



CX-UDC Universal Digital Controller

SPECIFICATIONS

New Release

Form 450.24-S2 (704)

The CX-UDC Controller is an intelligent Direct Digital Controller (DDC) for building control functions and energy management. As a networkable controller it is customizable to virtually any HVAC or building control application. The CX-UDC operates on a BACnet® MS/TP network, allowing connectivity with other devices and systems which comply with the BACnet standard developed by ASHRAE®.

Modularity is achieved using plug-and-play modules to select the appropriate type and number of I/O points for a specific application. Up to 10 I/O modules allow up to 110 I/O points configured in virtually any mix. The modules allow resistance, digital, pulse, 0 to 10 or 0 to 5 VDC, or 0-20 mA inputs and digital or 0-10 VDC outputs. Two additional output modules offer relay outputs with changeover contacts.

Each module, including the Power Supply, clips to DIN rail for flexible mounting options in either a YORK-supplied enclosure or, if desired, a custom-built enclosure can be obtained locally.

Features and Benefits

- Communicates using ASHRAE's BACnet protocol for interoperability with third-party control systems.
- Flexible I/O point count (up to 110) allows customization for each application.
- Nonvolatile Flash memory eliminates need to "burn" EPROMs for each job site.
- Software updates are network downloadable, simplifying the upgrade path.
- Flexible mounting options in either a YORK wall enclosure or on customer supplied DIN rail.
- Visual LED indicators of operating and communication status.
- UL 916 listed. Complies with relevant CE EMC safety directives.



CX-UDC with Optional Keypad and Display Module

An optional Keypad and Display Module with a 10 ft (3 m) cable allows the technician flexibility to move around. The Keypad and Display Module is interchangeable with other YORK controllers, providing a simple, universal interface for all programmable controllers with a Display port.

The intelligence behind the controller is contained in the Processor Module. The Processor Module uses Flash memory to provide nonvolatile memory for applications, simplifying backup procedures. Interconnectivity to the LAN, RS232 devices, and programming interface (either a terminal, PDA, or Keypad and Display Module) are provided at the processor level.

The CX-UDC provides the ability to connect to any BACnet network enhancing interoperability with other control systems. The Feature-Section-Page structure, familiar to all of YORK's control products, remains with many routines, such as Time Management, PID loops, Energy Demand, and alarms, built in to the firmware.

LEDs provide information on the operating and communication status of the I/O channels and communication ports. Each module also includes a Status LED.

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Processor Module

The Processor Module provides the connectivity to the I/O modules within the CX-UDC controller, as well as connectivity to other network components via the LAN. 24 VDC power is received from the Power Supply Module and passed along the I/O bus to the I/O modules. The Keypad and Display Module plugs directly into the Processor Module using an RJ-11 connector.

An 8-way DIP switch sets the MAC Address (network address) to establish communication to other devices on the network. BACnet transfer speeds of 9.6, 19.2, and 38.4 kbaud are set in the software.

An additional port allows the connection of either RS232 or RS485 devices. This allows the connection of any YORK chiller using York Talk 1 or 3 (RS232) or York Talk 2 (RS485) directly to the CX-UDC controller. Configuration of this port is managed through an additional 4-way DIP switch.

I/O Modules

The CX-UDC controller uses modular components to maximize flexibility. The Input and Output Modules provide the bulk of this flexibility by allowing virtually any mix of input and output channels. Up to 10 modules can be installed for a maximum of 110 I/O points. Typically, the input modules accept 11 points and the output modules control 8 points.

