



User's Guide

SISTF10xx-130-LR(T)

Stand-Alone Redundant Ring Industrial Switch

- **Copper to Fiber**
- **Ethernet / Fast Ethernet**
- **10Base-T / 100Base-TX to 100Base-FX**
- **Extended Temperature**
- **Hazardous Environment**

Transition Networks SISTF10xx-130-LR(T) redundant ring industrial switch connects three (3) 10Base-T / 100Base-TX twisted-pair copper cable lines to two (2) 100Base-FX fiber-optic cable lines. The SISTF10xx-130-LR(T) is designed for harsh industrial environments such as hazardous locations (Class 1 Division 2 / Zone 2), includes a relay output warning alarm, and is designed to withstand a high degree of vibration and shock. It is also available in models that operate in either standard or extended temperature ranges.

Part Number	Ports 1, 2, & 3 - Copper 10Base-T/100Base-TX	Ports 4 & 5 - 100Base-FX Duplex Fiber-Optic
Standard Temperature Models: 0°C to 60°C (32°F to 140°F):		
SISTF1011-130-LR	<i>RJ-45 100 m (328 ft)*</i>	<i>ST, 1300 nm multimode 2 km (1.2 miles)*</i>
SISTF1012-130-LR	<i>RJ-45 100 m (328 ft)*</i>	<i>ST, 1310 nm single mode 15 km (9.3 miles)*</i>
SISTF1013-130-LR	<i>RJ-45 100 m (328 ft)*</i>	<i>SC, 1300 nm multimode 2 km (1.2 miles)*</i>
SISTF1014-130-LR	<i>RJ-45 100 m (328 ft)*</i>	<i>SC, 1310 nm single mode 15 km (9.3 miles)*</i>
Extended Temperature Models: -40°C to 75°C (-40°F to 167°F):		
SISTF1011-130-LRT	<i>RJ-45 100 m (328 ft)*</i>	<i>ST, 1300 nm multimode 2 km (1.2 miles)*</i>
SISTF1012-130-LRT	<i>RJ-45 100 m (328 ft)*</i>	<i>ST, 1310 nm single mode 15 km (9.3 miles)*</i>
SISTF1013-130-LRT	<i>RJ-45 100 m (328 ft)*</i>	<i>SC, 1300 nm multimode 2 km (1.2 miles)*</i>
SISTF1014-130-LRT	<i>RJ-45 100 m (328 ft)*</i>	<i>SC, 1310 nm single mode 15 km (9.3 miles)*</i>

* Typical maximum cable distance. Actual distance is dependent upon the physical characteristics of the network installation.

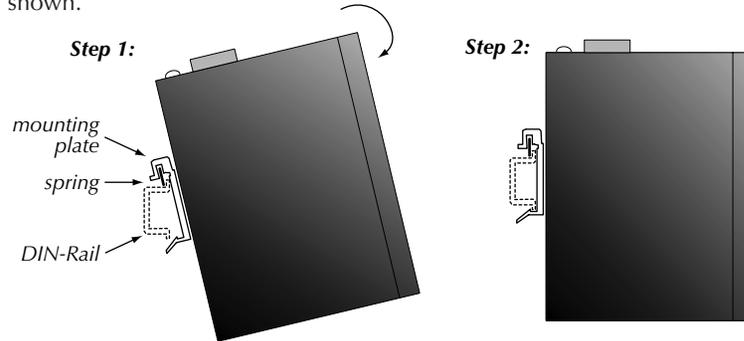
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Installation

DIN-Rail Mount

The SISTF10xx-130-LR(T) Ethernet switch includes an aluminum DIN-Rail mounting plate attached to the device's back panel. To mount the SISTF10xx-130-LR(T) onto a DIN-Rail:

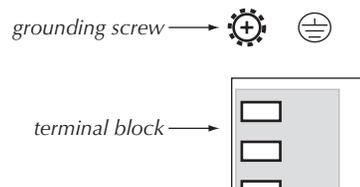
1. Insert the top of the DIN-Rail into the upper slot of the mounting plate. The stiff metal spring should be positioned behind the DIN-Rail.
2. Push down and rotate the device to snap it into place on the DIN-Rail as shown.



