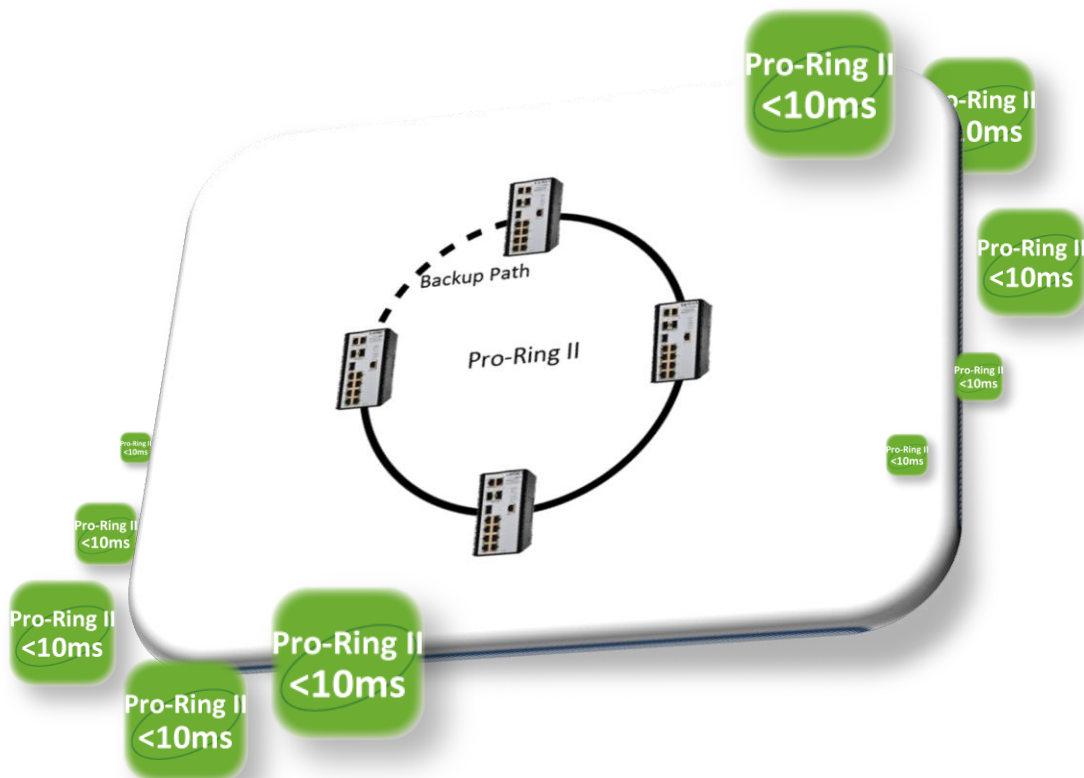


White Paper

Pro Ring System



Pro Ring II series New Release

IPES-2208C

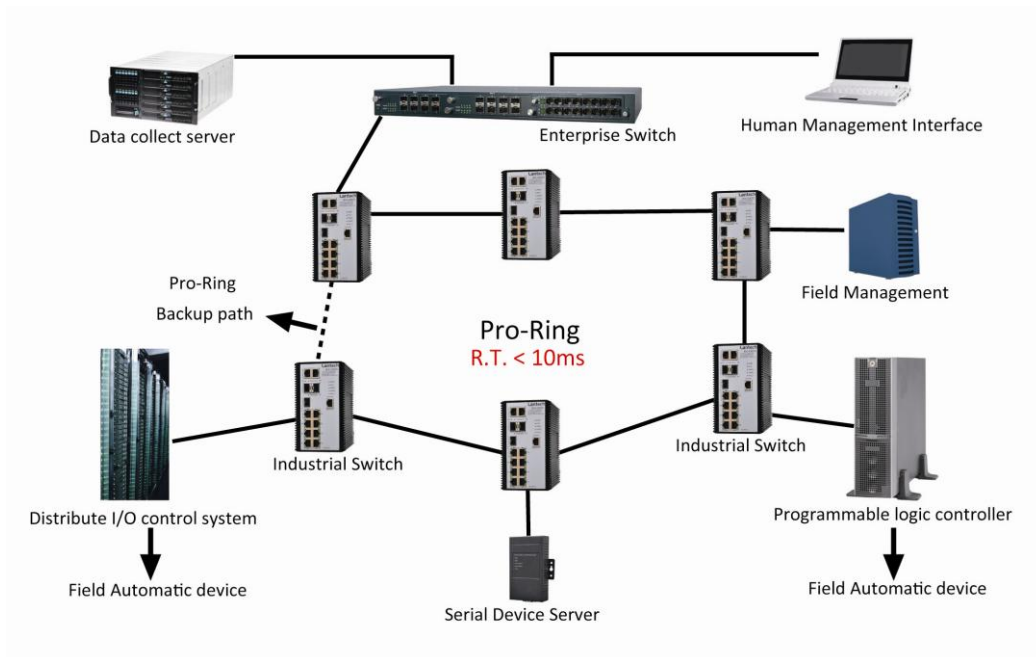
IES-2307C



What is Pro Ring System?

For Ethernet, network redundancy means a network hardware link down or disconnection cable will not interrupt communications. Also, to achieve network redundancy, one must use a managed switch, since advanced traffic management is required to prevent "looping" of data packets. Where an interruption of a few seconds is acceptable in the office, it's an eternity for most manufacturing environments or other mission-critical networks. A communication gap of a few seconds or more could cause loss of critical data or worse yet -- system shutdown. Common enterprise technologies like Rapid Spanning Tree Protocol (RSTP) generally take between 2 to 10 seconds to recover after a fault, and older technologies like Spanning Tree Protocol (STP) could take even longer -- 30 to 60 seconds.