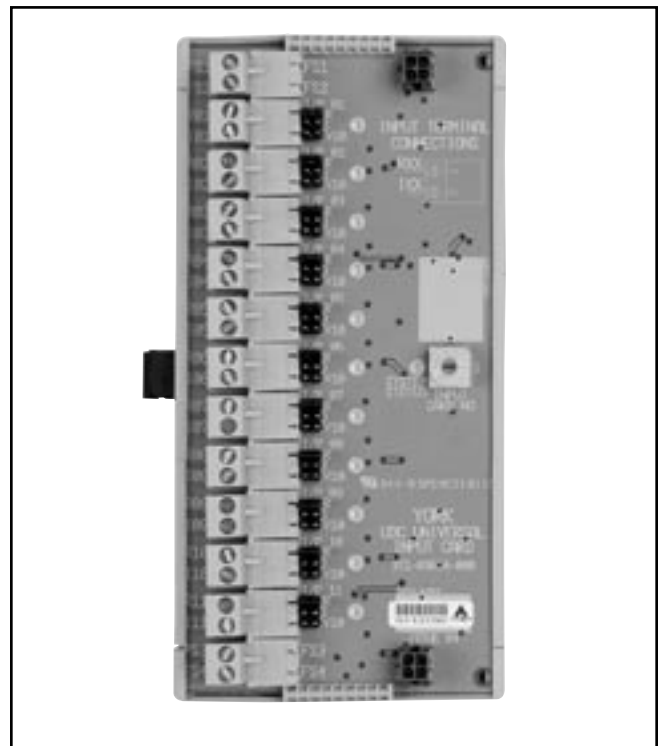
Each module includes the attaching parts, such as the bus cable and ground/earth strip and hardware, required to install and use the module. Everything is in a single package.

- The Universal Input Module accepts resistance, pulse, volt-free digital, 0 to 5 VDC, 0 to 10 VDC, and 0 to 20 mA input signals. Jumpers/links are used to set the incoming signal type.
- The Thermistor Input Module accepts resistance, volt-free digital, and pulse signals. Signal recognition is “automatic.”
- The Universal Output Module supplies either an analog (0 to 10 VDC) or digital (open collector transistor) signal to an external field device. The output signal is determined via a jumper/link.
- The Relay Output Modules use volt-free contacts to control external field devices. Available as either four-way or eight-way modules, they are equipped with an override switch for commissioning and troubleshooting purposes. The four-way module also incorporates a feedback feature to automatically detect when the switch is not in the Auto position.

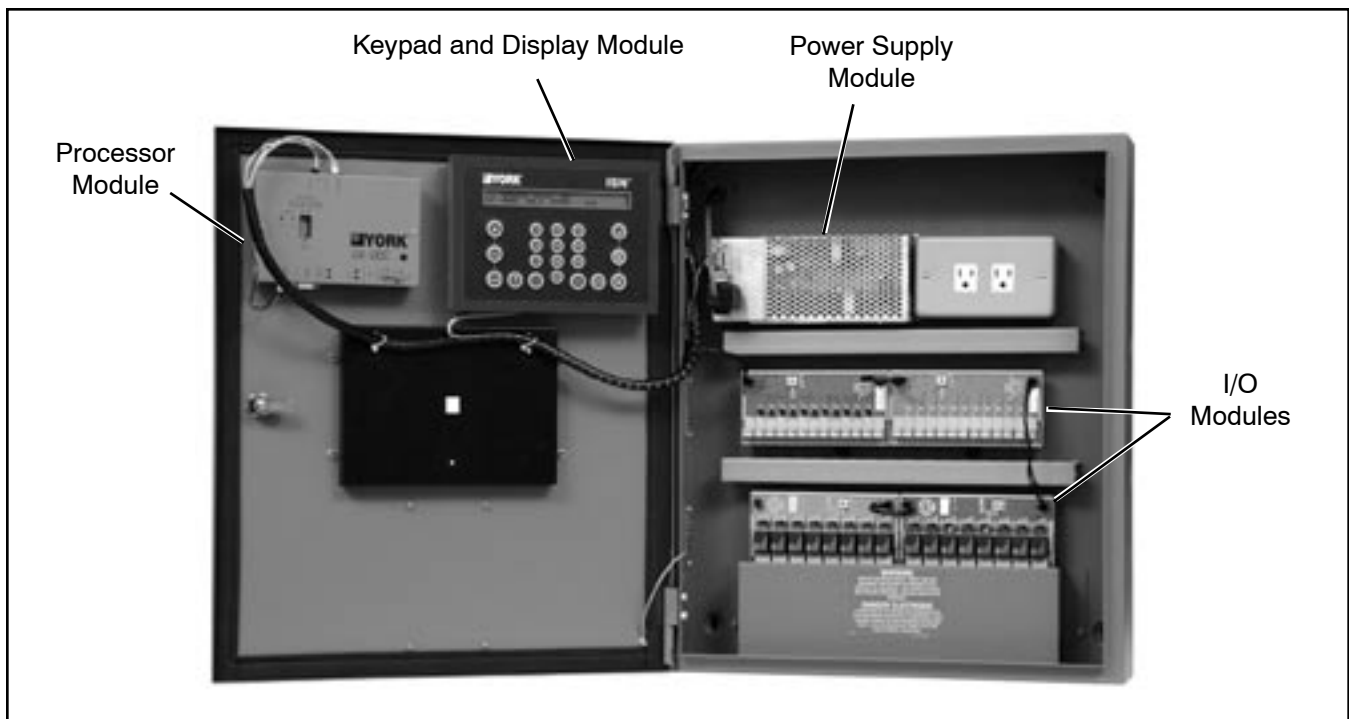
Note that the I/O modules and Power Supply Modules are interchangeable between the CX-UDC and UDC, along with the Keypad and Display Module.



