RS Series
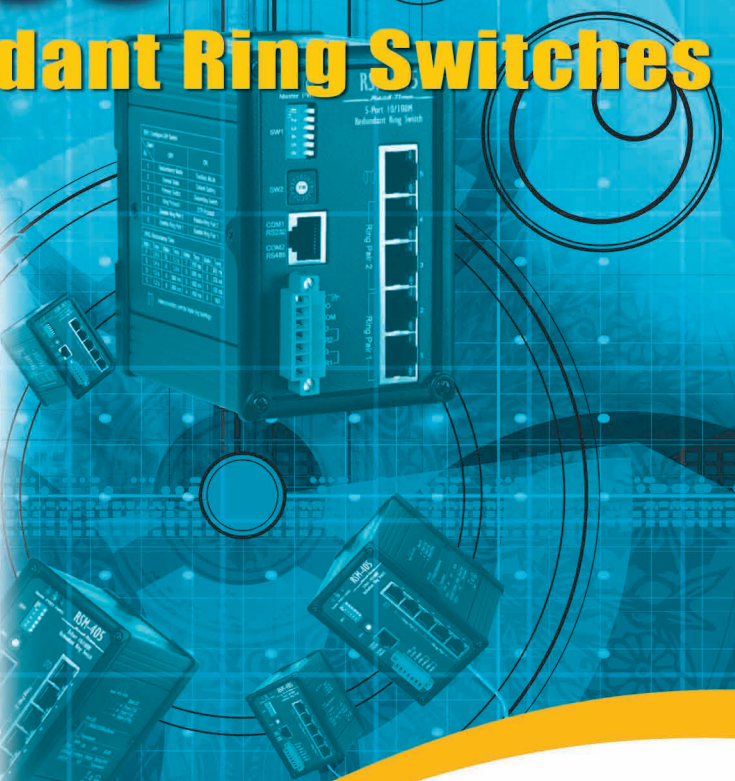## Industrial Redundant Ring Switches

- Plug and Play
- Provide redundant path to Ethernet LAN
- Real-time network recovery
- Multiple rings coupling
- Certified for harsh industrial environments
- Support Modbus/Serial and Modbus/TCP protocol for status monitoring
- Relay output for link lose alarm
- Built-in 2 rings for easy coupling

RS Series
Redundant Ring Switches

Product Features

Plug and Play

Provide redundant path to Ethernet LAN

Real-time network recovery

Multiple rings coupling
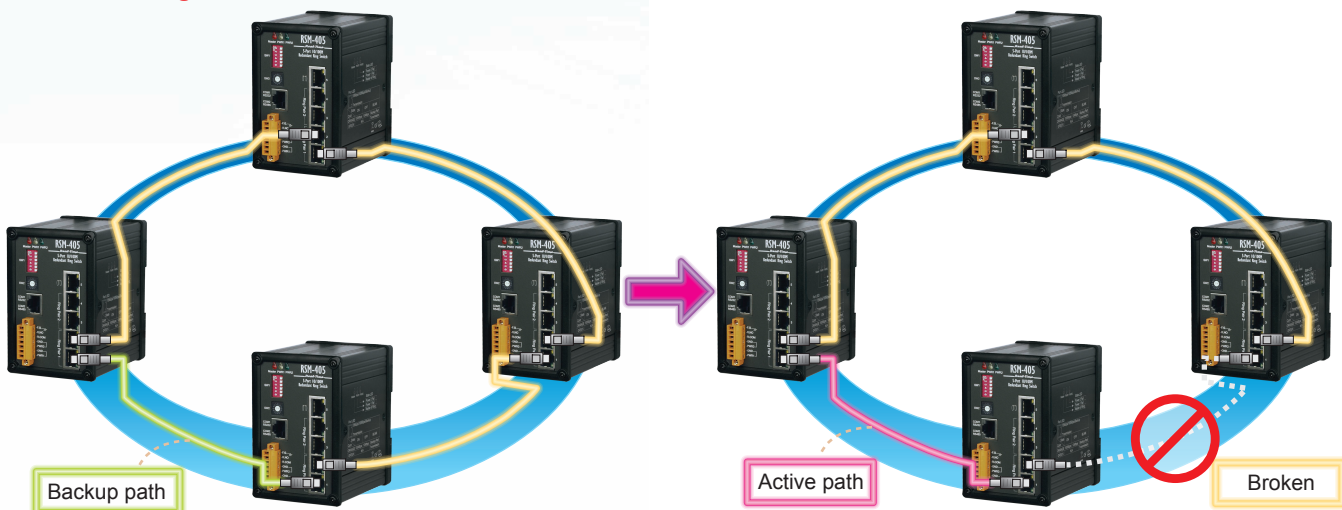
Certified for harsh industrial environments