Pro-Ring system is a proprietary protocol, for applications where a ring architecture is desired (most manufacturing or other mission-critical projects) that uses a pulling scheme to detect whenever a cable break or link fault occurs, it will automatically find a backup path in under 10 milliseconds for networks of up to 250 Lantech switches. As a result, Pro-Ring system is very important in applications where downtime is expensive. In addition, Lantech new Pro-Ring II system eliminates the need to manually set ring master and evolves comprehensive redundant ring architectures.



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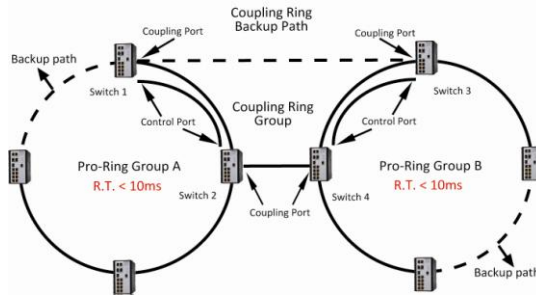
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Pro-Ring I System

In applications, Pro Ring I system including Couple Ring, Central Ring, Dual Homing.

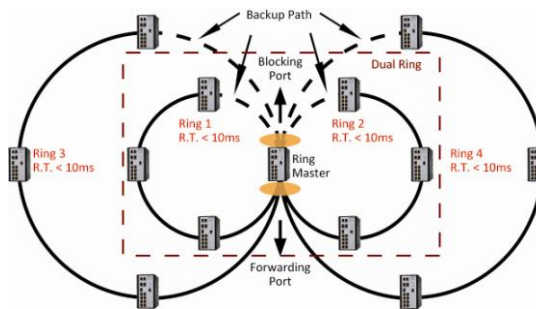
Coupling Ring Application

Couple Ring is designed for the Network redundancy between two Rings.



