LPAD-7

Datasheet #89069730

LPAD-7 Touch Panels for BACnet, EnOcean, LonMark, Modbus, Bluetooth, OPC XML / DA and OPC UA networks are ideally suited for visualization and operation in building automation. LPAD-7 Touch Panels can be used as room operator panels, network thermostats, room controller with integrated capacitive touch screen for single offices, conference rooms, hotel rooms, cabins on cruise ships and private homes. The L-PAD/L-VIS/L-WEB configurator can be used to customize the pages and create the page navigation. LPAD-7 touch panels run on a powerful quad core CPU with extremely low power consumption. The LPAD-7 is designed for the best possible security measures with regular firmware updates over many years' lifetime.

LPAD-7 impresses with its timeless design, harmonic integration into modern and historical architecture, and with its extremely user-friendly concept. The all view IPS display can be mounted horizontally or vertically. With its only 21 mm thickness it can be mounted on wall.

Integrated Sensor

The LPAD-7 offers a variety of built-in sensors to measure temperature, humidity, illuminance, and to detect presence. The IR receiver detects commands from an IR remote control. The proximity sensor turns on the back light of the display.

The integrated real-time clock is powered by a rechargeable capacitor and has a ten-day power-reserve.

Playback of Audio Files and Streams

The LPAD-7 integrated sound system plays MP3, WAV, and MP3 streams (for example web radio). The playback will be started or stopped by the respective action object. The action object is linked to one of the available audio files or to the URL of an MP3 stream.

Programming

Some LPAD-7 models can be programmed in IEC 61499 with the L-ROC room automation library or in IEC 61131-3 with the L-STUDIO building automation library. In this configuration the LPAD-7 can act as the room controller and user interface in one device. Wireless sensors and actuators in the room communicate via Bluetooth Mesh with the LPAD-7 room controller.

IoT Integration

The IoT function (Node.js) included in some LPAD-7 models allows connecting the system to almost any cloud service, either for uploading historical data to analytics services, telemetry using MQTT, delivering alarm messages to alarm processing services or operating parts of the control system over a cloud service (e.g., scheduling based on Web calendars or booking systems). Processing Internet information such as weather data in forecast-based control is also possible. Finally, the JavaScript kernel also allows implementing serial protocols to non-standard equipment in primary plant control.

Portrait mounting

Landscape mounting

LPAD-7

Communication

LPAD-7 communicates OPC XML/DA with L-ROC room controller and the LWEB-900 building management system.

LPAD-7 communicates with BACnet networks via BACnet/IP, BACnet/SC or BACnet MS/TP. BACnet enabled LPAD-7 Touch Panels implement the BACnet Building Controller (B-BC) profile and are BTL certified. They include a fully featured built-in BACnet/IP, BACnet/SC and MS/TP router with BBMD (BACnet Broadcast Management Device) and slave proxy functionality. For BACnet MS/TP communication, an LPAD-7 socket board with RS-485 interface is required.

LPAD-7 Touch Panels communicate with LonMark Systems via IP-852 (Ethernet/IP) or TP/FT-10 channels. An LPAD7-SOCKET2 or LPAD7-SOCKET2-B is required to enable any kind of LonMark communication on the LPAD-7.

LPAD-7 Touch Panels communicate Modbus either as Master or Slave. For this purpose, Modbus TCP is supported, and Modbus RTU/ASCII is available via the optional socket board with RS-485 interface (LPAD7-SOCKETx).

An EnOcean option allows integration of EnOcean sensor and actuator devices into the LPAD-7. This option requires the LPAD7-SOCKET3/LPAD7-SOCKET3-B or the LPAD7-SOCKET4/ LPAD7-SOCKET4-B product.

LPAD7-41G3 / LPAD7-41G4 provide SIP client support to integrate a camera feed and VoIP. This feature enables the LPAD7-41Gx to be used as part of a SIP based door entry intercom system. The SIP client feature is exclusive to LPAD7-41Gx.

Connectivity

LPAD-7 devices are equipped with two Ethernet ports. They can either be configured to use the internal switch to connect the two ports together or every port is configured to work in a separate IP network. The IP switch can also setup an Ethernet ring topology with the RSTP protocol to increase network reliability.

The built-in WiFi interface integrates LPAD-7 devices into an existing WLAN infrastructure.

The Bluetooth feature allows communication with Bluetooth enabled devices in a room.