NOTE: This device is intended to be grounded to a well-grounded mounting surface such as a metal plate. Install the grounding wire prior to connecting any other device.

Ground the SISTF10xx-130-LR(T)

Grounding the device helps limit the effects of noise due to electromagnetic interference (EMI). The grounding screw is located on the top panel next to the terminal block.



To ground the SISTF10xx-130-LR(T):

1. Connect one end of the grounding wire (not included) to the grounding screw by looping one end of the grounding wire under the star washer.
2. Tighten the grounding screw with a phillips-head screwdriver.
3. Connect the other end of the grounding wire to earth ground.

Installation -- Continued

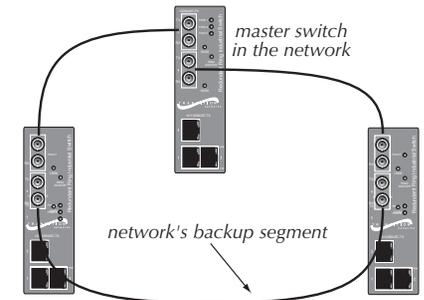
The SISTF10xx-130-LR(T) is a plug-and-play unmanaged Ethernet switch with Redundant Ring technology for better network reliability and faster recovery time. The recovery time is less than 300 ms compared to 3 to 5 minutes for commercial switches. Also, when one segment of the network gets disconnected, the Redundant Ring automatically re-establishes network connectivity.

Master Device

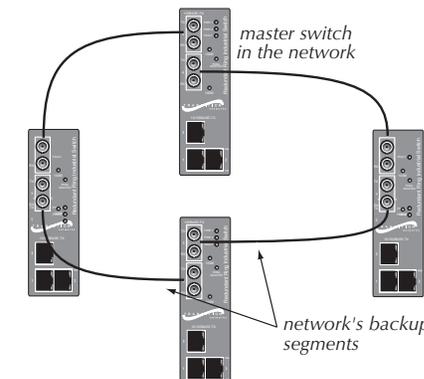
The Redundant Ring technology identifies one switch as the Ring Master of the network, and then automatically blocks packets from traveling through any of the network's redundant loops. To designate one of the SISTF10xx-130-LR(T) devices to be the network's Ring Master, set switch 6 on that device to "ON".

If two or more devices are set to be the Ring Master, those devices with their switch 6 set to "ON" auto-negotiate to determine which one is the Ring Master. Also, if none of the devices are set to be the Ring Master, the Redundant Ring technology chooses the device that has the smallest MAC address range to be the Ring Master.

The actual topology of the Redundant Ring (i.e., which segment is blocked) is determined by the number of devices that make up the ring:



If there is an **odd number** of devices in the ring, the backup segment is the segment directly opposite the Ring Master:



If there is an **even number** of devices in the ring, the backup segment is one of the two segments connected to the unit directly opposite the Ring Master:

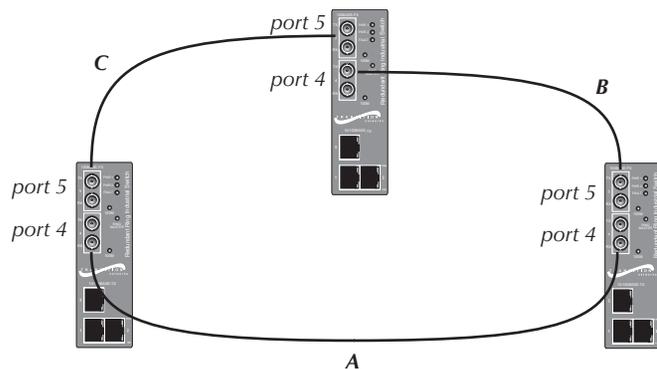
Installation -- Continued

CAUTION: Disconnect the SISTF10xx-130-LR(T) from the DC power source BEFORE installing and/or wiring the device.

