

## Lantech IPES-5416T-8-X (IP67)

16 10/100TX + 4 10/100/1000T X-coded L2+ 8 PoE at/af Industrial Managed Switch w/ enhanced G.8032 Ring & PTP

EN50155/61373/45545-2 certified

IEEE802.3at/af up to 30W per port; PoE management incl. detection and scheduling

Optional 12V input boost to 48V output for IEEE802.3at/af max.80W

Optional 72V input steps down to 48V output for IEEE 802.3at/af max.80W

Optional 110V input to 48V output for IEEE 802.3at/af max.80W

Optional HV input to 48V output for IEEE802.3at/af max.80W

Enhanced G.8032 ring protection < 20ms with easy configuration; Train ring for dynamic coupling ring; Aggregation ring

Support PTPv2 <1us, relay contact & environmental monitoring

Miss-wiring avoidance; Repowered auto ring restore (node failure protection)

IP67 housing; User friendly UI, including auto topology drawing; Complete CLI

N-key configurator for upgrading, auto/editable configuration back up and restoration without computer

Support LACP link aggregation, IGMP v3/router port, DHCP server & DHCP Option82 for Port&VLAN based DHCP distribution, Mac based DHCP server, QoS by VLAN, SSH/SSL, TACAS+\*, ACL, IPv6, SMS

Lantech IPES-5416T-8-X (IP67) is a high performance L2+ (Gigabit uplink) switch with 16 10/100TX(d-coded) + 4 10/100/1000T(x-coded) w/8 PoE 802.3af/at Injectors by M12 provides L2 wire speed and advanced security function for network aggregation deployment. It delivers ITU G.8032 enhanced ring recovery less than 20ms including train coupling ring , enhanced mode for easy configuration and aggregation ring, comprehensive QoS, QoS by VLAN, advanced security including ACL L2/L3, SSH/SSL, Mac based DHCP server, DHCP Option 82, DHCP server, IGMPv1/v2/v3/router port, QinQ (double tag VLAN) which are important features required in train and large network. It also supports Cisco Discovery Protocol (CDP) and LLDP for Ciscoworks to detect the switch info and show on L2 map topology.

Lantech IPES-5416T-8-X (IP67) features hardware-based PTP IEEE1588 v2 function which can allow 4 10/100/1000T uplinks to synchronize the network with precise accuracy (under 1μs).

Lantech IPES-5416T-8-X (IP67) supports IEEE802.3at/af standard which can feed HI-power up to 30W at each PoE port for big power consumption devices like PTZ IP camera, High power wireless AP etc. The advanced PoE management includes PoE detection and scheduling besides the regular PoE per port status. PoE detection can detect if the connected PD is hang up then restart the PD; PoE scheduling is to allow pre-set power feeding schedule upon routine time table. Per port PoE status can remotely On/Off the power and display information of voltage, current, watt and PoE temperature.

The Lantech IPES-5416T-8-X (IP67) series is designed with various dual power input at 12/24/48VDC input (12V model), 72V input to feed 48V PoE (72V model). The 110V model can accept one 110V or

optional two 110V to feed 48V POE and feed PoE power 48V at PoE budget max 80W. Featured with relay contact alarm function, the IPES-5416T-8-X (IP67) is able to connect with alarm system in case of power failure or port disconnection events. The IPES-5416T-8-X (IP67) also provides  $\pm 2000V$  EFT and  $\pm 6000V$  ESD protection, which can reduce unstable situation caused by power line and Ethernet.

The IPES-5416T-8-X (IP67) also embedded several features for stronger and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by mis-wiring, Lantech IPES-5416T-8-X (IP67) is able to alert with the LED indicator and send out an email, traps or a SMS text. Repowered auto ring restore function (node failure protection) ensures the switches in a ring to survive after power breakout is back. The status can be shown in NMS when each switch is back. This feature prevents the broken ring and keep ring alive without any re-configuration needed. Loop protection is also available to prevent the generation of broadcast storm when a dumb switch is inserted in a closed loop connection.

DHCP option 82 and relay agent function (port&vlan based DHCP distribution) can offer the same IP address on port base or vlan base where there is need to replace the new device connecting to Lantech switches to avoid any network disruption. The built-in DHCP Option 82 server offers the convenience of police setting on the switch. Mac based DHCP server function assigns an IP address according to its MAC address to include dumb switches in DHCP network.

Lantech InstaConfig software provides easy configuration for mass deployment. The configuration file can also be exported in text file so that it can be edited and configured back to switch with ease for mass deployment. The built-in watchdog design can automatically reboot the switch when cpu is found dead.

The user friendly UI, innovative auto topology drawing and topology demo makes IPES-5416T-8-X (IP67) much easier to get hands-on. The switch also equips the RTC (real time clock) which can keep track of time always. The complete CLI enables professional engineer to configure setting by command line.

Lantech IPES-5416T-8-X (IP67) features enhanced G.8032 ring which can be self-healed in less than 20ms for ring/chain topologies which covers dynamic coupling ring & aggregation ring protection. The innovative auto-Ring configurator (auto mode) can calculate owner and neighbor in one step. The enhanced mode and train mode ring configuration have never been easier. It supports MSTP that allows RSTP over Vlan for redundant links. The ITU G.8032 Ring and RSTP can be co-existed in the same switch with different ports for the most flexible protection.

The configuration file of Lantech IPES-5416T-8-X (IP67) can be exported in text file so that it can be edited and configured back to switch with ease for mass deployment. The optional N-key configurator offers firmware upgrade, auto/editable configuration back up and restoration without computer by adjusting the DIP switch.

QoS by VLAN can allow switch to tag QoS by VLAN regardless the devices acknowledge QoS or not in which greatly enhance the bandwidth management in a network.

In case of event alarm, the IPES-5416T-8-X (IP67) will immediately send an email & SMS text message to pre-defined addresses as well as SNMP Traps out. It provides 1DI and 1DO while disconnection of the specific port was detected; DO will activate the signal LED to alarm. DI can integrate the sensors

for events and DO will trigger the alarm while sending alert information to IP network with email and traps.

The built-in environmental monitoring can detect switch overall temperature, voltage and current where can send the SNMP traps, email and SMS alert when abnormal.

The IPES-5416T-8-X (IP67) is designed to meet with critical network environment with IP67 aluminum enclosure and M12 connectors for water proof. It passed serious tests under extensive Industrial EMI and Safety standards. With EN45545-2 Fire & Smoke, and EN50155 certification, the IPES-5416T-8-X (IP67) is best for railway and vehicle applications. For more usage flexibilities, IPES-5416T-8-X (IP67) supports wide operating temperature from -40°C to 75°C.

The optional bypass relay is set to bypass the switch to the next one in 4ms when power is off in order to protect the network from crashing. Lantech bypass caters to remain in bypass mode until the switch is completely booting up when power is back to avoid another network lost. The bypass is also activated when detecting the CPU watchdog is ON.

