User Manual

（**Version: V1.0**）

UX2

Programmable Controller

CORESTAR

UX2 is a RTOS (Real Time Operating System) based programmable logic controller which can be used in many applications in the air-conditioning, heating and refrigeration sectors and solution for HVAC/R sector. Since it is programmable with good flexibility, allowing specific solutions to be created on customers request by themselves. UX2 has 3 RS485 communication interface, two built-in uni-polar electronic expansion valve (EEV) drivers, and supports CORESTAR's DSP series text screen and touch screen at the same time.
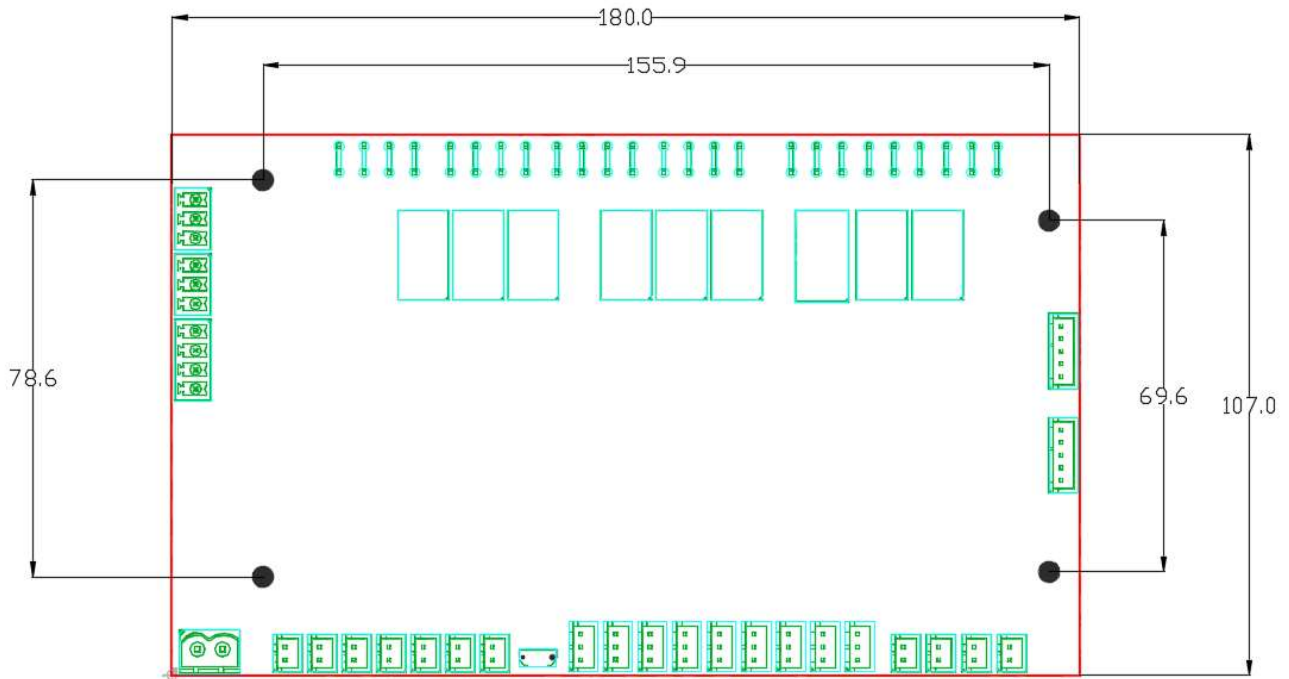
Features

- Support both DC and AC power supply（24Vdc/ 24Vac）

- Flexible and configurable inputs/outputs

- Two build-in uni-polar EEV drivers

- Totally 3 RS485 serial ports, easy for system integration
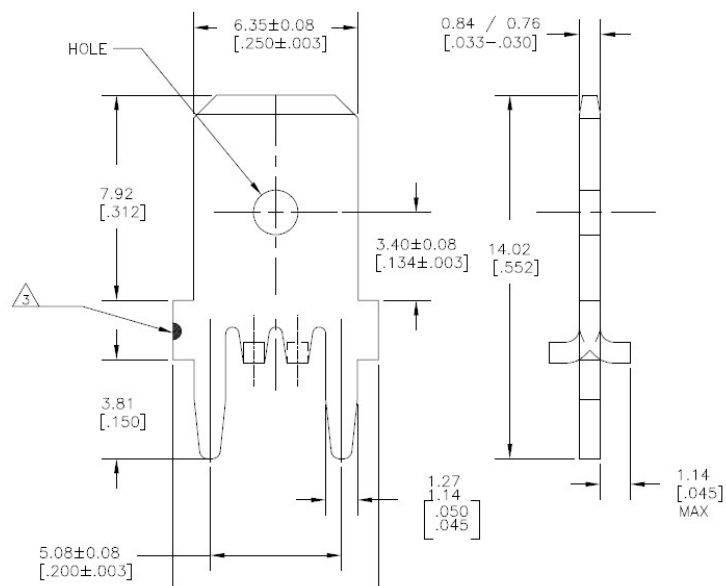
- Low-cost solution for HVAC/R