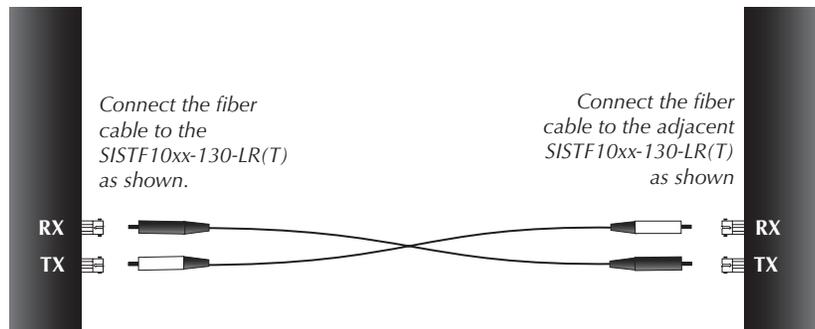
Install the Fiber Cable

To build the Redundant Ring network, connect the SISTF10xx-130-LR(T) devices using the two fiber ports labeled “4” and “5”. The fiber links can be connected between two adjacent devices using any of the following combinations:

- A: Port 4 of one device connected to port 4 of the adjacent device.
- B: Port 4 of one device connected to port 5 of the adjacent device.
- C: Port 5 of one device connected to port 5 of the adjacent device.



When connecting the fiber links, make sure the transmit (TX) port on one device is connected to the receive (RX) port on the adjacent device as shown:



NOTE: Calculate the maximum possible current in each power wire and signal wire. Observe all electrical codes for maximum current allowed. If the current goes above the maximum ratings, the wiring would overheat, causing serious damage to the network equipment.

Installation -- Continued

Install the Copper Cable

The AutoCross feature allows either straight-through (MDI) or crossover (MDI-X) copper cable to be used when connecting devices via the RJ-45 port.

1. Locate or build 10Base-T or 100Base-TX copper cables with male, RJ-45 connectors installed at both ends.
2. Connect the RJ-45 connector at one end of the cable to the RJ-45 port on the SISTF10xx-130-LR(T).
3. Connect the RJ-45 connector at the other end of the cable to the RJ-45 port on the other device (PLC, workstation, etc.).



CAUTION: Wear a grounding device and observe electrostatic discharge precautions when setting the dip switches. **Failure to observe this caution could result in damage to, and failure of, the SISTF10xx-130-LR(T).**

Set the Dip Switches

- The dip switches are located on the top panel of the device.
- Use a small flat blade screwdriver or a similar device to set the switches.

NOTE: To activate the updated switch setting, cycle the power to the SISTF10xx-130-LR(T) by turning off the power, then turning it back on.

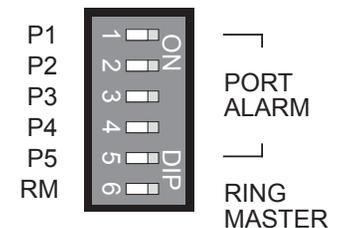
Switches 1 - 5: Port Alarm

The port alarm feature is used to determine faults at the copper or fiber ports.

- Switches 1, 2, and 3 correspond to copper ports 1, 2, and 3, respectively.
- Switches 4 and 5 correspond to fiber ports 4 and 5, respectively.

on: Enables the corresponding port alarm. If the link for that port fails (or if a power supply input fails), the internal relay forms an open circuit and the FAULT LED lights up.

off: Disables the corresponding port alarm. The internal relay forms a closed circuit and the FAULT LED remains off.



Installation -- Continued

Switch 6: Ring Master

on: Enables the device to be the Ring Master in a Redundant Ring topology.

This setting also enables the Redundant Ring break alarm. If a link in the Redundant Ring breaks (and if the SISTF10xx-130-LR(T) is the Ring Master in the Redundant Ring topology), then the internal relay forms an open circuit and the FAULT LED lights up.

off: Disables the device from being the Ring Master.

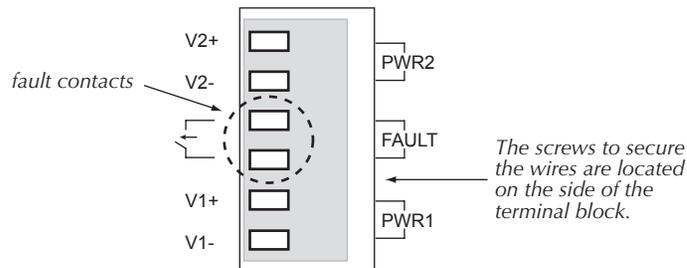
If none of the devices are set to be the Ring Master, the Redundant Ring technology chooses the device that has the smallest MAC address range to be the Ring Master. However, if the Redundant Ring is broken, the internal relay remains closed and the FAULT LED remains off.