Power Supply

LPAD-7 Touch Panels can be supplied with 24 V DC through a connector on the mainboard, PoE (IEEE 802.3af) through one of the Ethernet interfaces, or 24 V AC/DC through a power connector on the LPAD-7 socket board (except for LPAD7-SOCKET0).

Order Information

There are different versions of the LPAD-7 available. Please check the following tables for the various product features. Valid order numbers are:

LPAD7-30G3, LPAD7-31G3, LPAD7-41G3

LPAD7-30G4, LPAD7-31G4, LPAD7-41G4

Every LPAD-7 requires an LPAD7-SOCKETx product that must be ordered separately. Depending on the model these sockets may add communication interfaces and I/O terminals.

LPAD-7

Features

- High resolution IPS touch display with dimmable backlight
- Glass front and capacitive touch
- Portrait or landscape mounting
- Device configuration and graphical page creation with the L-PAD/L-VIS/L-WEB configuration tool free of charge
- Room controller for up to 2 room segments (LPAD7-31Gx and LPAD7-41Gx only)
- Supports all popular graphic file formats such as GIF, JPG, BMP, TIFF, APNG, PNG, MNG, ICO
- Support of SVG vector graphics
- Supports popular font types such as TrueType, Type-1, BDF, PCF, and OTF
- Supports Unicode text and complex writing systems
- Built-in WLAN
- Built-in Bluetooth
- Built-in OPC UA and OPC XML-DA server
- Built-in OPC XML-DA client
- Integration of EnOcean sensor and actuator devices
- Alarming, Scheduling, and Trending (AST™)
- Node.js support for easy IoT integration (e.g. Google calendar, MQTT, Alexa & friends, multimedia equipment,…)
- Event-driven e-mail notification
- Math objects to execute mathematical operations on data points
- IEC 61499 / 61131-3 programmable
- Compliant with CEA-709, CEA-852, and ISO/IEC 14908 Standard (LonMark System)
- Supports CEA-709 TP/FT-10 or IP-852 (Ethernet/IP)
- Compliant with ANSI/ASHRAE 135-2012 and ISO 16484-5:2012 standard
- Supports BACnet/IP, BACnet/SC and BACnet MS/TP
- BACnet Client Function (Write Property, Read Property, COV Subscription)
- BACnet Client Configuration with configuration tool (scan and EDE import)
- B-BC (BACnet Building Controller), BTL certified
- Integrated BACnet/IP, BACnet/SC to BACnet MS/TP Router
- BBMD (BACnet Broadcast Management Device)
- Modbus TCP and Modbus RTU/ASCII (Master or Slave)
- Integrated web server for device configuration and monitoring data points
- Access to network statistics
- Configurable via Ethernet/IP
- Playback of audio files and streams
- PoE Class 3 powered device (IEEE 802.3af)
- Dual Ethernet/IP interface (supporting IPv4 and IPv6)
- Integrated proximity sensor (TOF)
- Integrated temperature & humidity sensor
- Integrated illuminance sensor
- Integrated IR-sensor
- Integrated real-time clock (10-day power-reserve)
- Integrated microphone (only LPAD-41Gx)
- SIP client support to integrate a camera feed and VoIP (only LPAD-41Gx)
- Supports VPN

Specifications of the sensors

Temperature measurement	Range: +10 – 45 °C, resolution: 0.1 °C, accuracy: ±0.5 °C (5 – 60 °C)
Relative Humidity (R.H.)	Range: 20 % – 80 % R.H. resolution: 0.1 % R.H., accuracy: ±2 % R.H. @ 25 °C, 20 % – 80 % R.H.
Infrared receiver	NEC protocol (Apple Remote compatible)
Proximity	Time of flight proximity sensor to turn on backlight.
Illuminance measurement	0 – 4000 lux, resolution: 0.125 lux; automatic display backlight adjustment depending on the ambient light

