**THE BLAZING SPEED OF TOMORROW, HERE TODAY!**

The STE10GBE represents the latest introduction 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 100Mbp/s. 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 1000Mbp/s 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 STE10GBE Ethernet Interface. Not only did we pass network traffic at Gigabit speeds but we provided complete 803.2af/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 10,000Mbp/s 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 10GBASE-T
- 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 and cable strain relief 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.
**SIMPLE RF-TIGHT INSTALLATION... ANYWHERE!**

RF leakage must be kept in check with any RF isolation environment interface, and shielding becomes paramount. Therefore, just like we did with our USB and other Ethernet Interfaces, the 10GbE Ethernet interface is designed inside a solid finely milled block of aluminum and then machined it around a single-hole mount! The entire interface can be installed on your RF Test Enclosure, or your screen room I/O panel with one single 1.25” hole. And to make field upgrades from Gigabit to 10GbE Ethernet a breeze, we even maintained the same dimensions and mounting hole parameters between models.

With the provided flange nut, lockwasher, and mesh EMI gasket, the interface is 100% bonded to your mounting surface. That, along with precision gasketing, assures a radiated isolation also greater than 100 dB. Then we added integral solid milled tension surrounds on both sides, and a threaded cable strain relief post on the front side, to accommodate the duty cycle of repetitive lab insertions and connections as well as accidental cable over-tensions. This puts an end to broken Ethernet I/O ports and connectors!

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 also be 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!

**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.

**RF ISOLATION... CAN ONLY BE AS EFFECTIVE AS YOUR WORST I/O!**

100pF DB9’s provide less than 43 dB insertion loss at your reject bands. 10pF’s are even worse at less than 9 dB! In today’s crowded RF spectrum, with high power WAPs literally everywhere, that just doesn’t cut it. Check out our full line of high performance RF isolated interfaces, where we typically keep you >90 dB down from USB3.1 to 4K video, and everywhere in-between!

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**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 (.825”(15.9mm max panel thickness)

External Connection: RJ45 shielded female

Internal Connection: RJ45 shielded female

CAT7 Ethernet Cable Provided: 2ea 7” double shielded stranded superfine 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

Effective Radiated RF Isolation: >100 dB, 700 MHz to 8 GHz

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: >60 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.

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**ISOLATION PERFORMANCE 300 MHz to 8 GHz**

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