Internal Relay

The internal relay that activates the alarm feature is connected to the two middle contacts on the 6-contact terminal block. A user-supplied fault alarm device can be connected to these fault contacts. An example would be to connect the fault circuit to a warning light located in the control room. The light can be set up to turn on when a fault is detected (see below).

Install the Port Alarm Device

A user-supplied port alarm device can be connected to the SISTF10xx-130-LR to alert the user whenever a power fault or a port fault occurs. At least one port alarm switch or the Ring Master switch (see page 5) must be "ON" to enable the port alarm feature.



The contacts for the fault alarm are on the 6-contact terminal block, located on the top panel of the SISTF10xx-130-LR(T). To install a port alarm device:

1. Insert the two wires from the user-supplied port alarm device into the two terminals marked "FAULT" on the 6-contact terminal block.
2. Secure the wire by tightening the corresponding screw on the side of the terminal block.

Installation -- Continued

Power the SISTF10xx-130-LR(T)

This device is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only.

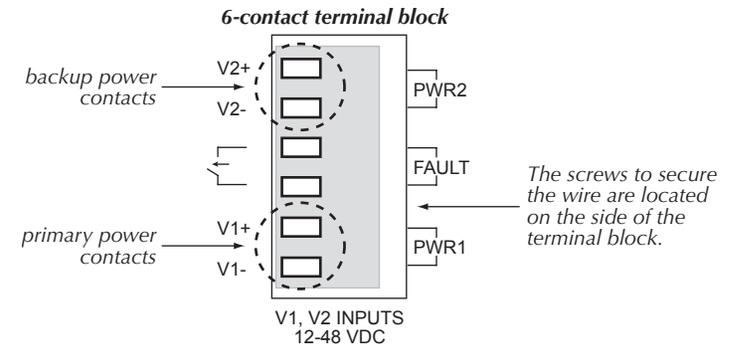


WARNING: EXPLOSION HAZARD - Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous.



WARNING: EXPLOSION HAZARD - Substitution of components may impair suitability for Class I, Division 2.

The SISTF10xx-130-LR(T) is designed for both a primary and a backup power supply via the 6-contact terminal block, located on the top panel of the device. Both power inputs can be connected simultaneously to live DC power sources. If one power source fails, the other live source acts as a backup, and automatically supplies the device with power.



CAUTION: Before connecting the SISTF10xx-130-LR(T) to the 12-48 VDC power source, ensure the power source voltage is stable.

To provide PRIMARY (PWR1) power to the SISTF10xx-130-LR(T):

1. Insert the positive (+) DC wire from the 12-48VDC power source into the terminal marked "V1+".
2. Insert the negative (-) DC wire into the terminal marked "V1-".
3. Secure the wires by tightening the corresponding screws on the side of the terminal block.

To provide BACKUP (PWR2) power to the SISTF10xx-130-LR(T):

1. Insert the positive (+) DC wire from the 12-48VDC power source into the terminal marked "V2+".
2. Insert the negative (-) DC wire into the terminal marked "V2-".
3. Secure the wires by tightening the corresponding screws on the side of the terminal block.

Operation

Status LEDs

Use the status LEDs to monitor the SISTF10xx-130-LR(T) in the network.

The three LEDs near the top indicate the **power and fault** status:

PWR1 (amber) **on** = Primary power is connected to device.

PWR2 (amber) **on** = Backup power is connected to the device.

FAULT (red) **on** = If any of the five (5) port alarm switches are “**on**” and the link on the corresponding port is inactive (ex: switch 3 is “on” and port 3 is inactive); or if there is a loss of primary or backup power

The “100M” LEDs indicate the link status of the corresponding fiber port (100Base-FX):

100M (green) **on** = Fiber link is active.

flashing = Data is being transmitted over the fiber link.

The “RING MASTER” LED indicates whether or not the SISTF10xx-130-LR(T) is the current Ring Master of the Redundant Ring network:

RING MASTER (green) **on** = The device is the Ring Master of the Redundant Ring Network.

flashing = A link in the Redundant Ring is broken.

