C和D, E, F 分别控制2组风扇的低中高风速。
   压缩机模式：
   回路A，B，C控制风速
   回路D，E分别控制1个压缩机
   回路F无效
   地暖模式：
   回路输出均为地暖。

设备的安装 - 见图 6-8

步骤1. 用螺丝固定丁导轨。
步骤2. 将综合控制器底盖的一端扣上导轨的边上。
步骤3. 将整个模块压到导轨上，并滑动模块直至调整到合适的位置则固定下来。

安全警告 ⚠

- 本设备的安装及调试工作必须由我司或我司指派的机构进行。其电气安装的计划和施工，必须遵守当地相关的安全标准和法规。
- 该产品需以丁轨安装方式，安装在电箱里，未按照本说明书进行安装及接线方式的，所造成的一切后果皆与我司无关。
- 请不要私自拆装或更换零部件，否则可能会导致机械故障、电击、火灾或身体伤害。
- 请将一切维修工作交由我司售后部门或指定机构进行，本产品的保修范围不适用于因用户拆卸产品而导致的故障。

装箱清单

M/FCHC.4.1*1 / 说明书*1

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Technical Data

Electrical Parameters

Working voltage	21~30V DC
Working current	20mA/30V DC
Communication	KNX
KNX terminals	0.6 – 0.8mm diameter single core cable
Temperature sensor	Digital temperature sensor (18B20)
Output current	8A (AC) 5A (DC)

External Environment

Working temperature	-5℃~45℃
Working relative humidity	≤90%
Storage temperature	-20℃~60℃
Storage relative humidity	≤93%

Specifications

Dimensions	90mm×72mm×66mm
Net weight	168g
Housing material	Frame-retardant nylon
Installation	35mm DIN rail installation (See Figure 6 - 8)
Protection rating (Compliant with EN 60529)	IP20

Name and Content of Hazardous Substances in Products

Components	Hazardous substances					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Chromium VI (Cr (VI))	Poly-brominated biphenyls (PBB)	Poly-brominated diphenyl ethers (PBDE)
Plastic	o	o	o	o	o	o
Hardware	o	o	o	o	-	-
Screw	o	o	o	×	-	-
Solder	×	o	o	o	-	-
PCB	×	o	o	o	o	o
IC	o	o	o	o	×	×

The symbol "-" indicates that the hazardous substance is not contained.
The symbol "o" indicates that the content of the hazardous substances in all the homogeneous materials of the component is below the limit requirement specified in the Standard IEC62321-2015.
The symbol "×" indicates that the content of the hazardous substance in at least one of the homogeneous materials of the part exceeds the limit requirement specified in the Standard IEC62321-2015.

KNX Cable Guide

KNX	KNX cable
-	Black
+	Red

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技术参数

电气参数

工作电压	21~30V DC
工作电流	20mA/30V DC
通信方式	KNX
KNX总线接线端子	0.6-0.8mm单芯电缆
温度传感器	数字温度传感器（18B20）
输出电流	8A（AC） 5A（DC）

外部环境

工作温度	-5℃~45℃
工作相对湿度	≤90%
储存温度	-20℃~60℃
储存相对湿度	≤93%

产品规格

尺寸	90mm×72mm×66mm
净重	168g
外壳材料	阻燃尼龙
安装方式	35mm 丁导轨安装 （见图6-8）
防护级别 （符合 EN 60529）	IP20

产品中有害物质的名称及含量

部件名称	有害物质					
	铅 （Pb）	汞 （Hg）	镉 （Cd）	六价铬 （Cr（VI））	多溴联苯 （PBB）	多溴二苯醚 （PBDE）
塑胶组件	o	o	o	o	o	o
五金铜件	o	o	o	o	-	-
螺丝组件	o	o	o	×	-	-
焊锡	×	o	o	o	-	-
PCB组件	×	o	o	o	o	o
IC	o	o	o	o	×	×

- ：表示不含有该有害物质。
o ：表示该有害物质在该部件所有均质材料中的含量均在IEC62321-2015规定的限量要求以下。
× ：表示该有害物质至少在该部件的某一均质材料中的含量超出IEC62321-2015规定的限量要求。

KNX总线定义

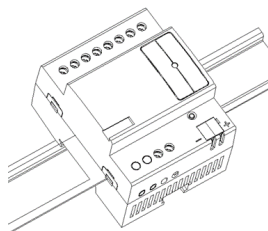| KNX	KNX 电缆
-	黑
+	红

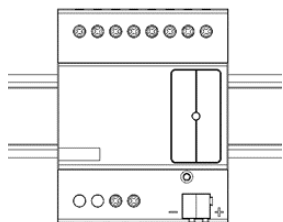Figure 6 / 图 6

1

Figure 7 / 图 7

2

Figure 8 / 图 8

Figure 6 - 8. Installation
图 6 - 8. 安装图

技术支持
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