LPAD-7 Programmable Touch Panel

LPAD-7

Specifications LPAD7-30Gx / LPAD7-31Gx / LPAD7-41Gx						
Type	 **LPAD7-30G3**	 **LPAD7-30G4**	 **LPAD7-31G3**	 **LPAD7-31G4**	 **LPAD7-41G3**	 **LPAD7-41G4**
	G3: white front, white enclosure; **G4:** black front, black enclosure					
Screen size	7" (178 mm)		7" (178 mm)		7" (178 mm)	
Dimensions (mm)	180 x 112.2 x 21 (L x W x H), DIM068		180 x 112.2 x 21 (L x W x H), DIM068		180 x 112.2 x 21 (L x W x H), DIM068	
Display resolution	1024 x 600, 16.7 million colors		1024 x 600, 16.7 million colors		1024 x 600, 16.7 million colors	
Interfaces	1 x Bluetooth Mesh 1 x WLAN (IEEE 802.11 b/g/n), 2 x Ethernet (100Base-T), switched or separated networks: (supporting IPv4 and IPv6): OPC UA (server) OPC XML-DA, HTTP, HTTPS, FTP, SSH, SMTP, NTP, VNC, VPN, LonMark IP-852*, LonMark TP/FT-10*, EnOcean*, Modbus TCP **Note: some features require LPAD7-SOCKET1, LPAD7-SOCKET2, LPAD7-SOCKET3, or LPAD7-SOCKET4*		1 x Bluetooth Mesh 1 x WLAN (IEEE 802.11 b/g/n), 2 x Ethernet (100Base-T), switched or separated networks: (supporting IPv4 and IPv6): OPC UA (server) OPC XML-DA, HTTP, HTTPS, FTP, SSH, SMTP, NTP, VNC, VPN, LonMark IP-852*, LonMark TP/FT-10*, EnOcean*, BACnet/IP, BACnet/SC, BACnet MS/TP*, Modbus TCP, Modbus RTU/ASCII* **Note: some features require LPAD7-SOCKET1, LPAD7-SOCKET2, LPAD7-SOCKET3, or LPAD7-SOCKET4*		1 x Bluetooth Mesh 1 x WLAN (IEEE 802.11 b/g/n), 2 x Ethernet (100Base-T), switched or separated networks: (supporting IPv4 and IPv6): OPC UA (server) OPC XML-DA, HTTP, HTTPS, FTP, SSH, SMTP, NTP, VNC, VPN, LonMark IP-852*, LonMark TP/FT-10*, EnOcean*, BACnet/IP, BACnet/SC, BACnet MS/TP*, Modbus TCP, Modbus RTU/ASCII* **Note: some features require LPAD7-SOCKET1, LPAD7-SOCKET2, LPAD7-SOCKET3, or LPAD7-SOCKET4*	
Bluetooth RF characteristics	Maximum output power: +4 dBm Frequency range: 2.402 - 2.480 GHz					
WLAN RF characteristics	Maximum output power: +15.1 dBm; Frequency range: 2.412 - 2.472 GHz					
Sensors	Proximity (TOF), Temperature & Humidity, Illuminance, IR receiver		Proximity (TOF), Temperature & Humidity, Illuminance, IR receiver		Proximity (TOF), Temperature & Humidity, Illuminance, IR receiver, Microphone	
Real-time clock	Powered by rechargeable capacitor, 10-day power reserve					
Power supply	PoE class 3, 24 V DC ±10 %, 3 W, backlight on: 6 W		PoE class 3, 24 V DC ±10 %, 3 W, backlight on: 6 W		PoE class 3, 24 V DC ±10 %, 3 W, backlight on: 6 W	
Operating conditions	+10 °C to +45 °C, 10-90 % RH, noncondensing		+10 °C to +45 °C, 10-90 % RH, noncondensing		+10 °C to +45 °C, 10-90 % RH, noncondensing	
Storage conditions	-20 °C to + 70 °C		-20 °C to + 70 °C		-20 °C to + 70 °C	
Degree of protection	IP20		IP20		IP20	
Tools	L-PAD/L-VIS/L-WEB Configurator, LWEB-900, L-STUDIO		L-PAD/L-VIS/L-WEB Configurator, LWEB-900, L-STUDIO		L-PAD/L-VIS/L-WEB Configurator, LWEB-900, L-STUDIO	
Programming	-		Node.js, Node-RED, L-STUDIO (IEC 61499/IEC 61131-3)		Node.js, Node-RED, L-STUDIO (IEC 61499/IEC 61131-3)	
BTL certification	-		BTL certified		BTL certified	
Max. number of Rooms/ Segments	-		2		2	

