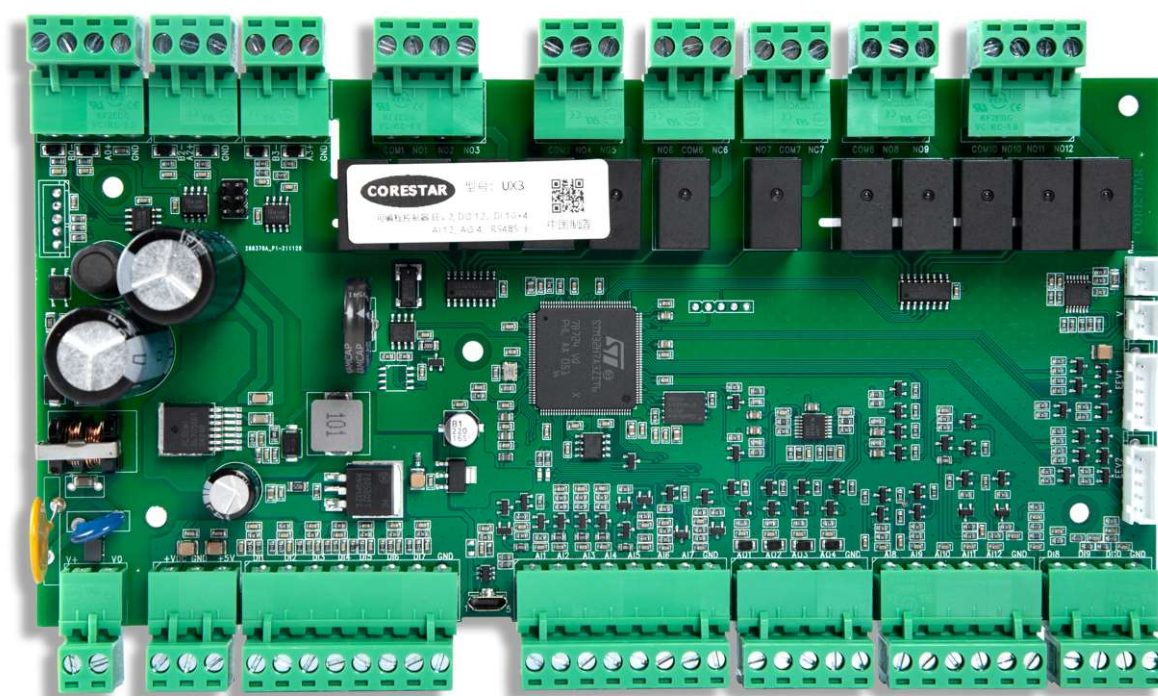


User Manual

(Version V1.1)

UX3

Programmable Logic Controller



Introduction

UX3 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. UX3 has 3 RS485 communication interface, built-in uni-polar electronic expansion valve (EEV) drivers, and supports CORESTAR's DSP series text screen and touch screen at the same time.