Processor Module



Typical Module (Universal Input Module)



CX-UDC Components

Power Supply

The Power Supply Module is an auto-switching unit allowing usage in 115 and 230 VAC markets. Sized to power up to 10 modules, it provides a regulated 24 VDC to the Processor Module, which, in turn, supplies the I/O modules.

An auxiliary power outlet is included with 115 VAC systems and optional for 230 VAC systems. The auxiliary power outlet provides a convenient location to power peripheral devices, such as a modem.

Keypad and Display

The Keypad and Display Module is a hot-swappable module which can be used as a service tool or permanent installed either inside (surface) or outside (flush) the YORK enclosure. For customized enclosures, the module may be mounted flush or on the surface of the enclosure.

The module allows monitoring of data, access to software commands, access to reports, and acknowledgement of alarms via the touch-sensitive keys and 80-character, backlit LCD display. This interface device also allows complete system access from a CX-IDC controller.

Enclosure

To simplify ordering of the CX-UDC components while still maintaining product flexibility, three variants are available for the enclosures:

Full Enclosure (PN 371-04467-000) – Equipped with wire harness and DIN rail in preparation for installing selected I/O modules, Processor Module and Power Supply (all ordered separately). In North America it includes an Auxiliary Power Outlet. A bezel on the door accepts a Keypad and Display Module.

Blind Enclosure (PN 371-04467-100) – Equipped with wire harness and DIN rail in preparation for installing selected I/O modules (ordered separately). A Keypad and Display Module can be mounted inside the enclosure.

Slave Enclosure (PN 371-04467-010) – Includes DIN rail to accept up to six I/O modules. Typically used in conjunction with either a full or blind enclosure to house additional I/O Modules.

Note that CX-UDC enclosures are painted ConneXsys Gray rather than the Carribean Blue of previous, ISN Advantage products.

SPECIFICATIONS

General

Operating Environment	32 to 122° F (0 to 50° C) 10 to 95% RH non-Condensing
Maximum Altitude	6500 ft. (2000 m) above sea level

Enclosure – See Page 3 for Part Numbers

Size (H x W x D)	22.0 x 18.9 x 5.7 in. (560 x 480 x 145 mm)
Weight (Enclosure only)	25.3 lb (11.5 kg)