Support Modbus/Serial and Modbus/TCP protocol
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Relay output for link lose alarm

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Introduction

It is undoubted that the power of an Ethernet LAN (Local Area Network) is tremendous when applied to a factory floor or industrial field applications. However, you cannot just use commercial Ethernet switch there. Harsh environ will become a challenge to your switch, and, in many cases, fault-tolerant network redundancy is also a must.

Beside these imperfection, for automation and control engineers who have been forced into this IT domain, they really don't want to get too involved with the idiosyncrasies and maintenance of Ethernet networks especially redundant networks, but just want to plug cables in and then it works.

To satisfy these, the Ring Switch provides you a rugged, fault-tolerant, plug and play solution.
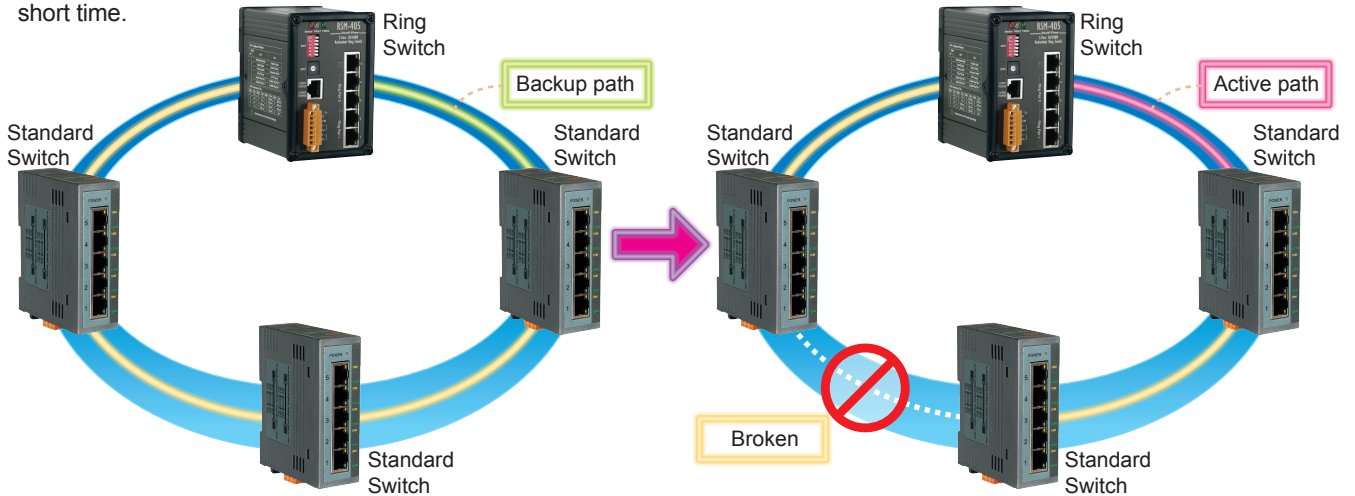
.Fault-tolerant Ethernet Network

The fault-tolerant capability protects your Ethernet network from failed due to a single cable's connecting problem. Also, with this gift, control engineer can perform maintenance jobs while the network is still running.

Case 1: Ring Ethernet Network

Backup path

Active path

Broken

The ring topology provides an alternative network path in constant readiness. When a network node or cable segment fails, the Ring Switch instantly redirects the traffic through the alternative path of the ring.

Case 2: Cost Effective Ring Ethernet Network

The design of Ring Switch allows it to co-work with cheaper standard Ethernet switch, such as NS-208/205 …etc. The Ring Switch will force one of the 2 cables connected on it as backup path. Once link lost, the backup path become active in very short time.


Even with only one Ring Switch in the ring network. It still provides fault-tolerance protection. Thus it becomes a very cost effective way to build your Fault-tolerant Ethernet Network.

