GE
Grid Solutions

MiCOM H Series

Secure and Reliable Redundant Ethernet Switches

Power transmission and distribution networks worldwide depend on reliable and highly available protection and control systems. These systems in turn depend on reliable and highly available communications networks for control, data collection, automation, monitoring and much more.

In the past, network redundancy was achieved with the RSTP protocol, which recovery time in case of failure can be as high as 5 ms per participating switch, leading to potential loss of traffic.

GE's MiCOM H range of Ethernet switches use a combination of advanced redundancy protocols and fiber-optic connections to ensure the reliability, availability and dependability of substation communications networks. All these while maintaining the flexibility of being able to be connected to standard Ethernet networks are ideal for substation refurbishments or upgrades.

The MiCOM H range of switches use either the Dual Homing Star or Self-Healing Ring protocols and are available in standalone, embedded and PCI card (for integration into a PC) variants. As part of GE's Digital Control Systems (DCS), the MiCOM H series switches are fully compatible with our protection relays, bay computers and gateways.

Key Benefits

- Dual Homing Star and Self-Healing Ring for flexible network topology
- Different port variants – copper or fiber (single mode or multimode) with, ST, SC or LC connectors for flexible connectivity
- Built-in watchdog relay (contact) and SNMP to monitor link failure.
- Redundant power source for increased reliability
- Suitable for harsh environments, such as substations
- Up to 6 SAN ports to connect devices to the redundant network, reducing the number of redboxes

Applications

- The MiCOM H range is especially designed for the substation
- The high performance of Self-Healing technology allows to connect up-to 150 IED in a single ring

Comprehensive Range

- Embedded in bay controllers
- Embedded in protection relays
- Standalone DIN rail mounted redboxes
- PCI boards

Full Redundancy

- Less than 1 ms recovery time in case of a single failure for Self-Healing Rings topologies, independent of number of devices
- 0 ms recovery time (i.e. no information loss) for Dual Homing Star topologies

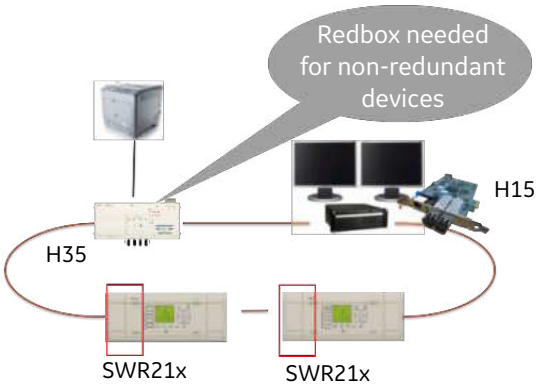
Managed Networks

- Supports SNMPv1, v2
- Hardware alarm contacts for detection of loss of power.
- Simple IP address configuration by dip switches

Imagination at work

Self-Healing Ring

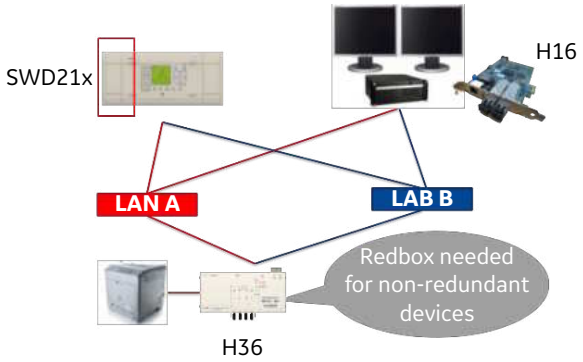
Self-Healing Ring topology consists of two redundant ring networks. Under normal conditions, data frames are sent around a single ring. In the event of a link or IED failure, the devices either side of the failure automatically re-route the traffic to use the second rings in less than 1 ms.



Dual-Homing Star

Dual Homing Star topology consists of two redundant star networks.

Under normal conditions data frames are sent simultaneously on both networks. If one network fails, the data is still available on the other providing a bumpless recovery (0 ms convergence time).



Ordering

Type	Description
MiCOM H15x PCI board (Self-Healing Ring)	
H152	10/100 Mbps, 4TX and 2 FX (ST, multi mode, redundant), SNMP managed
H154	10/100 Mbps, 4TX and 2 FX (SC, single mode, redundant), SNMP managed
MiCOM H16x PCI board (Dual-Homing)	
H162	10/100 Mbps, 4TX and 2 FX (ST, multi mode, redundant), SNMP managed
H164	10/100 Mbps, 4TX and 2 FX (SC, single mode, redundant), SNMP managed
Connection kit for MiCOM H1xx boards	
H1xx-kit	Rear PC plate with 3 additional RJ45 connectors + connection cables
MiCOM H35x DIN rail mountable switch (Self-Healing Ring)	
H352B	10/100 Mbps, 6TX and 2 FX (ST, multi mode, redundant), SNMP managed, dual power source (24/48 VDC)
H352C	10/100 Mbps, 6TX and 2 FX (ST, multi mode, redundant), SNMP managed, dual power source (110/220 Vdc & 110/230 Vac)
H354B	10/100 Mbps, 6TX and 2 FX (SC, single mode, redundant), SNMP managed, dual power source (24/48 VDC)
H354C	10/100 Mbps, 6TX and 2 FX (SC, single mode, redundant), SNMP managed, dual power source (110/220 Vdc & 110/230 Vac)
H356B	10/100 Mbps, 2TX, 2FX (LC, multi mode, redundant) and 4FX (LC, multi mode), SNMP managed, dual power source (24/48 VDC)
H356C	10/100 Mbps, 2TX, 2FX (LC, multi mode, redundant) and 4FX (LC, multi mode), SNMP managed, dual power source (110/220 Vdc & 110/ 230 Vac)
H358C	10/100 Mbps, 2TX, 2FX (LC, single mode, redundant) and 4FX (LC, multi mode), SNMP managed, dual power source (110/220 Vdc & 110/230 Vac)
MiCOM H36x DIN rail mountable switch (Dual-Homing)	
H362B	10/100 Mbps, 6TX and 2 FX (ST, multi mode, redundant), SNMP managed, dual power source (24/48 VDC)
H362C	10/100 Mbps, 6TX and 2 FX (ST, multi mode, redundant), SNMP managed, dual power source (110/220 Vdc & 110/230 Vac)
H364C	10/100 Mbps, 6TX and 2 FX (SC, single mode, redundant), SNMP managed, dual power source (110/220 Vdc & 110/230 Vac)

For more information please contact:

GE Power
Grid Solutions

Worldwide Contact Centre

Web: www.GEGridSolutions.com/contact
Phone: +44 (0) 1785 250 070

GEGridSolutions.com

Imagination at work