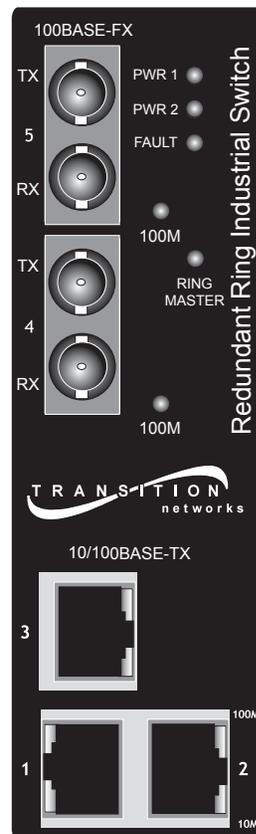
The LEDs embedded in each of the RJ-45 ports indicate the status of the corresponding copper link (10/100Base-T/TX):

10M (green) **on** = Copper link is active at 10 Mb/s.

flashing = Data is being transmitted over the copper link at 10 Mb/s.

100M (green) **on** = Copper link is active at 100 Mb/s.

flashing = Data is being transmitted over the copper link at 100 Mb/s.



Operation -- Continued

Features

Auto-Negotiation

With the Auto-Negotiation feature, the SISTF10xx-130-LR(T) automatically configures itself to achieve the best possible mode of operation over the copper link. The device broadcasts its speed (10 Mb/s or 100 Mb/s) and duplex capabilities (either full- or half-duplex) and negotiates the best mode of operation between the two linked devices.

If the device is connected to a non-negotiating device over the copper link, it will default to 10 Mb/s speed, half-duplex mode.

AutoCross

The AutoCross feature allows either straight-through (MDI) or crossover (MDI-X) cables to be used when connecting the SISTF10xx-130-LR(T) to devices such as PLCs or workstations. AutoCross determines the characteristics of the cable connection and automatically configures the unit to link up, regardless of the cable configuration. (Requires no operator intervention.)

Plug-and-Play

The SISTF10xx-130-LR(T) models are plug-and-play devices, so that software configuration is not required at installation or during maintenance.

Switching, Filtering, and Forwarding

Packets are either filtered or forwarded when they arrive at one of the switched ports.

- Packets with source and destination addresses belonging to the same port segment are filtered and constrained to one port (relieving the rest of the network from the need to process them).
- Packets with a destination address to another port segment are forwarded to the appropriate port, and are not sent to the other ports where it is not needed.
- Packets that are used in maintaining the operation of the network (such as the occasional multi-cast packet) are forwarded to all ports.

The Ethernet switch operates in the store-and-forward switching mode, which eliminates bad packets and enables peak performance to be achieved when there is heavy traffic on the network.

Switching and Address Learning

The Ethernet switch address table holds up to 1K node addresses, making it suitable for use with large networks. The address tables are self-learning, so that as nodes are added, removed, or moved from one segment to another, the Ethernet switch automatically keeps up with new node locations. An address-aging algorithm deletes the least-used addresses in favor of newer, more frequently used addresses. To reset the address buffer, power down the unit and then power it back up.

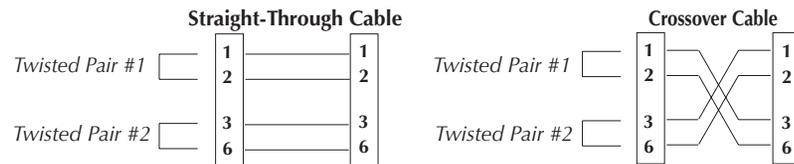
Cable Specifications -- Continued

Copper Cable

Category 5: (minimum requirement)

Gauge: 24 to 22 AWG
 Attenuation: 22.0 dB /100m @ 100 MHz
 Maximum Cable Distance: 100 meters

- Straight-through **OR** crossover cable may be used.
- Shielded twisted-pair (STP) **OR** unshielded twisted-pair (UTP) may be used
- Pins 1&2 and 3&6 are the two active pairs in an Ethernet network .
- RJ-45 Pin-out: Pin 1 = TD+, Pin 2 = TD-, Pin 3 = RD+, Pin 6 = RD-
- Use only dedicated wire pairs for the active pins:
(e.g., blue/white & white/blue, orange/white & white/orange, etc.)
- Do not use flat or silver satin wire.