Case 3: Adding Fault Tolerance to An Existing Network
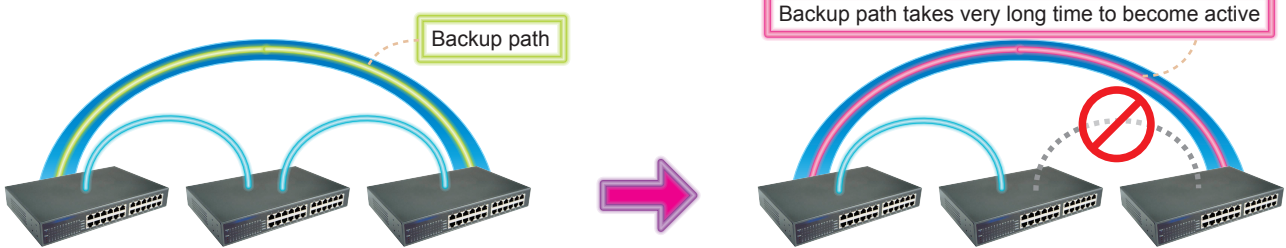
The Spanning Tree algorithm is the most universal method of provisioning multiple paths through an Ethernet network. Unfortunately, it is cumbersome and slow to converge.
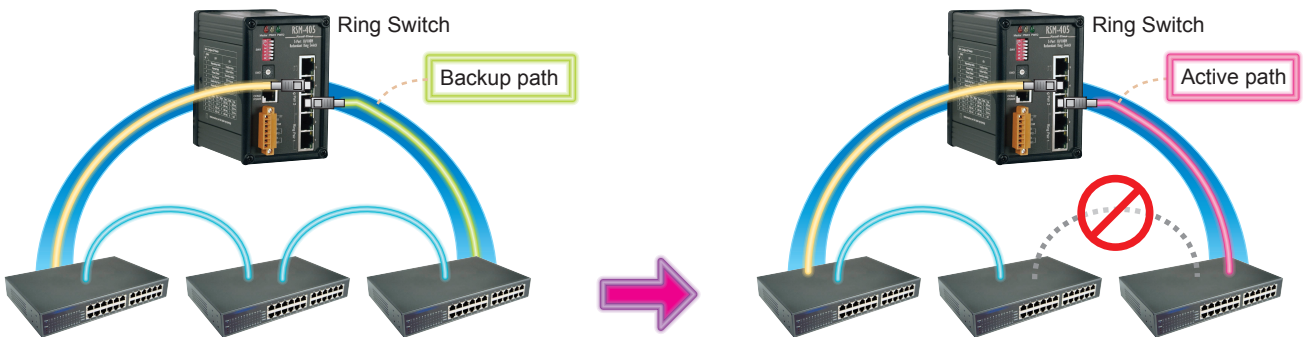
With Ring Switch, the fault-tolerant capability is given to existing network
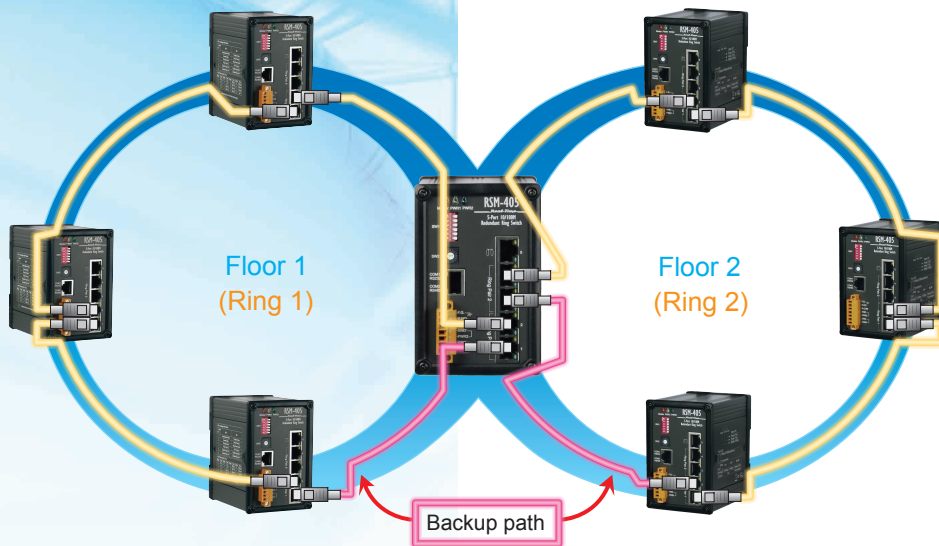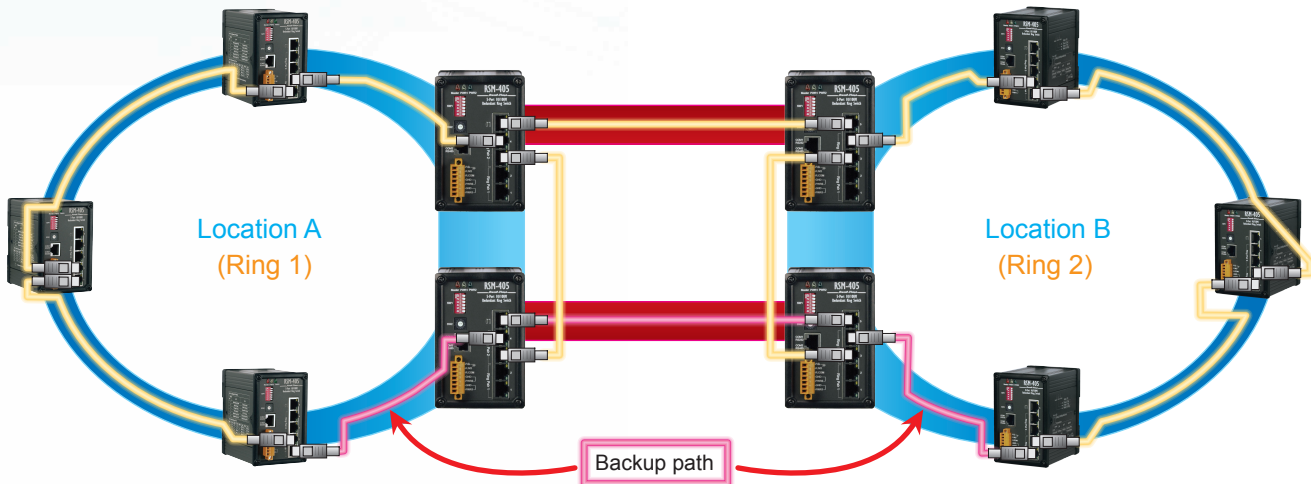
Ring Coupling