Can be used in:

- Precision air conditioning control system for computer room

- Building automation system

- Fresh air control system

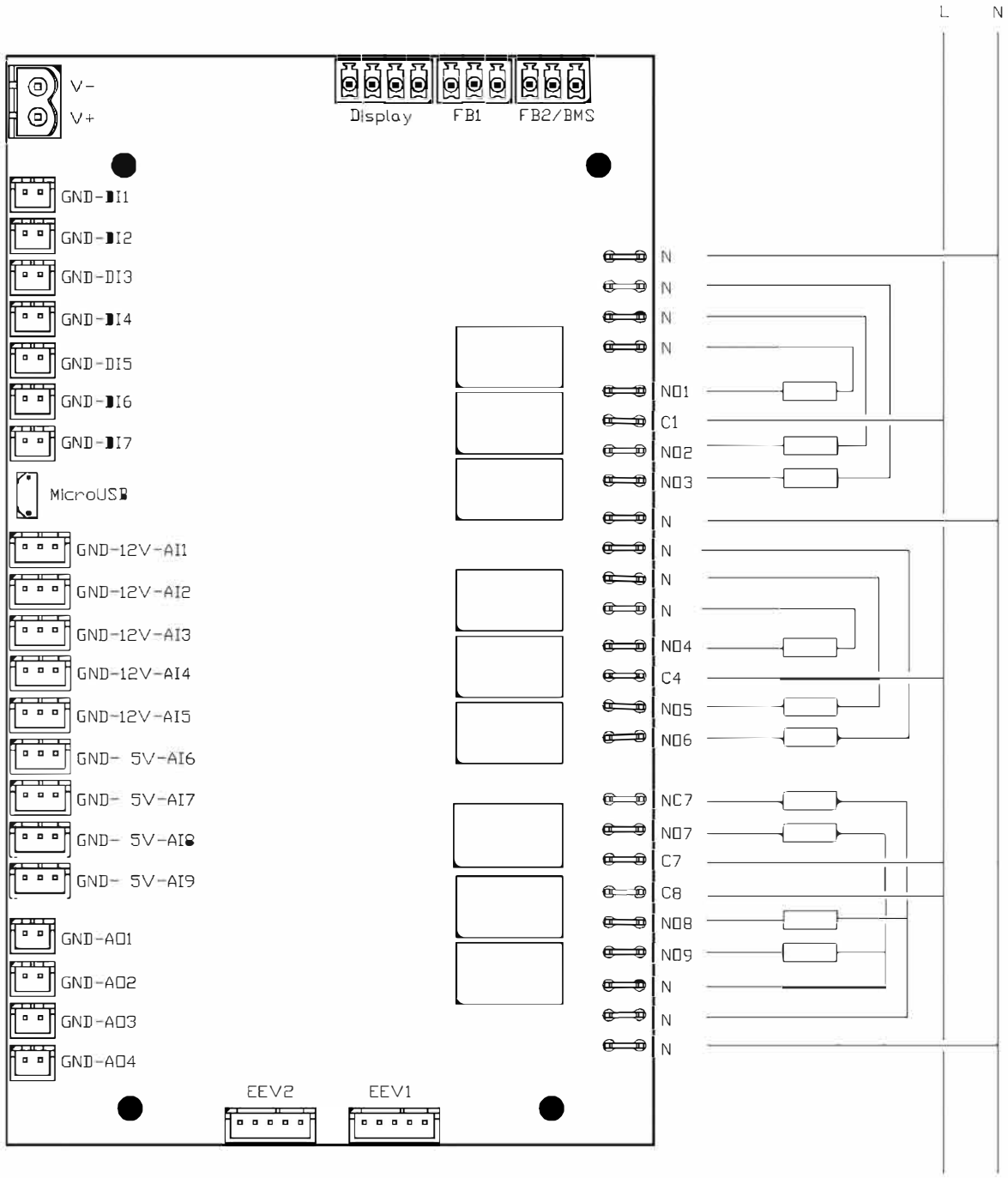- Refrigeration control system

- Automatic control system

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Dimmensions （unit: mm）

FAST-ON connectors （unit：mm）

Wiring

V-	
V+	

Display FB1 FB2/BMS

GND-DI1

GND-DI2

GND-DI3

GND-DI4

GND-DI5

GND-DI6

GND-DI7

MicroUSB

GND-12V-AI1

GND-12V-AI2

GND-12V-AI3

GND-12V-AI4

GND-12V-AI5

GND- 5V-AI6

GND- 5V-AI7

GND- 5V-AI8

GND- 5V-AI9

GND-AO1

GND-AO2

GND-AO3

GND-AO4

EEV2 EEV1

L   N

N
N
N
N
NO1
C1
NO2
NO3
N
N
N
N
NO4
C4
NO5
NO6
NC7
NO7
C7
C8
NO8
NO9
N
N
N

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ABSOLUTE MAXIMUM RATINGS:

NOTE: Stresses above/below these ratings may cause permanent damage.

Table 1

parameter	minimum	maximum	unit
Storage temperature	-40	85	°C
Operation temperature	-40	60	°C
DC working voltage	18	36	Vdc
AC working voltage	13	31	Vac
Display cable length	0.1	10	m
Serial communication length(AWG24 shielded cable)	0	500	m
+VDC output current	0	80	mA
+5Vdc output current	0	50	mA

I/O characteristics

Analogue inputs

Table 2

Channel number	9
Type	
A1	NTC (-50 ~ 90°C; R/T 10 kΩ ±1% @25°C), NTC HT (0~150°C)
	Digital input type: free contact
	0~10V from probes powered by controller
A2, A3, A4	NTC (-50 ~ 90°C; R/T 10 kΩ ±1% @25°C), NTC HT(0~150°C)
	Digital input type: free contact
	0~5V from probes powered by controller
A5	NTC (-50~90°C; R/T 10 kΩ ±1% @25°C), NTC HT(0~150°C)
	0~20 mA /4~20 mA from probes powered by controller
A6, A7, A8, A9	NTC (-50~90°C; R/T 10 kΩ ±1% @ 25°C), NTC HT(0~150°C)
	0~5V from probes powered by controller
Time constant	0.5 s
precision	1%fs

Digital inputs