Please note the following when wiring the network:

- Signal lines must not be directly connected to outdoor wiring.
- Use separate paths to route the power wiring and the signal wiring. If power wiring and signal wiring paths must cross, make sure the wires are perpendicular at the intersection point.
- Do not run signal wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should also be routed separately.
- Use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring with similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, label the wiring to all devices in the network.



NOTE: This device has been evaluated as EEx nC IIC T4 equipment under DEMKO Certificate No. 03 ATEX 0324537U. Each module is suitable for use in Zone 2 Explosive Atmospheres. The device must be installed in a minimum IP 54 enclosure as defined in IEC 60529 and EN 60529.



NOTE: This unit is a building-in type. The installation into a certain end equipment shall comply with fire enclosure request of IEC 60950/EN60950 or similar sentence.

Cable Specifications

The physical characteristics must meet or exceed IEEE 802.3™ specifications.

Fiber Cable

Bit Error Rate: <10-9
 Single mode fiber (recommended): 9 μm
 Multimode fiber (recommended): 62.5/125 μm
 Multimode fiber (optional): 100/140, 85/140, 50/125 μm

Standard Models

SISTF1011-130-LR 1300 nm multimode
 Fiber Optic Transmitter Power: min: -20.0 dBm max: -14.0 dBm
 Fiber Optic Receiver Sensitivity: min: -36.0 dBm max: -32.0 dBm
 Link Budget: 16.0 dB

SISTF1012-130-LR 1310 nm single mode
 Fiber Optic Transmitter Power: min: -15.0 dBm max: -6.0 dBm
 Fiber Optic Receiver Sensitivity: min: -34.0 dBm max: -32.0 dBm
 Link Budget: 19.0 dB

SISTF1013-130-LR 1300 nm multimode
 Fiber Optic Transmitter Power: min: -20.0 dBm max: -14.0 dBm
 Fiber Optic Receiver Sensitivity: min: -36.0 dBm max: -32.0 dBm
 Link Budget: 16.0 dB

SISTF1014-130-LR 1310 nm single mode
 Fiber Optic Transmitter Power: min: -15.0 dBm max: -6.0 dBm
 Fiber Optic Receiver Sensitivity: min: -34.0 dBm max: -32.0 dBm
 Link Budget: 19.0 dB

Extended Temperature Models

SISTF1011-130-LRT 1300 nm multimode
 Fiber Optic Transmitter Power: min: -20.0 dBm max: -14.0 dBm
 Fiber Optic Receiver Sensitivity: min: -36.0 dBm max: -32.0 dBm
 Link Budget: 16.0 dB

SISTF1012-130-LRT 1310 nm single mode
 Fiber Optic Transmitter Power: min: -15.0 dBm max: -6.0 dBm
 Fiber Optic Receiver Sensitivity: min: -34.0 dBm max: -32.0 dBm
 Link Budget: 19.0 dB

SISTF1013-130-LRT 1300 nm multimode
 Fiber Optic Transmitter Power: min: -20.0 dBm max: -14.0 dBm
 Fiber Optic Receiver Sensitivity: min: -36.0 dBm max: -32.0 dBm
 Link Budget: 16.0 dB

SISTF1014-130-LRT 1310 nm single mode
 Fiber Optic Transmitter Power: min: -15.0 dBm max: -6.0 dBm
 Fiber Optic Receiver Sensitivity: min: -34.0 dBm max: -32.0 dBm
 Link Budget: 19.0 dB



NOTE: The fiber optic transmitters on this device meet Class I Laser safety requirements per IEC-825/CDRH standards and comply with 21 CFR1040.10 and 21CFR1040.11.

Technical Specifications

For use with Transition Networks Model SISTF10xx-130-LR(T) or equivalent

Standards:	IEEE 802.3™, 802.3u™; 802.3x™
Data Rate:	10 Mb/s, 100 Mb/s (copper); 100 Mb/s (fiber)
Processing Type:	Store and Forward w/ IEEE802.3x™ full-duplex, non-blocking flow control
Dimensions:	1.8" x 5.3" x 4.1" (46 mm x 135 mm x 105 mm)
Weight:	1.4 lb. (0.65 kg) (approximate)
Input Power:	12-48VDC, 0.2-0.7A, 24W (minimum), (redundant inputs) with overload and reverse polarity protection
Address Table Size:	1,000 Unicast Mac addresses
Alarm Relay:	1 Amp @ 24 VDC
Mechanical:	Ingress Protection: IP30
Environment:	Tmra* (standard temp): 0 to 60°C (32 to 140°F) Tmra* (extended temp): -40 to 75°C (-40 to 167°F) Storage Temperature: -40 to 85°C (-40 to 185°F) Humidity: 5 to 95%, non condensing
Warranty:	Lifetime

*Manufacturer's rated ambient temperature.

