

Doc No. IN-HUB16-1000 · Rev. A · Installation Instructions

Konceptux KX-HUB16

Installation Instructions — 16-Zone PoE Relay Panel

1. Before You Begin

This product switches mains-voltage electrical loads. Read this entire document before unpacking, wiring, or mounting the KX-HUB16. Retain these instructions with the electrical panel documentation for this property.

WARNING — LICENSED ELECTRICIAN REQUIRED

Relay output wiring carries mains voltage (up to 250VAC, 10A per channel). Installation and wiring must be performed by a licensed electrician in accordance with local electrical code. De-energize and lock out the relevant circuit breaker before opening the panel or wiring any terminal.

WARNING — ELECTRICAL SAFETY

Never wire or unwire a relay terminal while the panel is energized. Verify with a meter that circuits are de-energized before touching any terminal. Do not exceed 10A @ 250VAC on any single relay output.

WARNING — ESD & HANDLING

The onboard controller and relay driver circuitry are static-sensitive. Ground yourself before handling the board or opening the enclosure.

WARNING — ENCLOSURE RATING

This unit is rated IP20 and must be installed inside a suitable electrical panel or enclosure — it is not rated for direct exposure to dust, moisture, or outdoor conditions. Operating range is -10°C to +55°C ambient.

2. Mounting

The KX-HUB16 clips onto a standard 35mm DIN rail inside an electrical panel or enclosure. No additional hardware is required beyond the rail itself.

2.1 Choosing a location

- Mount inside a code-compliant electrical panel or enclosure alongside existing breakers.
- Leave clearance on all sides for wiring bend radius and future servicing access.
- Position within Ethernet/PoE cable reach of a network switch, or plan for a PoE injector.
- Keep relay output wiring separated from low-voltage sensor/network wiring where local code requires it.
- Avoid locations subject to excessive vibration, moisture, or ambient temperatures outside -10°C to +55°C.

2.2 Mounting procedure

- Hook the top DIN-rail clip of the unit onto the rail.
- Press the bottom of the unit toward the rail until the spring clip engages with an audible click.
- Confirm the unit does not slide along the rail — add a rail end-stop if required by the panel layout.
- To remove, pull down on the release tab at the base of the clip and rotate the unit off the rail.

3. Wiring & Connections

Confirm the circuit is de-energized and locked out before wiring any terminal. The table below summarizes every terminal on the unit.

Terminal	Function	Wiring Notes
Ethernet / PoE (RJ45)	Network uplink + power (802.3af)	Cat5e or Cat6 patch cable
12V DC (screw terminal)	Alternate power input if PoE not used	18–22 AWG, from a regulated 12V supply
Relay outputs 1–16	Switched load output, dry contact	Per local electrical code; 10A @ 250VAC max per relay
Digital inputs 1–8	Dry-contact / low-voltage sensing	18–22 AWG signal wire
Sensor terminals	Temperature / humidity / contact sensors	Per sensor manufacturer's cable spec

3.1 Connection sequence

- With the circuit de-energized, wire each relay output to its intended load per the panel schematic.
- Wire any digital inputs and sensor terminals per their source device's documentation.
- Connect Ethernet/PoE (or 12V DC, if not using PoE) to power the unit.
- Re-energize the circuit and confirm the status LED indicates normal operation.
- Verify each relay output independently before closing the panel — see Section 7, Calibration.

4. Network Configuration

The KX-HUB16 requests an IP address automatically via DHCP. No manual network configuration is required for a standard installation.

4.1 Locating the device

- Check your network switch or router's connected-devices list for a device named "KX-HUB16" or similar, and note its IP address.
- The device also exposes a REST API and MQTT topics once connected — see the integration guide at automation.konceptux.com for endpoint details.
- For Home Assistant, the unit is discovered automatically via MQTT once the broker is configured.

4.2 Reserving a static IP (recommended)

For reliable long-term integration, reserve a static IP address for the unit in your network's DHCP settings using its MAC address (printed on the enclosure label).

4.3 MQTT / REST API setup

Enter your MQTT broker address, port, and credentials in the unit's configuration page (reached at its IP address in a browser). Once connected, relay and input entities publish automatically for Home Assistant discovery.

