

# LT-LPITE-402GBTME

Industrial switch with management and PoE++

- DIN rail mounting
- Copper ports: 4 x 10/100/1000Tx, RJ45, PoE802.3bt
- Fibre ports: 2 x 100/1000 Mbps SFP
- Layer 3 static routing
- Manageable, ring-capable
- Power supply 48-55VDC, redundant



This industrial layer 2/3 switch with L3 functions was specially developed for applications with high data loads, e.g. video over IP, video streaming also in connection with multicast. Thanks to PoE++ with up to 90W per port, IP cameras with high power requirements can be supplied via the data cable. The robust construction, the wide operating temperature range, the compact design and the reduced number of ports make this switch ideal for outdoor use. With the extensive management options, even complex network requirements can be met.

## Video network special features

### Video-friendly features

Extra high backplane performance for a smooth video transmission with all ports assigned. Support of Jumbo Frames up to 9600Bytes by 100MBit/s.

### Active monitoring of the camera

Switch-powered cameras by PoE are constantly monitored. In case of a camera failure the switch automatically restarts the camera. If this is not possible the switch alarms by SNMP.

### Active monitoring PoE-supply

The switch alarms by SNMP in case of sudden excessive power consumption by a defect camera for example.

### Active management of the PoE-performance

The PoE-ports can be started by time intervals so as to prevent an overload of the PoE power supplies.



## Technical data

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### General properties

supply voltage	48-55VDC, redundante Speisung möglich, Schraubklemme
power consumption	Max. 11W (ohne PoE)
MTBF	
operating temperature	-40°C bis +75°C
dissipation loss	Operating without PoE: 38BTU/h Operating with PoE max.: 124BTU/h
dimensions	110x65x90mm (HxBxL)
weight	1,0kg
Testing standards	<b>EMI</b> FCC Part 15 Subpart B Class A, CE EN55032/EN61000-6-4 Class A  <b>EMS</b> CE EN55035/EN61000-6-2 Class A: IEC61000-4-2 (ESD) IEC61000-4-3 (RS) IEC61000-4-4 (EFT) IEC61000-4-5 (Surge) IEC61000-4-6 (CS) IEC61000-4-8 (Magnetic Field)  <b>Freier Fall</b> IEC60068-2-32  <b>Schock</b> IEC60068-2-27  <b>Vibration</b> IEC60068-2-6



## interfaces

copper ports	4 x 10/100/1000TX, PoE+ 802.3af/at/bt Maximum PoE power across all ports 360W
optical fibre ports	2 x 100/1000, SFP (For copper SFPs use types AC-SFP-xxx).  We recommend the use of our barox SFPs. We do not test or guarantee the compatibility of our devices with SFPs of other makes.
console port	CLI console: RS232, 115.2kBit/s, 8, N, 1, mini USB-B USB config port: For FW update, backup, restore, USB-A 2.0



## network properties

management	IPv4/IPv6 SNMP v1/v2c/v3, LLDP, LLDP-MED, HTTP, HTTPS SSHv2, telnet DHCP client, DHCPv6 client, DHCP server Port Mirror DNS client/proxy IP based Access Filter ICMPv6 syslog Time Zone /Daylight Saving, NTP client RMON sFlow Loop detection Console Port USB configuration backup/restore Power lost warning relay trigger
backplane	12 GBit/s
MAC-table	8k
configuration	Web GUI, SNMPv1, v2c and v3, Console, Telnet, SSHv2, RMON Individual management accesses can be disabled, IP source guard, ARP Inspection
PoE Management	<b>Port configuration</b> Supports PoE configuration function per port.  <b>PoE scheduling</b> Supports per-port PoE scheduling to turn PoE devices (PDs) on/off.  <b>Automatic check</b> Check the connection status of the PDs. Restart the PDs if there are no responses.  <b>Power delay</b> The PoE ports can be turned on with a time delay to protect the switch from overload.
port settings	Port disable/enable Autonegotiation 10/100/1000Mbps Flow Control disable/enable Data rate control on each port max. Framesize Power Control
port status	Display per port: speed, link status, flow control status, autonegotiation status, trunk status



layer3 functions	IPv4 and IPv6 Unicast: static routing max 82 routes.
communications redundancy	Standard Spanning Tree (STP), IEEE802.1d Rapid Spanning Tree (RSTP), IEEE802.w Multiple Spanning Tree (MSTP), IEEE802.1s Ethernet Linear Protection Switching (ELPS), ITU-T G.8031 Ethernet Ring Protection Switching, (ERPS), ITU-T G.8032
VLAN	<p><b>Tag-based VLAN according to 802.1Q</b> Supports up to 4K VLANs simultaneously (out of 4096 VLAN IDs)</p> <p><b>Port-based VLAN</b> A port member of a VLAN can be isolated to other isolated ports of the same VLAN and private VLANs.</p> <p><b>Private VLAN Edge (PVE)</b> Private VLANs are based on the source port mask and there are no connections to VLANs. This means that VLAN IDs and private VLAN IDs can be identical.</p> <p><b>Voice VLAN</b> The Voice VLAN function allows voice traffic to be forwarded on the Voice VLAN.</p> <p><b>Guest VLAN</b> The IEEE 802.1X Guest VLAN feature allows a guest VLAN to be configured for each 802.1X port on the device to provide restricted services to non-802.1X compliant clients.</p> <p><b>Q-in-Q (double tag) VLAN</b> This allows specific requirements to be set for VLAN IDs and the number of VLANs to be supported.</p> <p><b>802.1q protocol VLAN</b> Classifying multiple protocols into a single VLAN often forces VLAN boundaries that are unsuitable for some of the protocols. This requires the presence of a non-standard entity that forwards frames containing the protocols for which the VLAN boundaries are unsuitable between VLANs.</p> <p><b>MAC-based VLAN</b> The MAC-based VLAN feature allows incoming untagged packets to be assigned to a VLAN, classifying traffic based on the source MAC address of the packet.</p> <p><b>IP subnet-based VLAN</b> In an IP subnet-based VLAN, all end workstations in an IP subnet are assigned to the same VLAN. In this VLAN, users can move their workstations without having to reconfigure their network addresses.</p> <p><b>Management VLAN</b> Management VLAN is used to manage the switch from a remote location using protocols such as Telnet, SSH, SNMP, Syslog, etc.</p>
link aggregation	IEEE 802.3ad LACP / Static Trunk, supports five groups of 16-port trunks or static trunk.