The information contained in this user's guide is subject to change. For the most up-to-date information see the user's guide on line at: www.transition.com.



CAUTION: This device is intended to be supplied by a listed power unit marked LPS or Limited Power Source, provided with a connector for field wiring terminal, and output rated 12-48VDC, 0.2-0.7 A, 24 W minimum.



CAUTION: This device is designed for operation with a safety extra-low voltage (SELV) in compliance with IEC950 / EN60950 / VDE0805 and in compliance with the low voltage directive 73/23/EEC and 93/68/EEC.

This device is certified by the manufacturer to comply with DHHS Rule 21/CFR, Subchapter J applicable at the date of manufacture.



CAUTION: Visible and invisible laser radiation when open. Do not stare into beam or view directly with optical instruments.



CAUTION: Use of controls, adjustments or the performance of procedures other than those specified herein may result in hazardous radiation exposure

Technical Specifications -- Continued

EMS Type Tests

Test	Description	Test Levels	Severity	
IEC61000-4-2	ESD	Air discharge	+/- 8 KV	3
		Contact discharge	+/- 6 KV	3
		ESD contact discharge	+/- 6 KV	3
IEC61000-4-3	Radiated RFI	Housing	10V/m, 80 MHz - 1 GHz AM 1 KHz, 80% mod 10 V/m, 0.9 - 1.8 GHz FM 200 Hz 50% square	3
IEC61000-4-4	Burst (Fast Transient)	Power supply lines	+/- 2 KV	3
		Communication lines	+/- 1 KV	3
		Relay	+/- 1 KV	3
IEC61000-4-5	Surge	Power supply lines	+/- 2 KV, 12 Ω, CM +/- 1 KV, 2 Ω, DM	3
		Relay	+/- 2 KV, 12 Ω, CM +/- 1 KV, 2 Ω, DM	3
IEC61000-4-6	Induced (Conducted RFI)	Power supply lines	10 Vrms, 150-80 MHz AM 1 KHz, 80% mod	3
		Communication lines	10 Vrms, 150-80 MHz AM 1 KHz, 80% mod	3
		Relay	10 Vrms, 150-80 MHz AM 1 KHz, 80% mod	3

Environmental Type Tests

Test	Description	Test Levels
IEC 60068-2-6	Vibration	10 - 500 - 10 Hz, 0.5 oct./min, 4g, X, Y, Z (3 axes)
IEC 60068-2-27	Shock	50 g, 11 ms, +/-X, +/-Y, +/- Z (6 direction)
IEC 60068-2-32	Free fall	75 cm, 1 corner, 3 edges, 6 faces (total 10 drops)

Troubleshooting

If the device fails, isolate and correct the fault by determining the answers to the following questions and then taking the indicated action:

1. **Is the PWR1 LED illuminated?**
NO
 - Ensure the power source is the proper voltage (12 - 48 VDC).
 - Ensure the (+) and (-) wires from the power source are inserted properly in the terminal block contacts labeled "PWR1".
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**YES**
 - Proceed to step 2.
2. **Is the PWR2 LED illuminated?**
NO
 - Ensure the power source is the proper voltage (12 - 48 VDC).
 - Ensure the (+) and (-) wires from the power source are inserted properly in the terminal block contacts labeled "PWR2".
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**YES**
 - Proceed to step 3.
3. **Is the FAULT LED illuminated?**
YES
 - If one or more port alarm switches (1 - 5) is **ON**, the device lost the corresponding fiber or copper link; or primary or backup power.
 - Ensure the problem copper or fiber link is properly connected.
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**NO**
 - Proceed to step 4.
4. **Is the Ring Master LED flashing?**
YES
 - A link in the Redundant Ring is broken. Inspect the fiber links in the ring for proper connection.
 - Verify that the TX and RX cables on one device are connected to the RX and TX ports, respectively, on the adjacent device.
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**NO**
 - Proceed to step 5.
5. **Are either 100M LEDs (near the fiber links) illuminated?**
NO
 - Check the corresponding fiber cables for proper connection.
 - Verify that the TX and RX cables on the device are connected to the RX and TX ports, respectively, on the other device.
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**YES**
 - Proceed to step 6.

