

STE10GBE 10GbE PoE Ethernet Interface



TOMORROW'S TECHNOLOGY... AVAILABLE TODAY!



- ✓ Passes 10,000 Mbps Ethernet with greater than 90 dB RF isolation using standard CAT6A or CAT7 cable
- ✓ Backwardly compatible with 10BASE-T, 100BASE-T, 1000BASE-T, 2.5GBASE-T, 5GBASE-T, and full speed 10GBASE-T
- ✓ Automatic dual mode PoE power detection, LED identification, and pass-through, per 802.3af/at standards
- ✓ Full rejection of 4G LTE and other 700 to 900 MHz service bands
- ✓ Provides 8 separate data or control lines for custom I/O applications
- ✓ Includes 2 double shielded CAT7 Ethernet patch cables

THE BLAZING SPEED OF TOMORROW, HERE TODAY!

The STE10GBE represents the latest advancement in an Ethernet networking I/O device for an RF Shielded Test Enclosure or any RF shielded environment. This is where our two decades of being the leading worldwide manufacturer of RF Shielded Test Enclosures not only allows us to follow the history of Ethernet I/O requirements, but demonstrates our commitment to future technology!

We started with an RJ11 RF filtered I/O for dialup V.32 network communications. From there Token Ring and Token Bus started the Ethernet standards. Suddenly Ethernet LAN cards became standard in computers, and the 10BASE-T became standard. Soon "Fast Ethernet" evolved with 100BASE-T providing a blazing 100Mbps. Needless to say, each time speed increased, the effectiveness of the RF low pass filter for a RF shielded test environment had to be reduced, limiting the total isolation effectiveness of the environment.

THEN CAME GIGABIT AND PoE!

Then Gigabit Ethernet showed up, who would have imagined 1000Mbps network data communications not only in large offices, but now even standard in home computers. Ramsey stayed ahead of each of these advancements, with the current STEG4590 Gigabit Ethernet interface. Not only did we pass network traffic at Gigabit speeds but we provided complete 802.3af/at PoE operation as well, while providing >90 dB RF isolation.

Then it happened, with the incredible popularity of our Gigabit interface, we started receiving calls for 2.5GBASE-T and 5GBASE-T Ethernet I/O interfaces. Looking into the newest standards we saw that 10GBASE-T was the latest upcoming standard that would provide a blazing 10,000Mbps over standard CAT6A or CAT7A copper 4-pair cable. Simply amazing. So once again, working with our large OEM customers, we put our engineering team to work, to come up with the impossible task of a fully functional 10GBASE-T Ethernet I/O interface. Our goals were difficult, but we met them all:

- ✓ Like our Gigabit interface, RF isolation greater than 90 dB down, all the way down to cover the 700 MHz LTE bands
- ✓ Completely passive and free of self-induced emissions and noise
- ✓ True end-to-end 10GBASE-T transparency
- ✓ Backwards compatible with 10BASE-T/100BASE-T/1000BASE-T, 2.5GBASE-T, 5GBASE-T, and of course full speed 10GbE
- ✓ Transparent PoE detection and pass-through meeting full 802.3af and 802.3at standards as well as non-standard PoE power inserters
- ✓ Identical compact and RF-tight easy to install form factor as our other data interfaces
- ✓ Built-in port protection for continuous duty use as well as over-tensioned cables

The Ramsey Electronics STE10GBE Ethernet Interface represents the latest introduction into the future of Ethernet intercommunications into your RF Shielded Test Enclosure. 10Gbps data over a CAT7 patch cable... faster than the average HDD can read and write! Faster than USB3.0. In our 10GBASE-T test bed, we equipped a few new computers with Intel X540-T2 PCIe NICs. We started transferring large blocks of data between network shares on the computers using standard CAT7 patch cables and a 10GBASE-T network switch each through one of our STE10GBE interfaces. 5GB HD video files transferred in a blink of an eye 100GB blocks of data in a matter of seconds. Again, it's simply amazing to see.



GREAT FOR YOUR CUSTOM DATA AND DC POWER APPLICATIONS!

While the Ramsey Electronics® STE10GBE Interface is primarily designed for RJ45 terminated 10,000Mbit/s Ethernet applications, it is perfect for custom data interface applications into an RF test environment. Our 10GbE interface provides a conductive insertion loss on all 8 data lines from greater than 90 dB down from 700 MHz to well beyond 8 GHz. The passband up to 500MHz, is unaffected by the interface while maintaining extremely sharp signal edges, phase integrity, and impedance of the signal to assure you 100% transparency of your data between the input and the output of the interface well beyond even the third harmonics of your signal. Add this to a DC resistance of less than 1.5 ohms and a current rating of half an amp per data channel, you now have 8 lines or 4 pair to use for your custom DC or data circuits and applications.

SIMPLE RF-TIGHT INSTALLATION... ANYWHERE!