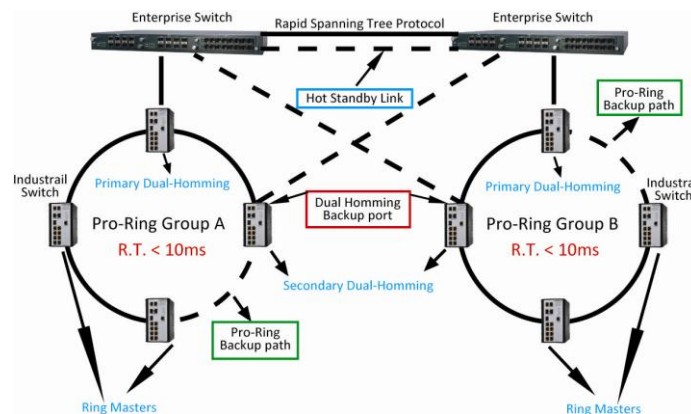
Central / Dual Ring Application

Central Ring can ring together 4 ring in which one managed switch could be the ring master, while Dual Ring is structured within two rings by one ring master.



Dual Homing Application

Dual Homing is to have back up path when the ring is connected to upper switch that is from third-party by RSTP algorithm to be recovered in 5 seconds.



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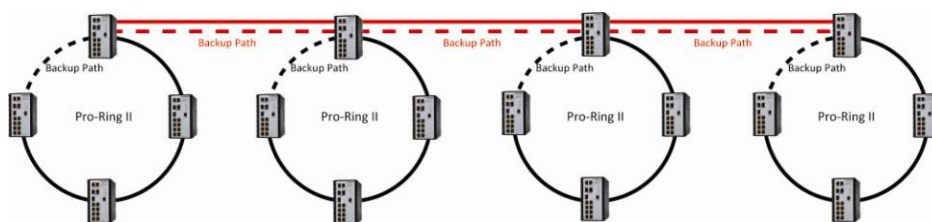
Pro Ring II System

Pro-Ring II is a new Ring mechanism for Lantech Industrial Switches in which it eliminates the need to pre-set the Master switch in old Pro-Ring and yet to protect the network by much secure topologies than ever. Pro-Ring II works as a Ring Chain to reduce the risk of master switch linking down whereas the setup becomes much easier. Pro-Ring II can be backward compatible with old Pro-Ring by down-grading the Ring scheme to old one.

Nowadays Pro Ring II is more advance than old Pro Ring I system in applications, which including Daisy-Couple Ring, Multi-Couple ring, Advanced Dual Ring, *Key Ring and *Multi-Key Ring.

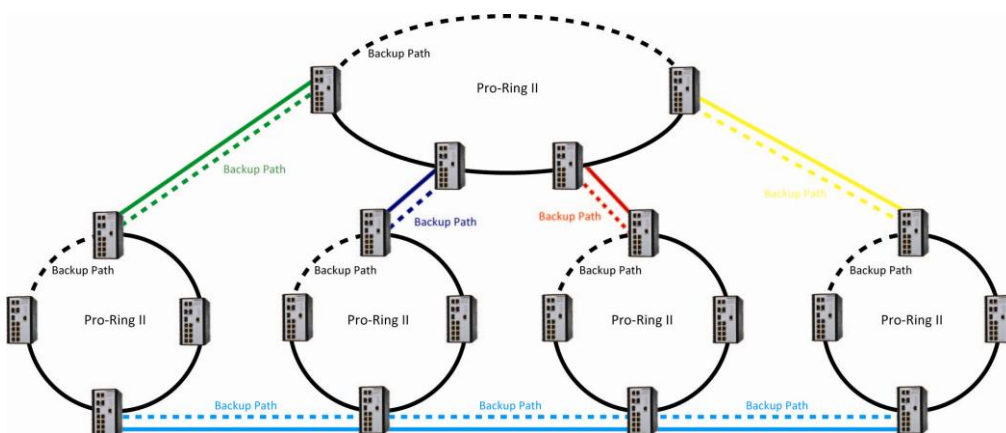
Daisy-Couple Ring

For larger and single LAN group, Daisy-Couple Ring could achieve self-recovery time in less than 10ms in which the ring group will choose automatically for Master switch, detect loop and form path recovery architecture.



