



## GENERAL

The PANTHER Controller has built-in communication capability, allowing it to be integrated into existent systems or into an open LONWORKS® network communicating with room/zone controllers or with 3<sup>rd</sup>-party products. It can also serve as a stand-alone controller. Typical areas of application include heating systems, district heating systems, and air conditioning plants for restaurants, shops, offices, and small branch government buildings.

The PANTHER Controller supports standard LonMark™ Network Variables according to the LonMark Interoperability Guidelines V.3.0. It can serve 22 (PANTHER MINIs: 13) integrated I/Os and supports peer-to-peer communication; thus, in the case of larger-scale applications, several different controllers can be linked and accessed. The system firmware is stored in Flash EPROM, located in the application module (a separate module plugged into the controller housing). Flash EPROM allows easy upgrading of the operating system via download.

The PANTHER Controller can be engineered with either of the following two application engineering tools: COACH or CARE. COACH permits the engineering of applications with a max. of approx. 128 LONMARK NVs. CARE permits the engineering of applications with a max. 46 LONMARK NVs.

## FEATURES

- **Various state-of-the-art communication options:** Open LONWORKS® bus or C-bus communication
- **Unique features in open LonWorks® networks:** NV-Booster® reduces the number of required NVs and thus also the number of required controllers; NV bindings can be restored after controller reset (and thus need not be redone after exchanging controllers); 46 (CARE) or approx. 128 (COACH) NVs supported for LONWORKS integration
- **Reduced engineering and start-up costs:** Huge variety of pre-tested and fully documented applications, application engineered with either COACH or CARE
- **Easy and flexible installation:** Screw terminals; mounting inside cabinet (DIN rail) or in cabinet front door
- **Hardware / software options:** With or without the COACH operator and service software; MMI (for buswide access to other controllers)

## DESCRIPTION

The PANTHER Controller is available in twelve versions, eight with and four without a Man-Machine-Interface (MMI). The MMI versions allow buswide access to other controllers. The COACH operator and service software can be used in conjunction with all twelve versions. The housing can be mounted inside a cabinet on a DIN-rail or in a cabinet front door. All changeable parts or switches are accessible without opening the housing.

## PANTHER Controllers

The six PANTHER Controllers (CLPA21LC02, CLPA21LC12, CLPA21LC22, CLPA21LM02, CLPA21LM12, CLPA21LM22,) have eight analog inputs, four analog outputs, four digital inputs (three of which can be used as totalizers), and six digital outputs. The digital outputs allow the direct drive of 3-position actuators (up to the max. load).

## PANTHER MINI Controllers

The six PANTHER MINI Controllers (CLPA13LC02, CLPA13LC12, CLPA13LC22, CLPA13LM02, CLPA13LM12, CLPA13LM22) have four analog inputs, two analog outputs, four digital inputs (three of which can be used as totalizers), and three digital outputs.

**NOTE:** In the case of the PANTHER MINI Controllers, the valve-actuator configuration option "floating-control actuator with two digital outputs" is not supported.

## OVERVIEW OF MODELS

The following table provides an overview of available models.

**Table 1. Overview of models**

features	models (order no.)											
	CLPA21LC02	CLPA21LC12	CLPA21LM02	CLPA21LM12	CLPA13LC02 (Mini)	CLPA13LC12 (Mini)	CLPA13LM02 (Mini)	CLPA13LM12 (Mini)	CLPA21LC22	CLPA21LM22	CLPA13LC22 (Mini)	CLPA13LM22 (Mini)
MMI	NO	YES	NO	YES	NO	YES	NO	YES	YES	YES	YES	YES
Cyrillic MMI	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
mounting in front door of wiring cabinet	NO	YES	NO	YES	NO	YES	NO	YES	YES	YES	YES	YES
mounting on DIN rail	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
app. mod. XD50B-FCL (= LONWORKS +C-Bus)	YES	YES	NO	NO	YES	YES	NO	NO	YES	NO	YES	NO
app. mod. XD50-FLS (= LONWORKS +M-Bus)	NO	NO	YES	YES	NO	NO	YES	YES	NO	YES	NO	YES
no. of analog outputs	4	4	4	4	2	2	2	2	4	4	2	2
no. of analog inputs	8	8	8	8	4	4	4	4	8	8	4	4
no. of digital outputs	6	6	6	6	3	3	3	3	6	6	3	3
no. of digital inputs	4	4	4	4	4	4	4	4	4	4	4	4

## SPECIFICATIONS

### Application Module

The PANTHER controllers are equipped with either an XD50B-FCL Application Module (type: C-Bus / LONWORKS Bus / Flash EPROM) or an XD50-FLS (type: M-Bus / LONWORKS / Flash EPROM). Both application modules feature 64 kB of EPROM (boot), 256 kB of RAM, and 2 MB of Flash EPROM (for the firmware and application).

The firmware can be upgraded via the serial port using COACH Online. The application can be downloaded using COACH.