Processor Module – PN 371-04466-000

Processor	NEC V25 Operating at 8 MHz
Memory	32 kbytes
BRAM Memory	512 kbytes
FLASH Memory	480 kbytes w/ 10 yr. retention
RTC Accuracy	±30 seconds per year
Battery Life	Approximately 1 year of operation, 5 years of storage
Input Fuse	3.15 A Slow-Blow
Input Current	200 mA
Module Weight	2.2 lb. (1 kg)
Module Dimensions	3.9 x 6.7 x 1.8 in. (100 x 170 x 45 mm)
LAN (Port 1)	BACnet MS/TP; RS485
LAN Speeds	9.6, 19.2, 38.4 kbaud
LAN Cable	Screened Twisted-Pair (Belden 9841 or Equivalent)
Port 2	RS232 (DB-9) or RS485 (screw)
Connection	3 ft (1 m) Plug-in cable for I/O Modules and 3 ft (1 m) cable for 24 VDC Power Supply

Power Supply Module – PN 371-03633-000

Primary Power Source	100 to 240 VAC ±10%
Frequency	50/60 Hz
Output Voltage	24 VDC ±10%
Output Current	3.15 A
Module Weight	2.2 lb. (1 kg)
Module Dimensions	3.7 x 7.3 x 3.9 in. (95 x 185 x 100 mm)
Connector	Universal Connector accepts 3-core 12 to 18 gauge

Keypad and Display Module – PN 371-04491-000

Keypad	20 Membrane keys with symbols on the keys
Display	2 line x 40 characters backlit LCD
Sleep Mode	Backlight goes off after 10 minutes of inactivity
Input Current	150 mA
Module Weight	2.2 lb. (1 kg)
Module Dimensions	8.7 x 6.3 x 1.4 in. (220 x 160 x 35 mm)
Connection	10 ft (3 m) cable with RJ-11 Jack connects to Processor Module, Hot-Swappable
Color	Black

Thermistor Input Module (11 Inputs) – PN 371-03637-000

Resistance	8 -70 kohms
Pulse	20 Hz maximum
Digital	Dry Volt-Free
Accuracy	±0.5% full scale
Input Current	100 mA
Module Weight	0.6 lb (0.3 kg)
Module Dimensions	3.2 x 6.3 x 1.8 in. (80 x 160 x 45 mm)
Connection	Includes 8 in. (220 mm) Plug-in cable for Power and I/O Bus

Universal Input Module (11 Inputs) – PN 371-03634-000

Resistance	8 -70 kohms
Pulse	20 Hz maximum
Digital	Dry Volt-Free
Voltage	0-5 VDC or 0-10 VDC
Current	0-20 mA 2 or 3-wire
Accuracy	±0.5% full scale
Input Current	300 mA
Module Weight	0.6 lb (0.3 kg)
Module Dimensions	3.2 x 6.3 x 1.8 in. (80 x 160 x 45 mm)
Connection	Includes 8 in. (220 mm) Plug-in cable for Power and I/O Bus

Universal Output Module (8 Outputs) – PN 371-03635-000

Digital	24 VDC@25 mA
Voltage	0-10 VDC@5 mA
Input Current	300 mA
Module Weight	0.6 lb (0.3 kg)
Module Dimensions	3.2 x 6.3 x 1.8 in. (80 x 160 x 45 mm)
Connection	Includes 8 in. (220 mm) Plug-in cable for Power and I/O Bus

Relay Output Module – PN 371-03766-000 (4 Outputs)

Relay Type	Single Pole Change-Over
230 VAC Relay Rating	Maximum of 5 A resistive load, 3 A inductive load
115 VAC Relay Rating	Maximum of 6 A resistive load, 6 A inductive load
Input Current	75/150 mA
Module Weight	0.6 lb (0.3 kg)
Module Dimensions	3.9 x 6.3 x 1.8 in. (100 x 160 x 45 mm)
Connection	Includes 8 in. (220 mm) Plug-in cable for Power and I/O Bus

NOTE: A cover plate (PN 371-04482-000), which covers two relay modules, must be ordered separately.

Conformance

UL916 Listed
FCC Part 15
EEC Directives EN55022, EN61000 and EN50204