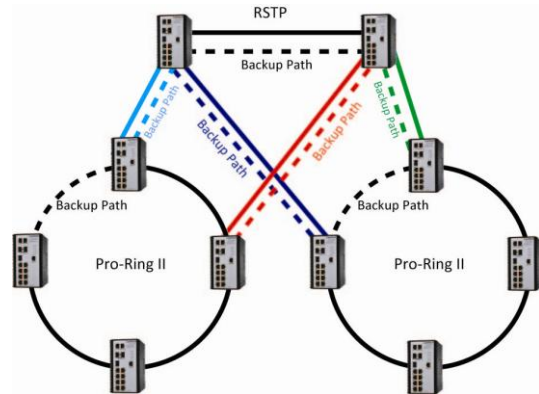
Multi-Couple Ring

For multiple ring groups, it helps to structure ring activities among different LANs. Each ring group has more than 3 redundant paths for backup.



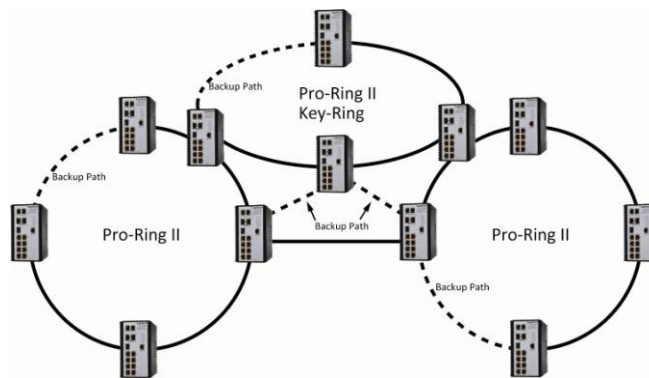
Advanced Dual Homing

When the ring group is connected to upper switch by RSTP algorithm, it strengthens the uplink connection with its own redundant path which double secures the link than of traditional Dual Homing.



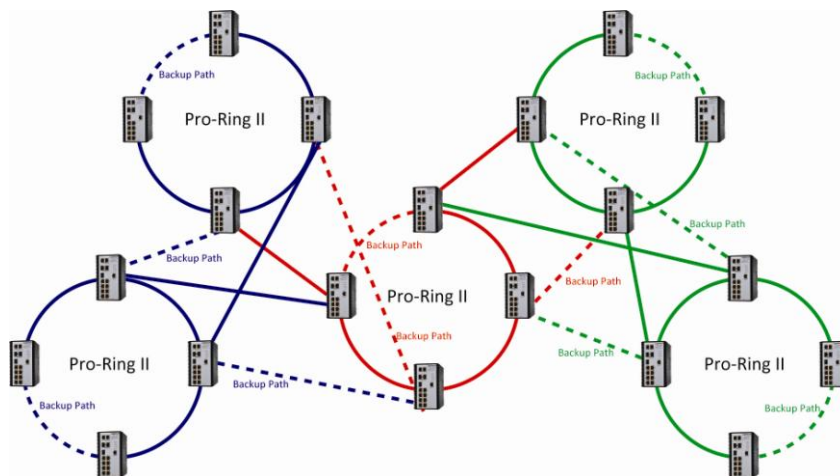
*Key Ring

When the middle or aggregation points are critical, Key Ring can protect the middle connection to the core or upper switch by separating different layers of links or ring groups.



*Multi-Key Ring

Multi-Key Ring forms triangle connection among different ring groups to create the de-militarized zone in the network topology and maintain the redundancy.



*under development



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● **Pro-Ring I vs. Pro-Ring II Comparison Table**

Features	Pro-Ring II	Pro-Ring
Redundancy Solution	★5	3
Auto Master Selection	★Yes	No
Max. unit	250	250
Single algorithm	★Yes	No
Recovery time for Dual-Homing	★<10ms	6 sec
Redundant Port	★2	1
Extra Coupling Ring data line	★No	Yes
0 sec transfer time	★Yes	No

● **NEW RELEASE**

Pro Ring II Series	
Model Name	Description
<p>IPES-2208C</p> 	8-Port 10/100TX + 2-Port 10/100/1000T/Dual Speed SFP Combo w/ 8-PoE-Injector Pro-Ring Managed Industrial Switch
<p>IES-2307C</p> 	7-Port 10/100TX + 3-Port 10/100/1000T with 100/1000M SFP Combo Industrial Managed Switch with DIDO