Specifications LPAD7-SOCKETx

Type	 LPAD7-SOCKET0	 LPAD7-SOCKET1	 LPAD7-SOCKET2	 LPAD7-SOCKET3	 LPAD7-SOCKET4	 LPAD7-SOCKET5
	 LPAD7-SOCKET0-B	 LPAD7-SOCKET1-B	 LPAD7-SOCKET2-B	 LPAD7-SOCKET3-B	 LPAD7-SOCKET4-B	 LPAD7-SOCKET5-B
General	Mounting socket, DIM069,	Mounting socket, DIM069, 24 V AC/DC input	Mounting socket, DIM069, 24 V AC/DC input	Mounting socket, DIM069, 24 V AC/DC input	Mounting socket, DIM069, 24 V AC/DC input	Mounting socket, DIM069, 24 V AC/DC input
Interfaces	-	6 x Relay 2A, 24 V, 7 x Universal I/O (IO), 1 x RS-485	1 x LonMark TP/FT-10, IP-852, 1 x RS-485, 3 x digital input (dry contact, not protected against overvoltage)	1 x EnOcean 868 MHz, 1 x RS-485, 3 x digital input (dry contact, not protected against overvoltage)	1 x EnOcean 902 MHz, 1 x RS-485, 3 x digital input (dry contact, not protected against overvoltage)	-
EnOcean Alliance certification	-	-	-	EnOcean Alliance certified	EnOcean Alliance certified	-
EnOcean RF characteristics	-	-	-	Frequency: 868.3 MHz, Maximum output power: + 3 dBm	Frequency: 902.875 MHz, Maximum output power: + 1dBm	-

Resource limits

OPC data points	10 000	BACnet scheduler objects	200 (64 data points per object)
Modbus data points	2 000	BACnet notification classes	32
VNC clients	16	E-mail templates	100
Network variables (NVs)	1 000	Math objects	2 000
Alias NVs	1 000	Alarm logs	100
Address table entries	524 (non-ECS mode: 15)	Trend logs	512 (4 000 000 entries, ≈ 60 MB)
LonMark Calendars	1 (100 calendar patterns)	Total trended data points	512
LonMark Schedulers	200	Connections (Local/Global)	2 000/250
LonMark Alarm Servers	1	Number of L-WEB clients	32 (simultaneously)
BACnet server objects	1 000	EnOcean devices	10
BACnet calendar objects	25	EnOcean data points	100
Bluetooth datapoints	3 000	Bluetooth functional objects*	100

*A Bluetooth functional object is a typical sensor or actuator function within a Bluetooth device, like a sensor value, a luminaire, or an I/O terminal.