### Mounting Options

- Front door mounted with sealing ring.
- Cabinet mounted on DIN-rail (rail clips included in delivery).

### Wiring

The controllers can be wired with screw terminal blocks directly at the housing. Pre-wiring is possible, and a controller can be replaced without rewiring.

### I/O Terminal Connection

Screw terminal blocks directly attached to housing.

## Inputs/Outputs

**Table 2. Input/output specifications**

type	characteristics
8 (MINI: 4) AI's (universal)	Voltage: 0...10 V (software-controlled switches for high impedance) Current: 0...20 mA (via external 499 Ω resistor) Resolution: 10-bit Sensor: NTC 20kΩ, -50...150 °C
4 DI's	Voltage: max. 24 Vdc (≤ 2.5 V = logical status of 0; ≥ 5 V = logical status of 1), 0...0.4 Hz (0...15 Hz for 3 of 4 inputs when used as totalizer, 4 <sup>th</sup> input only for static parameter requirements)
4 (MINI: 2) AO's (universal)	Voltage: 0...10 V, max. 11 V, ±1 mA Resolution: 8-bit Relay: via MCE3 or MCD3
6 (MINI: 3) DO's	Voltage: 24 Vac per triac Current: max. 0.8 A, 2.4 A for all triacs together

All inputs and outputs are protected against overvoltage up to 24 Vac and 35 Vdc. All digital outputs are protected against short circuits via a changeable fuse (built-in fuse, 5 x 20 mm, 4 A quick-blow).

## MMI

Those versions featuring a built-in Man-Machine Interface include a keypad (with eight function keys and four fast-access keys) and a display (with LCD, four lines, 16 characters per line, adjustable contrast, backlight).

## Bus and Port Connections

### C-Bus Connection

Optional; located on application module. Up to 76.8 Kbaud, switch provided for selectable termination.

### LONWORKS® Bus Connection

Optional; located on application module. 78 Kbaud, FTT-10A Free Topology Transceiver, using LonTalk® protocol.

### Controller Serial Port Connection

9-pin Sub-D connector, RS 232, 9.6 Kbaud connection of COACH.

### I/O Screw Terminal Block Connectors

Block A: 26-pin port, DO's and power.

Block B: 34-pin port, AI's, DI's, and AO's.

## Power Supply

### Voltage

24 Vac, ±20 %, 50/60 Hz from external transformer.

### Current

3 A (2 A if digital output current ≤ 1.5 A). In case of power failure, the super gold capacitor saves RAM content and real-time clock for 72 hours (thus, no problems disposing of dead batteries).

### Power Consumption

Max. 10 VA without load at digital outputs.

## Environmental Ratings

Operating temperature: 0...50 °C  
 Storage temperature: -20...+70 °C  
 Relative humidity: 5...93% non-condensing  
 Pollution degree: Class II

## Protection Standards

IP54 (when front-door mounted with MMI in a cabinet conforming to IP54 and use of ACC3 mounting clamps and sealing ring).

IP30 (when cabinet-mounted: both with and without MMI).

## Certifications

- CE
- Meets FCC Part 15, Subpart J for Class A equipment.

## Application Modules

### Housing

Plug-in plastic modules, fixed with screws.

### Application Module LEDs and Ports

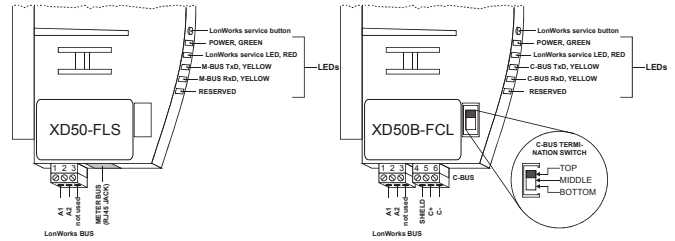


Fig. 1. Application modules

### Terminal Blocks

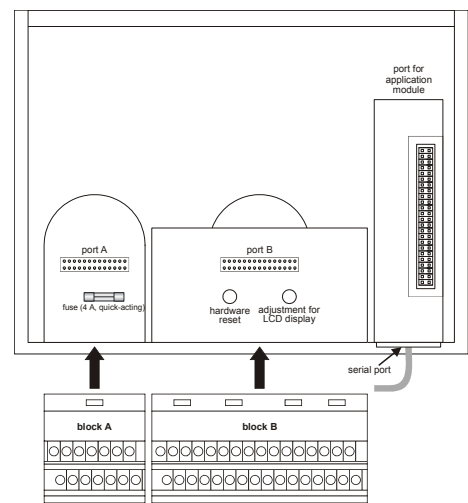


Fig. 2. PANTHER Controller housing (rear view)