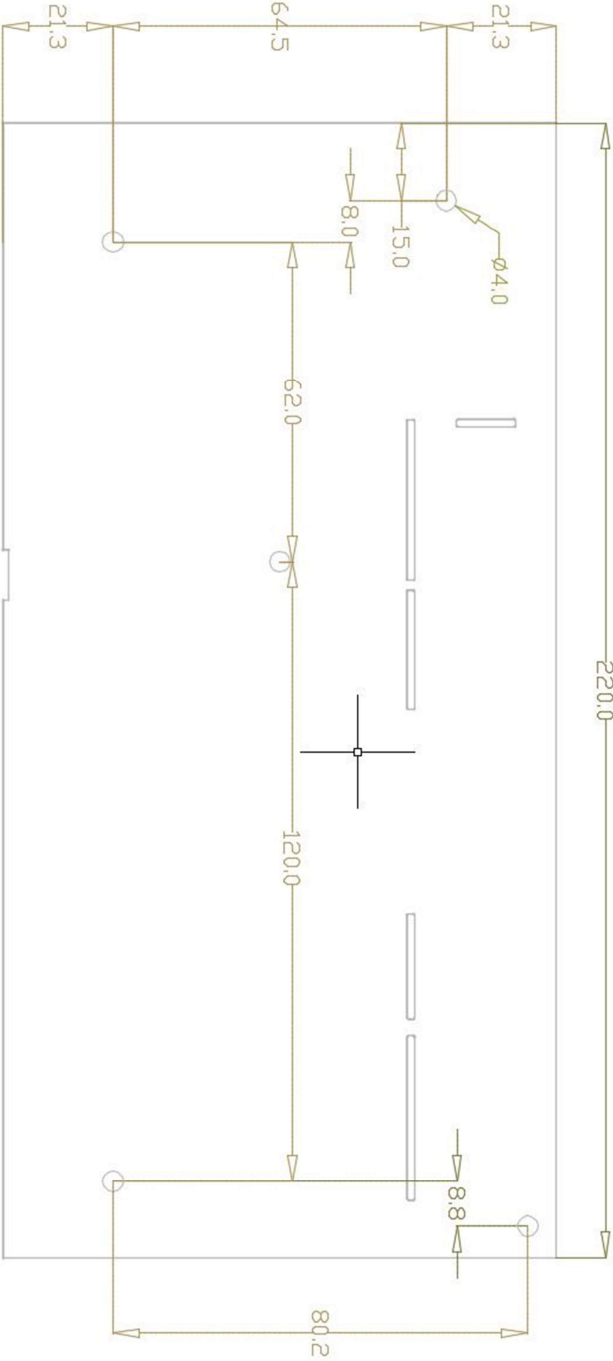
Features

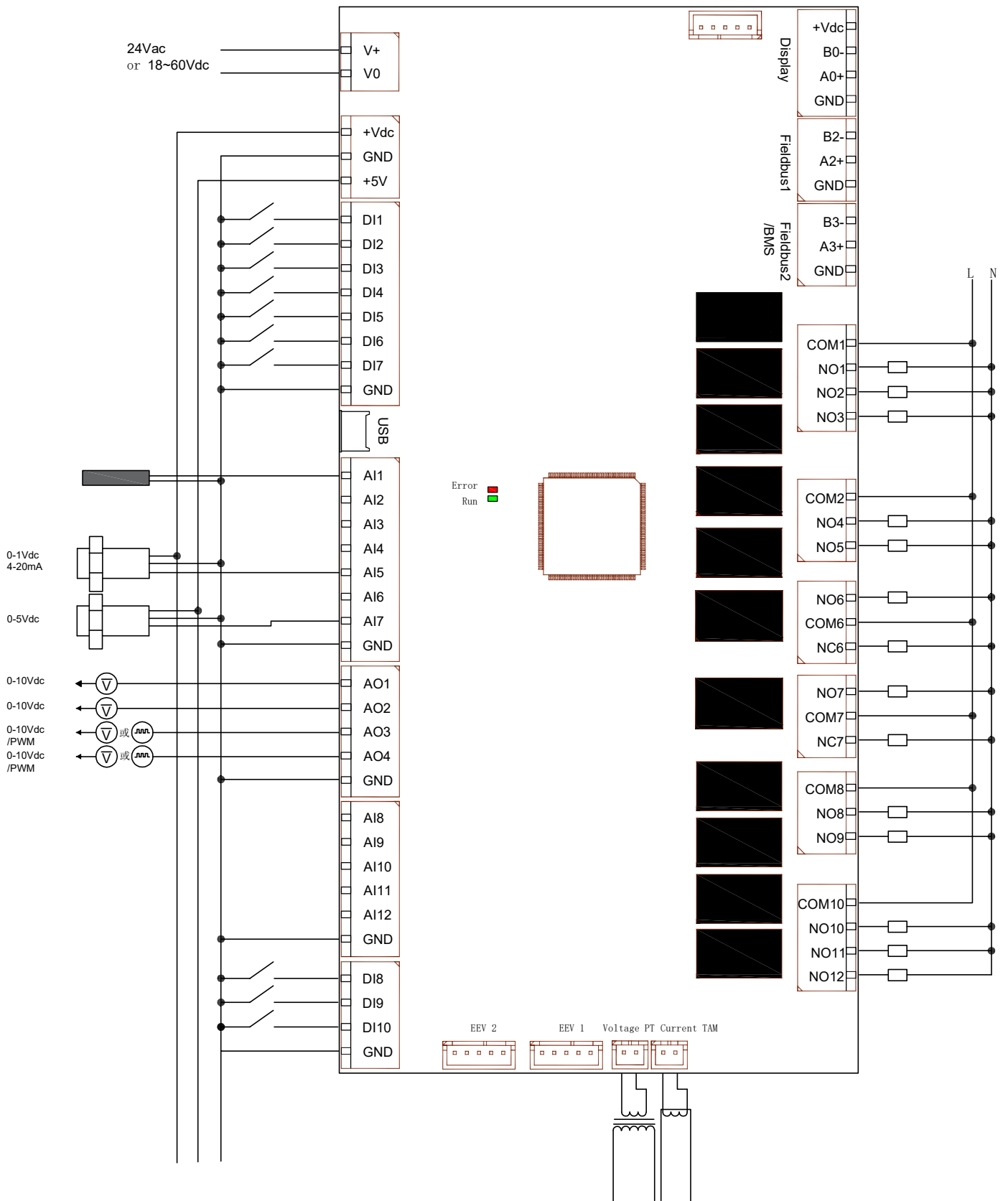
- Wide voltage input (18~60Vdc/ 13~42Vac)
- Flexible and configurable inputs/outputs
- Two build-in uni-polar EEV driver
- Totally 3 RS485 serial ports, easy for system integration
- Low-cost solution for HVAC/R

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

Dimensions (unit: mm)





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	60	Vdc
AC working voltage	13	42	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	12
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
	0~1V from probes powered by controller
A5, A10	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, A12	NTC (-50~90°C; R/T 10 kΩ ±1% @ 25°C), NTC HT(0~150°C)
	0~5V from probes powered by controller
A11	NTC (-50~90°C; R/T 10 kΩ ±1% @ 25°C), NTC HT(0~150°C)
	0~10V from probes powered by controller
Time constant	0.5 s
precision	1%fs

Digital inputs

Table 3

Channel number	10+4 (A1,A2,A3,A4)
Type	
DI1,DI2	Free contacts
	Fast digital inputs (max 500Hz)
DI3.....DI10	Free contacts
Time constant	0.5 s

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%

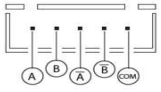
Digital outputs

Table 5

Channel number	12	
Relay type		
SPST	NO1.....NO5 NO8.....NO12	AC 250V 5A
	NO6/NC6 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	

Voltage and Current input

frequency	50/60Hz
Max. input voltage	0.15V
Max. input current	25mA
Resolution	10bit
Precision	± 5%

Note:

1. For mains power voltage monitoring, max support 400Vac, has to use special sensor of CORESTAR order code: ESR60
2. For mains power current monitoring, max support 50A, has to use special sensor of CORESTAR order code: ESR70

Application upgrade guideline

Final user can upgrade application easily by micro-USB port on UX3 board

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 UX3 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

Micro USB