Troubleshooting -- Continued

6. **Are either 100M LEDs (near the fiber links) flashing?**
NO
 - If there is activity on the corresponding fiber port, disconnect and reconnect the fiber cable to restart the initialization process.
 - If there is no activity on the corresponding fiber port, contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**YES**
 - Proceed to step 7.
7. **Are any of the 10M LEDs (on the RJ-45 port) illuminated?**
YES
 - The device has selected 10 Mb/s for the twisted-pair link.
 - If the speed is not correct, disconnect and reconnect the twisted-pair cable to restart the initialization process.
 - Proceed to step 8.**NO**
 - Proceed to step 8.
8. **Are any of the 100M LEDs (on the RJ-45 port) illuminated?**
YES
 - The device has selected 100 Mb/s for the twisted-pair link.
 - If the speed is not correct, disconnect and reconnect the twisted-pair cable to restart the initialization process.
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.**NO**
 - Check the twisted-pair cables for proper connection.
 - Contact Tech Support: 800-260-1312, Int'l: 00-1-952-941-7600.

 Declaration of Conformity	
Name of Mfg:	Transition Networks 6475 City West Parkway, Minneapolis MN 55344, USA
Model:	SISTF10xx-130-LR(T) Series Redundant Ring Industrial Switches
Part Number(s):	SISTF1011-130-LR, SISTF1012-130-LR, SISTF1013-130-LR, SISTF1014-130-LR, SISTF1011-130-LRT, SISTF1012-130-LRT, SISTF1013-130-LRT, SISTF1014-130-LRT
Regulation:	EMC Directive 89/336/EEC
Purpose: To declare that the SISTF10xx-130-LR(T) to which this declaration refers is in conformity with the following standards.	
EN 55022:1998 Class A; FCC Part 15 Subpart B; 21CFR subpart J;	
UL 60950; UL 508; CSA C22.2 no 60950; EN 60950;	
UL/cUL Class 1, Div 2, Groups A, B, C, D; ATEX Class 1, Zone 2, EExnC IIC;	
EN61000-4-2, -4-3, -4-4, -4-5, -4-6; IEC 60068-2-6, -2-27, -2-32	
<i>I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).</i>	
	December 3, 2004
Stephen Anderson, Vice-President of Engineering	Date

NOTE: The following part numbers are UL listed: SISTF1013-130-LR, SISTF1013-130-LRT, SISTF1014-130-LR, SISTF1014-130-LRT

Compliance Information

UL Listed; C-UL Listed (Canada)

NOTE: The following part numbers are UL listed: SISTF1013-130-LR, SISTF1013-130-LRT, SISTF1014-130-LR, SISTF1014-130-LRT.

CISPR22/EN55022 Class A CE Mark

FCC Regulations This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the user's own expense.

Canadian Regulations This digital apparatus does not exceed the Class A limits for radio noise for digital apparatus set out on the radio interference regulations of the Canadian Department of Communications. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

European Regulations

Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Achtung ! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten. In diesem Fall ist der Benutzer für Gegenmaßnahmen verantwortlich.

Attention ! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartiendra alors à l'utilisateur de prendre les mesures spécifiques appropriées.



CAUTION: RJ connectors are NOT INTENDED FOR CONNECTION TO THE PUBLIC TELEPHONE NETWORK. Failure to observe this caution could result in damage to the public telephone network. Der Anschluss dieses Gerätes an ein öffentliches Telekommunikationsnetz in den EG-Mitgliedstaaten verstößt gegen die jeweiligen einzelstaatlichen Gesetze zur Anwendung der Richtlinie 91/263/EWG zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über Telekommunikationsendeinrichtungen einschliesslich der gegenseitigen Anerkennung ihrer Konformität.

Contact Transition Networks

Technical support is available 24 hours a day.

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