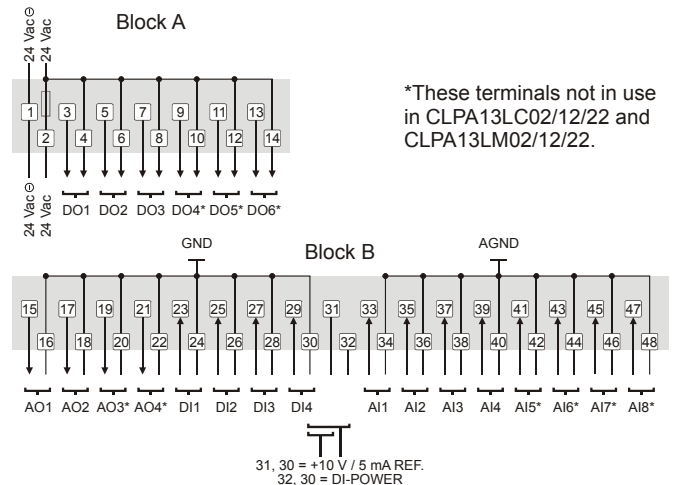


Fig. 3. Terminal assignment of screw terminal blocks

## Dimensions

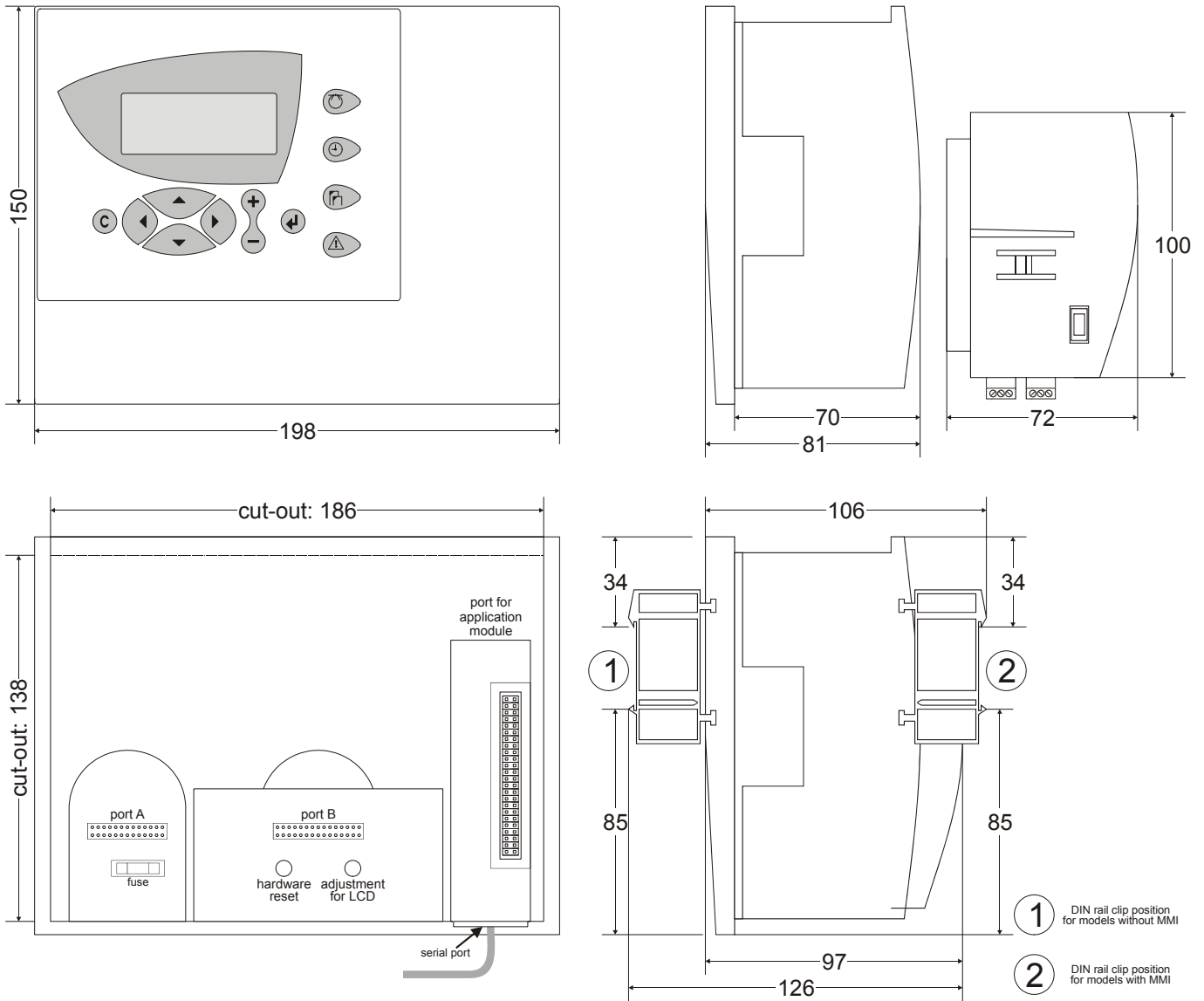


Fig. 4. Dimensions

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