KanexPro

PoE Control Expander with Serial, IR, Relay & Digital I/O

Extend AV control to any location with a single Ethernet cable

MPN: CR-EXPAND1

Version 1.0

> **Important:** Read these instructions carefully before connecting or operating this product.

> **Caution:** Use direct interconnection (T568B) for network cables. Do not cross connect.

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1. INTRODUCTION

The KanexPro CR-EXPAND1 is a network serial port expander that communicates with programmable central control systems or PCs to control multiple devices. It supports TCP/UDP protocol, and the output serial port supports RS-232/RS-485. IR output, GPIO input/output, relay control, and PoE are supported. Front panel LEDs indicate power, serial TX/RX activity, and equipment status.

2. FEATURES

✓ 1× 100M Ethernet port with TCP/UDP communication protocol

✓ 1× I/O port with configurable digital input or output

✓ 1× IR output port (20KHz–60KHz carrier)

✓ 1× RS-232/RS-485 bidirectional serial port (mode-switching)

✓ 2× low-voltage relays for lighting, access control, curtains

✓ Built-in web server for browser-based device configuration

✓ Dual power: DC 12–24V or PoE — 0.96W consumption

✓ Built-in API commands for integration

✓ Factory reset support

3. PACKAGE CONTENTS

- 1× Network Serial Port Expander
- 1× 5-pin 3.81mm Phoenix
- 1× 4-pin 3.81mm Phoenix
- 1× 3-pin 3.81mm Phoenix

- 1× 2-pin 3.81mm Phoenix
- 2× Mounting Ear
- 4× Machine Screw (KM3×4)
- 1× User Manual

Specifications

Technical	
RS-232	Full duplex communication
RS-485	Half duplex communication
Baud Rate	2400, 4800, 9600, 14400, 19200, 38400, 56000, 57600, 115200
LAN	100M Ethernet interface
GPIO	Detection accuracy: 10ms. Input: 24VDC 50mA max. Output: 5VDC 100mA max
IR	5V IR blaster cable, 20KHz–60KHz carrier
ESD Protection	IEC 61000-4-2: ±8kV air / ±4kV contact

Connection	
Input	1× LAN/PoE (RJ45), 1× DC IN (2-pin 3.81mm Phoenix)
Output	1× I/O & IR (3-pin Phoenix), 1× RS-485/RS-232 (5-pin Phoenix), 1× RELAY (4-pin Phoenix)

Mechanical	
Housing	Metal enclosure, black
Dimensions	3.74″ × 2.68″ × 0.67″ (95 × 68 × 17 mm)
Weight	0.40 lbs (180g)
Power	DC 12–24V/1A or PoE — 0.96W
Operating Temp	32°F – 104°F (0°C – 40°C)
Storage Temp	-4°F – 140°F (-20°C – 60°C)
Humidity	20%–80% RH (non-condensing)

Operation Controls

FRONT PANEL

#	NAME	DESCRIPTION
1	**POWER LED**	Green — on when device is powered
2	**TX LED**	Flashes when RS-485/RS-232 serial port sends data
3	**RX LED**	Flashes when RS-485/RS-232 serial port receives data
4	**I/O LED**	Input mode: on at low level. Output mode: on at high level (5V)
5	**IR LED**	Green — on when IR port is sending data
6	**RELAY 1/2 LED**	On when relay is closed; off when open

REAR PANEL

#	NAME	DESCRIPTION
7	**RESET**	Hold 5s to factory reset. Default IP: 192.168.0.101
8	**IR + I/O**	IR output (S/GND) + I/O port (3-pin Phoenix)
9	**RELAY**	2× relay, normally open (30VDC 1A / 125VAC 0.3A). 4-pin Phoenix
10	**RS-485/RS-232**	Bidirectional serial (5-pin Phoenix). Mode-switching via Web GUI
11	**LAN/PoE**	100M Ethernet (RJ45) with PoE support
12	**DC IN**	DC 12–24V power input (2-pin Phoenix)

Web GUI User Guide

The CR-EXPAND1 supports browser-based configuration. Connect the LAN port to a PC on the same subnet (default IP: 192.168.0.101). Open a browser and navigate to the device IP address.

OVERVIEW PAGE

Firmware Version: Current firmware version

I/O Mode: GPIO port mode (input default)

Serial Baud: RS-485/RS-232 baud rate

IP Mode: Static (default) or DHCP

TCP/UDP Mode: Data send/receive mode for serial and network

Network Info: IP Address, Subnet Mask, Gateway, MAC Address

Ports: System TCP Port (8000), COM TCP Port (8001). UDP ports shown when UDP mode is selected

CONFIGURATIONS PAGE

UART Setting: BaudRate, DataLen, StopBit, ParityBit, UartType (RS-232/RS-485). Click "Confirm" to save.

I/O Setting: Select Input or Output mode. When Output: click switch to toggle output level.

Relay Setting: Click switch to toggle Relay 1/2. Click "Confirm" to save.

SYSTEM PAGE

Network Setting: DHCP ON/OFF, IP Address, Gateway, Subnet Mask. TCP/UDP mode selection. UDP: set System and COM remote ports.

Factory Reset: Click Factory Reset switch, then "Confirm". Device reboots and restores defaults.