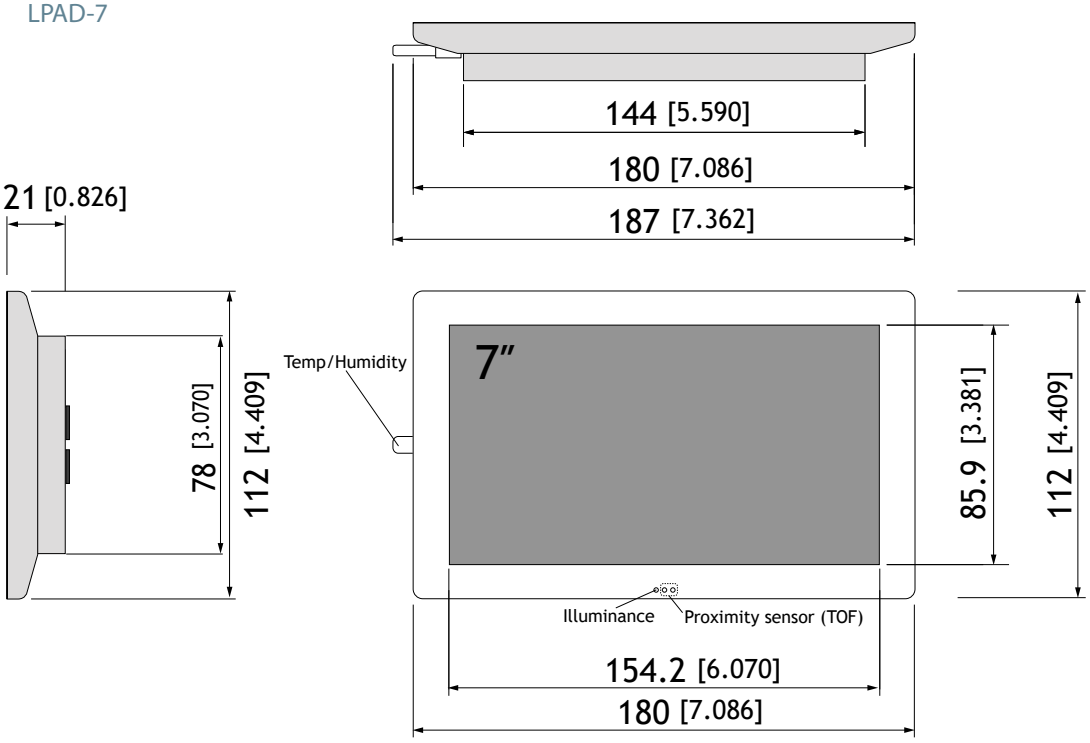
LPAD-7

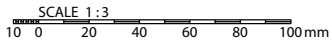
Order number	Product description
LPAD7-30G3	Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, white front, white enclosure
LPAD7-30G4	Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, black front, black enclosure
LPAD7-31G3	Programmable Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, BACnet, 61499, white front, white enclosure
LPAD7-31G4	Programmable Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, BACnet, 61499, black front, black enclosure
LPAD7-41G3	Programmable Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, BACnet, 61499, microphone, SIP client, white front, white enclosure
LPAD7-41G4	Programmable Touch Panel, 7", Dual Ethernet, WLAN, Bluetooth, proximity sensor, temperature and humidity sensor, illuminance sensor, IR receiver, BACnet, 61499, microphone, SIP client, black front, black enclosure
LPAD7-SOCKET0	Mounting Socket, white
LPAD7-SOCKET1	Mounting Socket, 24 V AC/DC input, 6 x Relay 2A, 24 V, 7 x Universal I/O (IO), 1 x RS-485 interface, white
LPAD7-SOCKET2	Mounting Socket, 24 V AC/DC input, 1 x LonMark TP/FT-10 interface, 1 x RS-485 interface, 3 x digital input, white
LPAD7-SOCKET3	Mounting Socket, 24 V AC/DC input, 1 x EnOcean 868 MHz, 1 x RS-485 interface, 3 x digital input, white
LPAD7-SOCKET4	Mounting Socket, 24 V AC/DC input, 1 x EnOcean 902 MHz, 1 x RS-485 interface, 3 x digital input, white
LPAD7-SOCKET5	Mounting Socket, 24 V AC/ DC input, white
LPAD7-SOCKET0-B	Mounting Socket, black
LPAD7-SOCKET1-B	Mounting Socket, 24 V AC/DC input, 6 x Relay 2A, 24 V, 7 x Universal I/O (IO), 1 x RS-485 interface, black
LPAD7-SOCKET2-B	Mounting Socket, 24 V AC/DC input, 1 x LonMark TP/FT-10 interface, 1 x RS-485 interface, 3 x digital input, black
LPAD7-SOCKET3-B	Mounting Socket, 24 V AC/DC input, 1 x EnOcean 868 MHz, 1 x RS-485 interface, 3 x digital input, black
LPAD7-SOCKET4-B	Mounting Socket, 24 V AC/DC input, 1 x EnOcean 902 MHz, 1 x RS-485 interface, 3 x digital input, black
LPAD7-SOCKET5-B	Mounting Socket, 24 V AC/ DC input, black
LOYBT-TEMP2	Bluetooth Mesh temperature and vibration sensor (5 pieces per package)
LOYCAB-ETH10	RJ45 cable (length 10cm, for use with LPAD-7, 10 pieces per package)
LPAD7-STAND1	Demo Stand for LPAD-7
L-STUDIO	Development and integration platform for programmable LOYTEC controllers
LTRAIN-LSTUDIO	L-STUDIO Training (3 days)
LTRAIN-GRAPHICS	Graphical Design Training for L-PAD, L-VIS and L-WEB (2 days)
LOYTRAIN-LROC-O	Learn how to install, commission and parameterize L-ROC devices in an L-ROC projects (online training, free of charge)
LOYTRAIN-LROC-C	Class training - Learn how to implement L-ROC projects including project planning, programming and installation of all devices (3 days)

Dimensions of the devices in mm and [inch]

DIM068

LPAD-7





DIM069

LPAD7-SOCKET0
LPAD7-SOCKET1
LPAD7-SOCKET2
LPAD7-SOCKET3
LPAD7-SOCKET4
LPAD7-SOCKET5
LPAD7-SOCKET0-B
LPAD7-SOCKET1-B
LPAD7-SOCKET2-B
LPAD7-SOCKET3-B
LPAD7-SOCKET4-B
LPAD7-SOCKET5-B