

STEGBE4591 Gigabit 8-Line Data Interface



ULTIMATE 8-LINE INTERFACE.. -90 DB 700 MHZ TO 8 GHZ!

- ✓ Passes 10/100/1000 Mbps Ethernet with greater than 90 dB RF isolation
- ✓ Provides 8 separate data or control lines for custom I/O applications
- ✓ Full rejection of 4G LTE and other 700 to 900 MHz service bands
- ✓ Easy and convenient single hole mount for an RF tight installation on any RF chamber or screen room environment
- ✓ Rugged milled aluminum construction for optimal shielding and RF isolation
- ✓ Solid milled port savers and strain relief prevent connector damage from robust duty cycles and cable tension abuse

GIGABIT ETHERNET WITH GREATER THAN 90 DB RF ISOLATION!

As described with our STEGBE4590 Gigabit PoE Ethernet Interface, there was a day when an Ethernet I/O into an RF isolated chamber or screen room was not overly challenging. In fact, it was rather simple, all things considered. There is the standard and simple low pass filter that provides 40 dB rejection of data above 100 MHz, as well as filters that claim to be designed for Ethernet but are actually based on a 480 MHz USB cut-off. Both of these are simple attenuators that also malmform the phase and integrity of the data. We met those challenges when we introduced our STEGBE4590 PoE Ethernet Interface. Designed from the ground up, we provided an RF isolation greater than 90 dB down from 8 GHz all the way down to the 700 MHz LTE bands. We also provided automatic 802.3af/at PoE mode detection and status indicators. This Gigabit Ethernet interface, along with its 10GbE cousin, the STE10GBE, have become the number one requested Ethernet interfaces throughout the industry.

THE ULTIMATE 8-LINE DATA SOLUTION!

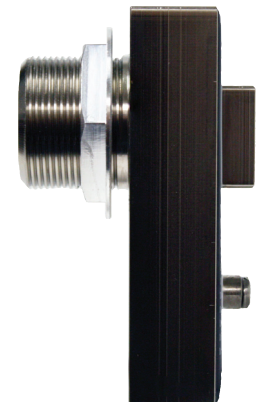
Because there are some data applications that do not follow strict Ethernet configuration standards, we designed a non-PoE version of the interface to be fully transparent on all 8 data lines for these custom applications. For applications such as I2C, TTL, RS422, and RS485, among others, the STEGBE4591 is your perfect interface to provide 8 independent data lines that have an RF isolation greater than 90 dB! It also still continues as a great Gigabit Ethernet interface, with the only difference being the lack of automatic PoE power and mode detection. For upgrade/downgrade considerations, both the STEGBE4590 and STEGBE4591 have an identical form factor, and are interchangeable in the field.

- ✓ RF isolation greater than 90 dB down, all the way down to the 700 MHz 4G LTE bands
- ✓ Free of noise or self-induced emissions
- ✓ Truly transparent, end to end, 10/100/1000 BASE-T Ethernet
- ✓ Truly transparent, end to end, 8-line data pass through for custom non-Ethernet applications, up to 250 MHz each
- ✓ Transparent PoE pass-through
- ✓ Compact and RF-tight easy to field install form factor
- ✓ Interchangeable with our STEGBE4590 Gigabit Ethernet PoE mode detecting interface

NOISELESS TRULY TRANSPARENT PASS-THROUGH!

That's a simple statement, but it goes deep in definition. In a perfect world, the goal for you to test your DUT is to emulate the same direct connection you would have during normal operation. Technically, that means maintaining a very low insertion loss, maintaining sharp signal edges, maintaining phase integrity and impedance, and to be transparent well beyond the 3rd harmonics.

The interface consists of 8 data lines making up 4 impedance-matched balanced pairs, minimizing signal reflection and ringing, and making it transparent to Ethernet equipment. Each channel passes bidirectional data up to 250 Mbps to exacting Ethernet specifications to allow a total throughput of 1,000 Mbps, or "Gigabit Ethernet". In short, the perfect Ethernet interface needs to emulate a short length of CAT5E cable... but with >90 dB of isolation. Likewise for your non-Ethernet applications, the interface is truly transparent on all 8 lines, just crimp on an RJ45 to match your connections, and you have up to 8 clean control and data lines, up to 250 MHz, all >90 dB of RF isolation!



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 USB2.0, USB3.1, Gigabit PoE Ethernet, and 10GbE Ethernet interfaces, we designed the 8-line data interface inside a solid finely milled block of aluminum and 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. In addition, all Ethernet and data interfaces are designed around the same form factor and mounting centers to allow easy field interchangeability if your applications change!

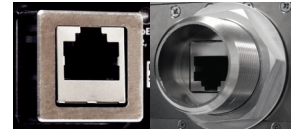
With the provided flange nut, and dual mesh EMI gaskets, the interface is 100% bonded to your mounting surface. That, along with precision gasketing, assures a radiated isolation also greater than 90 dB. A double shielded CAT7 superflex cable is included for those using the interface for Ethernet applications.