> **Default Settings:** IP: 192.168.0.101 / Subnet: 255.255.255.0 / Gateway: 192.168.0.1 / TCP mode / System TCP port: 8000 / COM TCP port: 8001 / Baud: 115200 / Data: 8 / Stop: 1 / Parity: None / RS-232 mode / I/O: Input mode

API Commands

The CR-EXPAND1 supports API command control via serial (RS-232) or network (TCP/UDP). Default serial: 115200, 8N1, RS-232. Default TCP port: 8000 (system), 8001 (COM).

SERIAL PORT COMMANDS

COMMAND	DESCRIPTION	RESPONSE
help!	Get API command list	help! + list
get baud!	Get COM baud rate	get baud:115200!
set baud:9600!	Set COM baud rate	set baud:9600!
get uarttype!	Get serial type	get uarttype:rs232!
set uarttype:rs485!	Set serial type	set uarttype:rs485!
get datalen!	Get data bits	get datalen:8!
set datalen:7!	Set data bits	set datalen:7!

RELAY COMMANDS

COMMAND	DESCRIPTION	RESPONSE
set relay1:on!	Turn on relay 1	set relay1:on!
set relay1:off!	Turn off relay 1	set relay1:off!
set relay2:on!	Turn on relay 2	set relay2:on!
get relay1!	Get relay 1 status	get relay1:on!

I/O COMMANDS

COMMAND	DESCRIPTION	RESPONSE
set iomode:in!	Set I/O to input mode	set iomode:in!
set iomode:out!	Set I/O to output mode	set iomode:out!
set io:high!	Set I/O output high (5V)	set io:high!
set io:low!	Set I/O output low	set io:low!
get io!	Get I/O status	get io:high!

NETWORK COMMANDS

COMMAND	DESCRIPTION	RESPONSE
get ip!	Get IP address	get ip:192.168.0.101!
set ip:192.168.1.100!	Set IP address	set ip:192.168.1.100!
get mask!	Get subnet mask	get mask:255.255.255.0!
set mask:255.255.0.0!	Set subnet mask	set mask:255.255.0.0!
get gw!	Get gateway	get gw:192.168.0.1!
set dhcp:on!	Enable DHCP	set dhcp:on!
set tcpudp:tcp!	Set to TCP mode	set tcpudp:tcp!
get mac!	Get MAC address	get mac:xx:xx:xx:xx:xx:xx!
set factory!	Factory reset	Device reboots

IR COMMANDS

COMMAND	DESCRIPTION	RESPONSE
set irfreq:38000!	Set IR frequency (Hz)	set irfreq:38000!
get irfreq!	Get IR frequency	get irfreq:38000!

Hex Command Support: The CR-EXPAND1 also supports hex (binary) API commands for all functions. Hex commands use the prefix ea 08 and follow a structured packet format. See the full hex command reference in the original equipment manual for complete byte-level protocol details.

SYSTEM COMMANDS

COMMAND	DESCRIPTION	RESPONSE
get version!	Get firmware version	get version:x.x.x!
get name!	Get device name	get name:EXT101!
set name:Room1!	Set device name	set name:Room1!
reboot!	Reboot device	Device reboots

Command Format: All ASCII commands use ！ as the terminator. Commands can be sent via serial (RS-232, 115200 8N1) or network (TCP port 8000 for system, 8001 for COM data). Serial data is forwarded bidirectionally between the COM port and the network TCP/UDP port.

Application Example

APPLICATION DIAGRAM
PoE Control Expander with Serial, IR, Relay & Digital I/O — CR-EXPAND1

CONTROL PROCESSOR (IN RACK)

CR-HOST6S
or CR-HOST8R / third-party

Ethernet / TCP/IP
↓
POE SWITCH

PoE Switch
Power + Data

↓

CR-EXPAND1
RS-232/485 • IR • 2× Relay • I/O • PoE

↓

CONTROLLED DEVICES

| **Display** RS-232 | **Projector** RS-232 | **DVD / STB** IR Output | **Motor Screen** Relay 1 | **Lighting** Relay 2 |

Sensor Digital I/O

How it works: The CR-EXPAND1 connects to the network via a PoE switch — one cable provides both power and data. The main control processor (CR-HOST6S, CR-HOST8R, or any third-party controller) sends commands over TCP/UDP to the CR-EXPAND1, which translates them into RS-232, IR, relay, or I/O signals for local devices. The built-in web server allows direct browser configuration without special software. Multiple CR-EXPAND1 units can be deployed across a building, each extending control to a different zone.

TROUBLESHOOTING

ISSUE	SOLUTION
Device does not power on	Verify PoE switch is active or DC 12–24V adapter is connected. Check POWER LED (green).
Serial device not responding	Confirm baud rate and serial type (RS-232/RS-485) match via Web GUI. Check TX/RX LEDs.
Cannot access web GUI	Default IP: 192.168.0.101. Ensure PC is on same subnet (255.255.255.0). Use Chrome.
Relay not triggering	Check RELAY LED. Verify wiring. Test via Web GUI relay toggle. Max: 30VDC 1A / 125VAC 0.3A.
IR not working	Check IR blaster cable. Verify frequency (20–60KHz). Test via API: `set irfreq:38000!`
Factory reset	Hold RESET button 5 seconds. IP restores to 192.168.0.101.