Besides simple ring topology, the advanced STP protocol allows user to setup versatile and even better fault-tolerant Ether-network. Just choose the solution best meeting your needs

Case 1: Double Ring Coupling

Floor 1 (Ring 1)

Floor 2 (Ring 2)

Backup path

Double ring is best solution for 2-floor application scene. The 2 Ring Switch not only construct individual redundant ring for each floor but also backup each other.

Case 2: Double Ring Coupling WitchTwo Phase Redundant
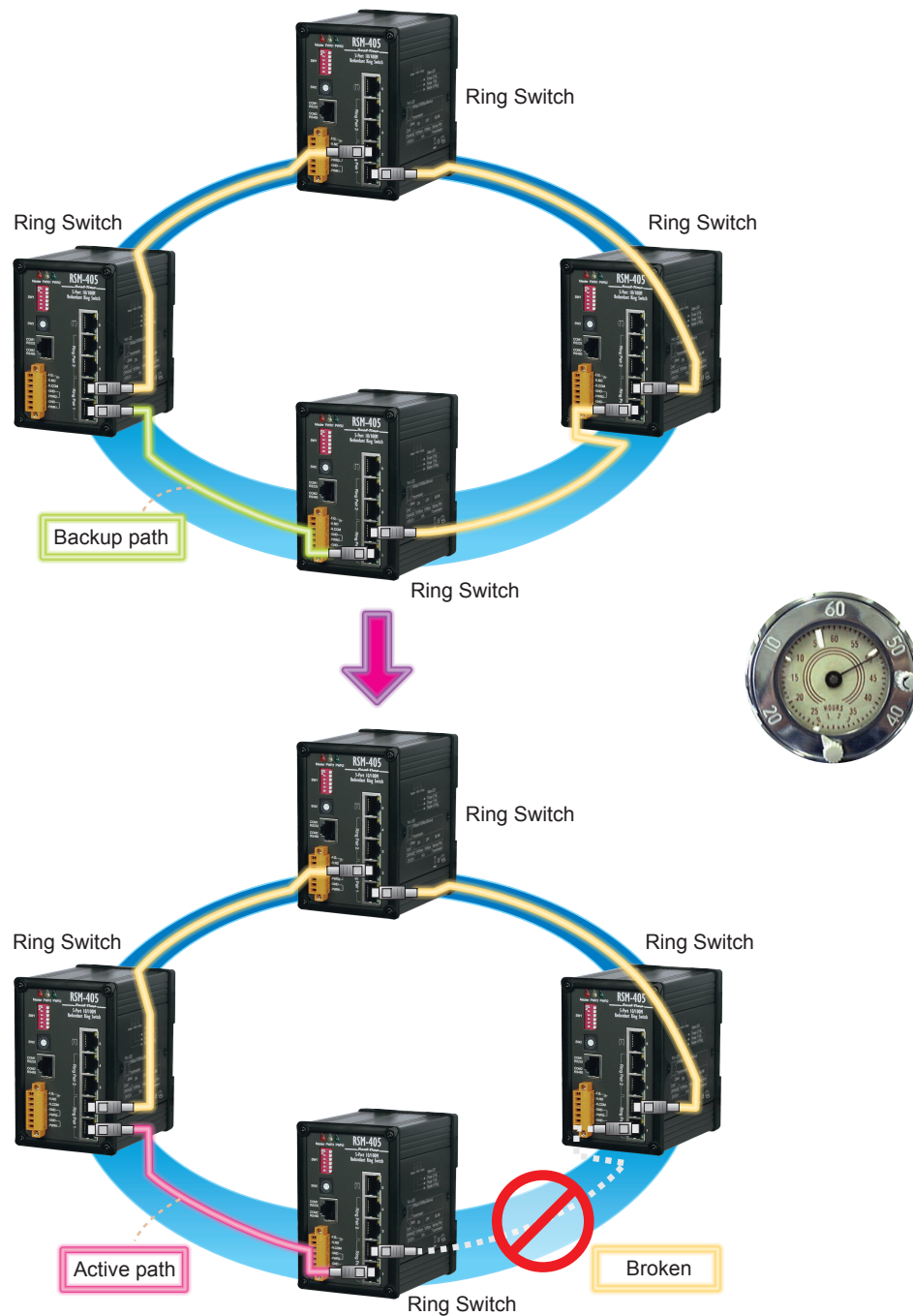

Location A (Ring 1)

Location B (Ring 2)

Backup path

Double ring coupling with two phase redundant strenthen the coupling of 2 rings. In which ring topology, there are 2 coupling points providing redundant coupling path of 2 rings.

Time Deterministic Performance

When link loss occurs, the Ring Switch uses its high performance proprietary STP protocol to perform time deterministic recovering, and, the recovering time is configurable to be 100ms, 200ms… 1500 ms.