High efficiency RF isolated I/O interfaces are nothing new to Ramsey Electronics. While intended for use with our RF Shielded Test Enclosures, we realize that you may also need such an effective isolated interface on your other existing equipment. Whether it be a screen room or a third party farady cage, we made the installation of our STE10GBE simple for all. Like our USB, Gigabit, and HDMI interfaces, we designed the interface inside a solid finely milled block of aluminum. Then to protect the RJ45 connectors on both sides, we milled solid aluminum protective surrounds around them to protect against broken connectors caused by over-tensioned cables and continuous duty OEM production environments. Finally, like our other interfaces created a single hole through wall mount to provide a simple yet 100% bond to your mounting surface. A custom flange nut and EMI RF gasket is provided to assure absolute RF radiated isolation.



Solid milled RJ45 port protection!



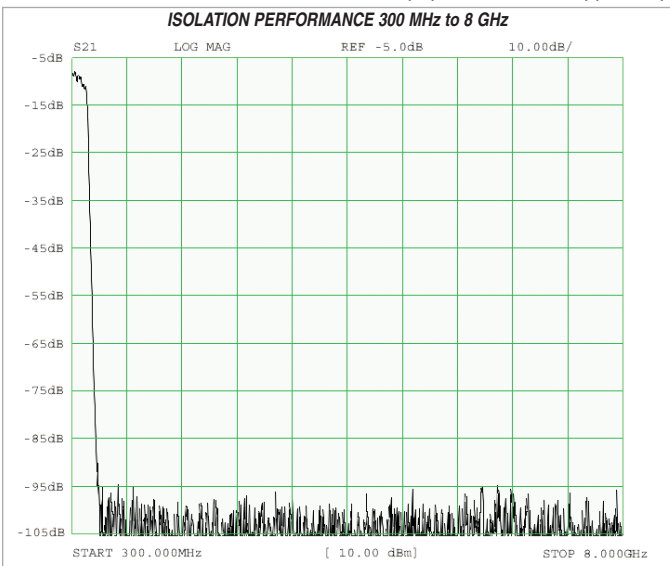
It should be noted that per the standards set forth for the 10GBASE-T protocol, you must use either CAT6A or CAT7 Ethernet cables specified to 500 Mhz and to maintain proper RF isolation, they must well shielded. Realizing that this may be your first entry into the 10GBASE-T world of ultra fast Ethernet, we even include 2 double shielded CAT7 Ethernet patch cables! When you receive the STE10GBE, you are all set to go!

AUTOMATIC PoE DETECTION, IDENTIFICATION, AND PASS-THROUGH!



Then, just like our popular Gigabit PoE interface, we sent one step further and designed the same PoE function into our 10GbE unit to automatically detect the presence of PoE power from your power sourcing equipment. It will then display via front panel LEDs, whether it is detecting Mode-A or Mode-B. However, to preserve the protocols set forth in 802.3af/at, it becomes more involved. There MUST be a PoE powered device (PD) connected to one side of the Ethernet Interface for your power sourcing equipment (PSE) to detect.

When the other side of the interface is connected to the power sourcing equipment, the PD is interrogated transparently through the interface, and if properly negotiated, your PSE is allowed to enable PoE DC voltage. At that point, the PoE DC power from your PSE is passively fed through the Ethernet Interface to your PD, and the mode of the circuit detected is displayed on the front of the interface as Mode-A or Mode-B. If the PD is unplugged from the circuit, it will no longer be detected by the PSE, and PoE DC will be disabled. All of this is done transparently through our 10GBASE-T Ethernet interface! Passive inserters are also simply detected, typically as Mode-B, and passed through to the PD.



SPECIFICATIONS	
GENERAL	
Product Part Number:	STE10GBE
UPC	871183006154
Outside Dimensions:	3.4"H x 3.25"W x 1.1"D (86.36mmH x 82.55mmW x 27.94mmD)
Weight:	.75 lbs (.3kg) with nut, and RF gasket
Construction:	Milled aluminum
Mounting:	Single 1.25" OD hole with provided EMI collar gasket, and 1.25-18 UNF flange nut (.625"/15.9mm max panel thickness)
External Connection:	RJ45 shielded female
Internal Connection:	RJ45 shielded female
CAT7 Ethernet Cable Provided:	7" double shielded stranded superflex CAT7 patch cable
TECHNICAL	
Ethernet Standards:	10/100/1000/2.5G/5G/10GBASE-T
Data Lines:	8
Impedance:	100 ohm
DC Resistance:	<1.5 ohm per data line
DC Current Limit:	.5A per data line
Insertion Loss, DC - 100 MHz:	<0.6 dB per data line
Insertion Loss, 200 MHz:	<1.0 dB per data line
Insertion Loss, 450 MHz:	<1.9 dB per data line
Insertion Loss, 600 MHz:	>56 dB per data line
Insertion Loss, 700 MHz - 8 GHz:	>90 dB per data line
PoE Modes:	802.3.af/at Mode-A, Mode-B, Passive
PoE Detection:	Mode-A and Mode-B LEDs upon PD detection by PSE
PoE Power Pass-Through:	Passive, between PSE and PD
Availability:	In-stock for immediate delivery
Available Versions:	STE RF Test Enclosure installed option Individual stand-alone accessory for customer installation OEM bulk (Contact Ramsey Electronics®)

Note: Specifications are average achieved and certified final test measurement values. Subject to change and revisions. Not responsible for typographical errors and omissions.

- Check out our other RF Isolated I/O Interfaces**
- Gigabit PoE Ethernet
 - HDMI 4K Video
 - USB2.0 High Speed