BUILT-IN PORT SAVERS!

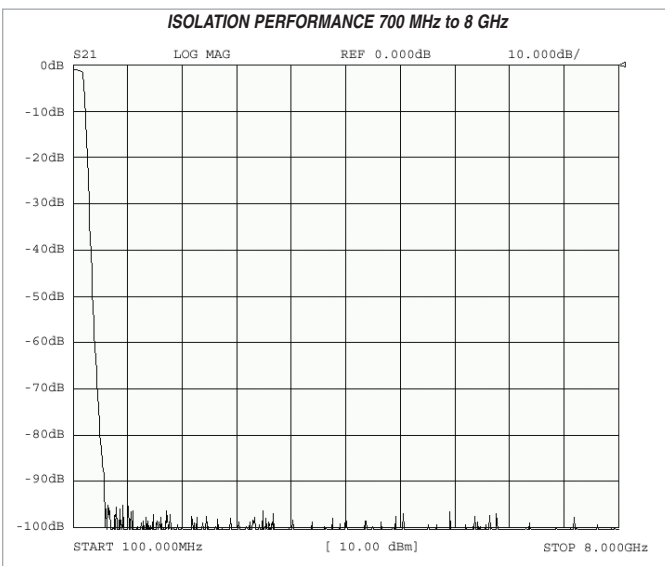


Solid milled Strain Relief!

To protect the integral RJ45 connectors from lateral stress damage we added integral solid milled tension surrounds on both the internal and external connectors. In addition, the outside of the unit includes a solid milled strain relief post to clamp or cable-tie your test cable to protect the RJ45 connector from accidental cable over-tensions. This puts an end to broken I/O ports and connectors! It simply doesn't get any better than that.



Solid milled RJ45 port protection!



COMPARISON STEGBE4590 TO STEGBE4591

The Gigabit PoE Ethernet Interface is designed specifically for Ethernet applications, with or without PoE functionality. In accordance with PoE standards 802.3af/at, pins 4-5/7-8 or pins 1-2/5-6 are used for PoE detection.

The use of those pins may conflict with certain non-Ethernet applications such as I2C, RS422, etc. and the 8-line Gigabit Interface should be used to eliminate any conflicts. Both units are designed to provide >90 dB RF isolation from 700 MHz to 8 GHz, and are physically interchangeable in the field.

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

If you're using 100pF filtered DB9's for your Ethernet feedthroughs, the effective RF isolation will be less than 43 dB. Likewise if you're using 10pF filtered DB9's for your USB applications, the effective isolation will be less than 9dB! 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!

SPECIFICATIONS

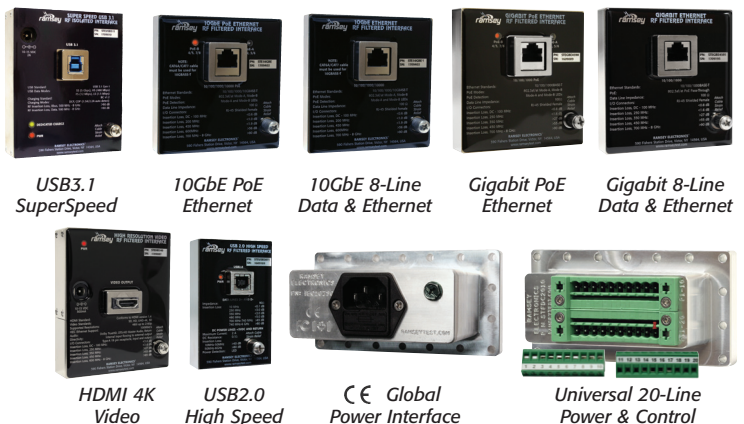
GENERAL

Product Part Number:	STEGBE4591
UPC	871183005331
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, AMS-C-26074 Class-4 Electroless Nickel plated
Mounting:	Single 1.25" OD hole with provided EMI collar gaskets, and 1.25-18 UNF nut (.625"/15.88mm max panel thickness)
External Connection:	RJ45 shielded female, protected and strain relieved
Internal Connection:	RJ45 shielded female, protected and strain relieved
Ethernet Cable Provided:	7' double shielded stranded superflex CAT7 patch cable

TECHNICAL

Ethernet Standards:	10/100/1000BASE-T
Data Lines:	8ea, DC to 250 MHz
Impedance:	50 ohms per line
DC Resistance:	<1.5 ohm per data line
DC Current Limit:	.5A per data line
Insertion Loss, DC - 100 MHz:	<0.8 dB per data line
Insertion Loss, 250 MHz:	<1.6 dB per data line
Insertion Loss, 350 MHz:	>27 dB per data line
Insertion Loss, 450 MHz:	>55 dB per data line
Insertion Loss, 700 MHz - 8 GHz:	>90 dB per data line
Ethernet 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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STEGBE4591_Rev-B