Ring Switch

Ring Switch

Ring Switch

Backup path

Ring Switch

Ring Switch

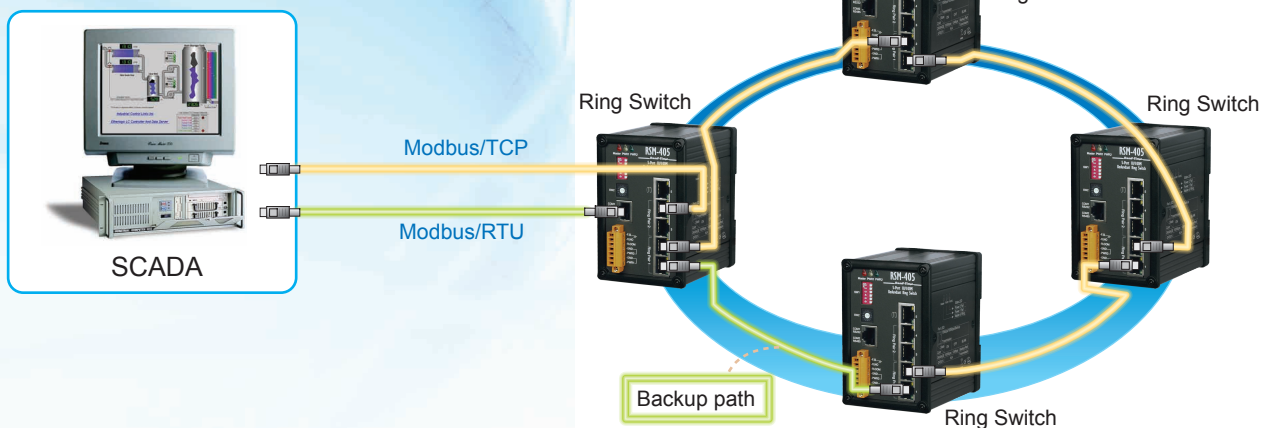Ring Switch

Ring Switch

Active path

Broken

Ring Switch

With Ring Switch, the recovering time from link loss is deterministic.

## Modbus/TCP & Modbus/RTU Protocol to Read Port Status

It is a great advantage for control engineers to be able to read the healthy information of the Ethernet LAN. The RS-405 provides a solution for this by supporting Modbus/TCP & Modbus/RTU protocol. Through it, the port status, switch status, relay output status…etc can easily be known.

SCADA

Modbus/TCP

Modbus/RTU

Ring Switch

Ring Switch

Ring Switch

Ring Switch

Ring Switch

Backup path

For most HMI/SCADA software tools, the availability of Modbus/TCP protocol from Ring Switch help them to monitor the status of the Ethernet LAN.

Relay Output for Fault Alarm

The RS-405 is equipped a relay output, which will be automatically triggered when link lose happed. Control engineers could use this feature to delivery alarm signal, such as beeper out or alarm light on …etc.
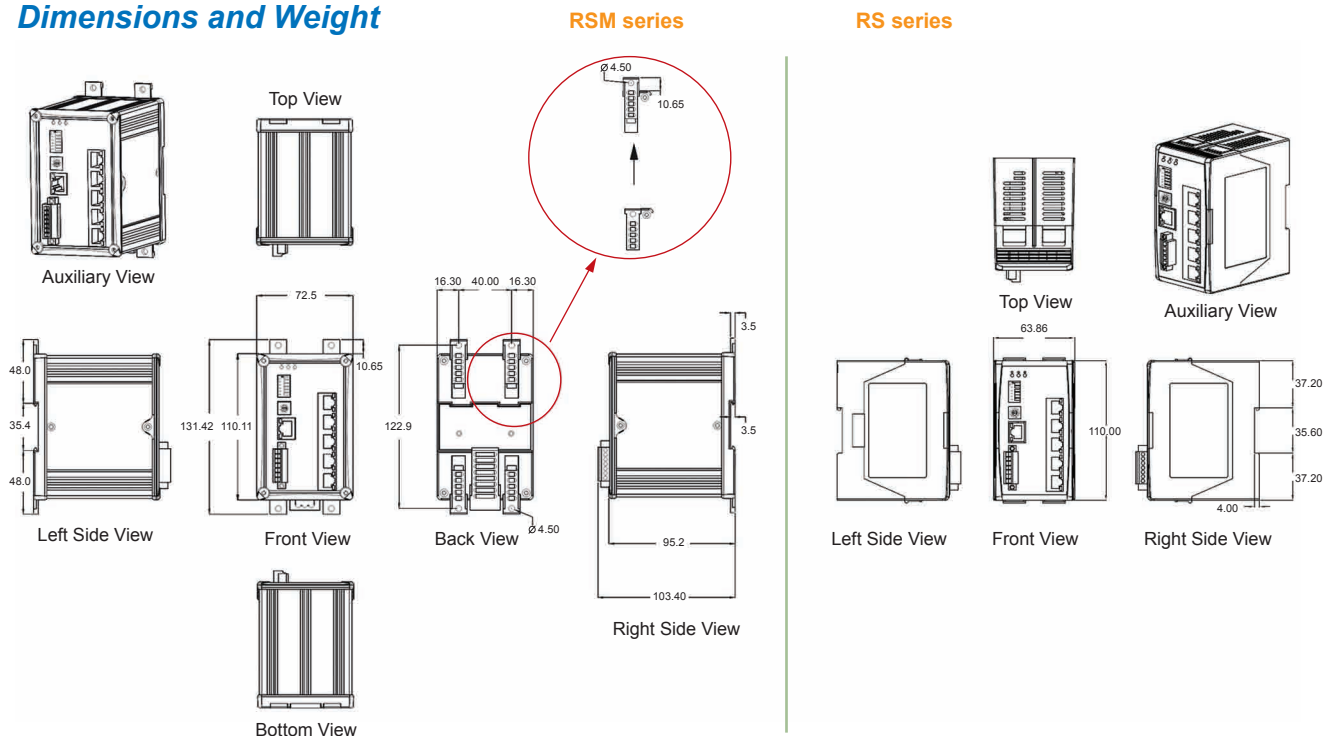