5. Dashboard Access & Integration

The KX-HUB16 has no display of its own — it is controlled through Home Assistant, a REST client, or any MQTT-aware automation platform.

5.1 Home Assistant integration

- Once MQTT is configured (Section 4.3), each relay and digital input appears automatically as an entity in Home Assistant.
- Add entities to your dashboard as switches (relays) and binary sensors (inputs) like any other Home Assistant device.
- Group entities by room or zone to build the control layout described on the project's dashboard.

5.2 Direct REST API access

For custom integrations, each relay and input is also available over the unit's REST API at its IP address. See automation.konceptux.com for the current endpoint reference.

6. Servicing & Maintenance

The KX-HUB16 is designed for unattended 24/7 operation inside a panel for years between service visits.

6.1 Routine maintenance

- No routine maintenance is required under normal operating conditions.
- During other panel work, visually confirm terminal screws remain torqued and wiring is undamaged.
- Firmware updates are delivered OTA — do not disconnect power during an update.

6.2 Relay replacement

Individual relay modules are field-replaceable (part no. KXHUB16-ACC-RLY). De-energize and lock out the circuit before servicing, remove the enclosure lid, and replace only the failed relay module — do not disturb adjacent wiring.

6.3 Troubleshooting

Symptom	Likely Cause	Action
No status LED	Power (PoE/12V) fault	Verify PoE switch port or 12V supply and wiring
Not reachable on network	Ethernet or DHCP issue	Reseat RJ45; check switch/router DHCP client list
Relay does not switch load	Wiring, blown relay, or overload	Verify wiring and load current vs. 10A/250VAC rating
Input not reporting in HA	MQTT not configured or discovery disabled	Recheck Section 4.3 MQTT configuration

7. Calibration

7.1 Relay output verification

Before closing the panel, verify each relay output independently switches its intended load and no other circuit.

- From Home Assistant or the REST API, toggle each relay output one at a time.
- Confirm the correct load responds and no unrelated circuit is affected.
- Label each relay channel in the panel schedule to match its assigned load.

7.2 Digital input verification

Trigger each connected digital input (e.g. a door contact or dry-contact switch) and confirm the corresponding state change is reported in Home Assistant within one second.

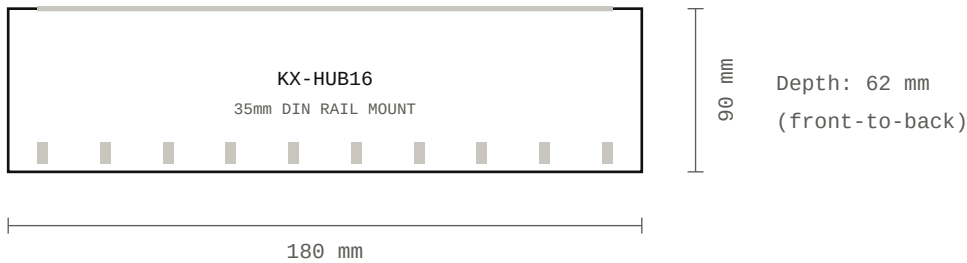
7.3 Sensor calibration

Temperature, humidity, and contact sensors are calibrated at the factory by their manufacturer. If a reading appears offset, apply a calibration adjustment in Home Assistant's entity settings rather than modifying the panel itself.

8. Specifications & Dimensions

Power Input	PoE (802.3af) or 12V DC — screw-terminal or RJ45 PoE
Network	10/100 Ethernet, PoE-powered
Relay Outputs	8–16 channels (configurable), electromechanical, dry contact
Max Load / Relay	10A @ 250VAC (resistive) — verify against local load type and code
Digital Inputs	8 channels, dry-contact / 0–24V DC
Sensor Inputs	Temperature / Humidity / Contact, screw-terminal
Communication	MQTT, REST API, Home Assistant native discovery
Installation	DIN Rail 35mm, inside electrical panel or enclosure
Enclosure	IP20 industrial ABS, DIN-rail mount, tool-free clip
Operating Temp.	-10°C to +55°C ambient
Firmware Updates	OTA (over-the-air), no physical access required
Local Storage	Onboard flash — no cloud connection required to operate

8.1 Enclosure dimensions



All dimensions in millimeters. Weight approx. 420g (8-zone) / 480g (16-zone), excluding wiring.