Table 3

Channel number	7+4（A1,A2,A3,A4）
Type	
DI1,DI2	Free contacts
	Fast digital inputs（max 500Hz）
DI3…..DI7	Free contacts
Time constant	0.5 s

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Analogue outputs

Table 4

Channel number	4
Type	
AO1	0~10VDC
AO2	0~10VDC
AO3	0~10VDC
	PWM 0/10 V 100 Hz
	PWM 0/10 V 2KHz
AO4	0~10VDC
	PWM 0/10 V 100 Hz
	PWM 0/10 V 2KHz
Max current	2mA
Precision	±3%
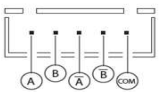
Digital outputs

Table 5

Channel number	9	
Relay type		
SPST	NO1…..NO6 NO8……NO9	AC 250V 5A
SPDT	NO7/NC7	AC 250V 3A
Electrical durability	100K cycles	
Mechanical durability	1000K cycles	
Certifications	VDE,UL,CQC	

Uni-polar valve outputs

Table 6

Number	2
Max. power for each valve	8W
Voltage	12Vdc
Type of control	Single- pole stepper motor
Port definition	

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Application upgrade guideline

Final user can upgrade application easily by micro-USB port on
UX2 board

Micro USB

Hardware resources：
1. one computer with USB port
2. Micro-USB cable（Android phone DATA cable）
3. The latest application file (the name must be APP.ZIP and cannot
   be modified)

Upgrade steps：
Step 1：Connect cable to micro-USB port on UX2 board
Step 2：Connect the cable to the computer USB port, after 2~5 seconds, the USB disk icon will appear
Step 3：Double-click to open the USB disk, you can see 2 folders (UPGRADE and SYSTEM)
Step 4：Double click UPGRADE folder to enter
Step 5： Copy the APP.ZIP file to the UPGRADE folder and make sure the copy is complete
Step 6：Unplug the USB cable, power off and restart (when restarting, you will see the red and green lights flash alternately, after the upgrade is complete, only the green light will work in normal operation)
Step 7：upgrade complete