Relay Out
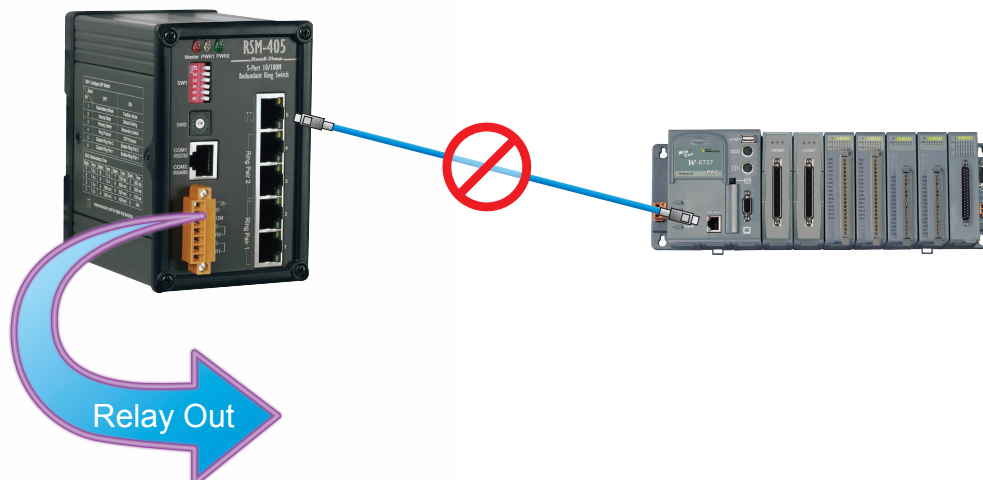
Specifications

Selection Guide:

Model	RS-405	RSM-405	RSM-405 FT	RSM-405 FC	RSM-405 FCS	RS-408	RSM-408
Ethernet switch type	Intelligent store & forward						
RJ45 ports (shielded)	10/100BaseT(x)						
RJ45 speed (auto-negotiating)	10 Mbps or 100 Mbps						
RJ45 auto-mdi/mdi-x	All 5 ports						
RJ-45 Ports	5	5	3	3	3	8	8
Fiber Socket	N/A	N/A	2	2	2	N/A	N/A
RJ-45 Ring Pair	2	2	1	1	1	2	2
Fiber Ring Pair	N/A	N/A	1	1	1	N/A	N/A
Case	Plastic	Metal	Metal	Metal	Metal	Plastic	Metal
Ethernet protocols supported	All standard IEEE 802.3						
Memory bandwidth	3.2 Gbps						
Completely compliant	IEEE 802.3, IEEE 802.3u, IEEE802.3x						
Full or half duplex operation	Auto-sensing						
MAC addresses supported	2K						
Ethernet isolation	1500 VRMS 1 minute						
Required supply voltage	+10 ~ +30 VDC						
Power input isolation	1KV						
Power consumption	5 W						
(Redundant input terminals)	(typical - all ports active at 100 Mbps)						
Operating temperature	-30 ~ +75°C						
Storage temperature	-40 ~ +85°C						
Vibration	EN 50155 and EN11373.						
EMC immunity	EN61326-1 (EN61000-4-2, 3, 4, 5, 6)						

Dimensions and Weight

RSM series

Top View

Auxiliary View

ø 4.50
10.65

72.5

48.0
35.4
48.0
10.65

131.42 110.11

Left Side View

Front View

16.30 40.00 16.30

122.9

ø 4.50

Back View

3.5

3.5

95.2

103.40

Right Side View

Bottom View

RS series

Top View

Auxiliary View

63.86

110,00

37.20
35.60
37.20
4.00

Left Side View

Front View

Right Side View

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