## QoS

### QoS classification

Port-based: Traffic QoS by port.

802.1p: VLAN priority based Layer 2 CoS QoS class of service is a parameter used in data and voice protocols to distinguish the types of payloads contained in the transmitted packet.

DSCP-based Differentiated Services (DiffServ) Layer 3 DSCP QoS: IP packets can carry either an IP Priority Value (IPP) or a Differentiated Services Code Point (DSCP) value. QoS supports the use of both values, as DSCP values are backward compatible with IP priority values.

Classification and re-marking of TCP/IP ACLs: QoS through ACL

### Rate-Limiting

Ingress policing

Egress shaping and speed control per port

### Scheduling

Strict Priority and Weighted Round Robin (WRR): Weighted Round Robin is a scheduling algorithm that uses the weights assigned to queues to determine how much data is emptied from a queue before it is moved to the next queue.



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## security

### **Certified authentication**

A private HTTPS key can be stored for management access.

### **User administration**

User rights can be freely set in up to 15 levels.

### **ACL**

The switch allows up to 512 entries. Drop or rate restriction based on source/destination MAC/IP address or VLAN ID. Rules and conditions for incoming packets can be set per port. The rules include protocols, IP ports and address ranges. Rules can be set using either the authorisation or exclusion method. Criteria are: TCP/ UDP source and destination ports, 802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packet.

### **Port Security**

MAC address management per port and IP source guard: The MAC address can be checked in combination with the IP address.

### **Storm Control**

Prevents traffic on a LAN from being disrupted by a broadcast, multicast or unicast flood on a port.

### **RADIUS Authentication, 802.1X**

Authorisation and accounting, MD5 hash, guest VLAN, single/multiple host mode and single/multiple sessions.

Supports IGMP-RADIUS based 802.1X

Dynamic VLAN assignment

### **TACACS+ authentication**

The switch supports TACACS+ authentication. Switch as a client.

### **Secure Shell (SSH)**

SSH secures Telnet traffic into or out of the switch, SSH v1 and v2 are supported.

### **Secure Socket Layer (SSL)**

SSL encrypts HTTP traffic, providing advanced secure access to the browser-based management GUI in the switch.

### **HTTPS & SSL (Secured Web)**

Hyper Text Transfer Protocol Secure (HTTPS) is the secure version of HTTP.

### **BPDU Guard**

The BPDU Guard, an extension of STP, removes a node that reflects BPDUs back into the network. It enforces the boundaries of the STP domain and keeps the active topology predictable by not allowing network devices behind a BPDU Guard-enabled port to participate in STP.

### **DHCP Snooping**

With DHCP Snooping, the switch has a feature that acts as a firewall between untrusted



hosts and trusted DHCP servers.

### **Loop Protection**

Loop Protection prevents unknown unicast, broadcast and multicast loops in Layer 2 switching configurations.





## multicast

### IGMP v1/v2/v3 Snooping

IGMP restricts bandwidth-intensive multicast traffic to requesters. Supports 1024 multicast groups.

### IGMP Querier

IGMP Querier is used to support a Layer 2 multicast domain of snooping switches when no multicast router is available.

### IGMP Proxy

IGMP Snooping with proxy reporting or report suppression actively filters IGMP packets to reduce the load on the multicast router.

### MLD v1/v2 Snooping

Delivers IPv6 multicast packets only to the required receivers.

### Multicast VLAN Registration (MVR)

A dedicated, manually configured VLAN, called the Multicast VLAN, to forward multicast traffic over a Layer 2 network in conjunction with IGMP Snooping.

## standards

IEEE 802.3 10Base-T  
IEEE 802.3u 100Base-TX/100BASE-FX  
IEEE 802.3z Gigabit SX/LX  
IEEE 802.3ab Gigabit 1000T  
IEEE 802.3x Flow Control and Back pressure  
IEEE 802.3ad Port trunk with LACP  
IEEE 802.1d Spanning tree protocol  
IEEE 802.1w Rapid spanning tree protocol  
IEEE 802.1s Multiple spanning tree protocol  
IEEE 802.1p Class of service  
IEEE 802.1Q VLAN Tagging  
IEEE 802.1x Port Authentication Network Control  
IEEE 802.1ab LLDP  
IEEE 802.3af/at Power over Ethernet  
IEEE 802.az Energy Efficient Ethernet  
IEEE 1588v2 PTP Precision Time Protocol  
IEEE 802.3af/at Power over Ethernet  
IEEE 802.3bt compliant PoE, 90W/port  
IEEE 802.3x flow control, back pressure flow control

## Product variants

**LT-LPITE-402GBTME**

without SFPs, without power supply



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