

## 10 REASONS FOR 10G

In an age of information, there is an abundance of documentation available on the pros and cons of various networking solutions. To assist IT Managers and Consultants to cut through the information jungle Brand-Rex has clearly outlined 10 key reasons why the 10GPlus Augmented Category 6/Class E<sub>A</sub> is the best passive networking solution to support future high speed network requirements.

**Brand-Rex has been at the forefront of cabling technology in Europe for over 35 years and today remains committed to developing world class solutions for the structured cabling market that exceed the needs of high speed networks.**

### 1. Value proposition

Over the past 12 years Brand-Rex has maintained its reputation for delivering industry leading high performance network solutions at competitive pricing. Our 10GPlus solution (Screened or Un-screened) continues to be rated, through independent assessment, as the leading Augmented Category 6/Class E<sub>A</sub> cabling system on the market being specified by leading players in multiple-market segments including finance, insurance and the retail sector.

Being the lowest cost supplier is not a Brand-Rex objective as we believe it is critical to procure the investment required for the technical research and international standards participation required to maintain the level of technology understanding needed for these new high speed products. Reliable networking solutions are not pieced together overnight but require careful and advanced engineering to ensure that the individual components will meet the required levels of performance when standardisation is completed in 2009.

As a technology Augmented Category 6/Class E<sub>A</sub> has technically challenged even the best brains in our industry and therefore a cautionary note has to be sounded to those specifiers who are about to implement an Augmented Category 6/Class E<sub>A</sub> solution which is not from one of the major international manufacturers and has been solely chosen for cost reasons.

### 2. A 'future proof' alternative

Augmented Category 6/Class E<sub>A</sub> standardisation represents the pinnacle in copper based structured cabling for at least the next 10 years and has been engineered to meet the bandwidth needs of future technologies. 10GPlus represents an industry leading Augmented Category 6/Class E<sub>A</sub> solution which meets the exacting requirements of tomorrow's networking technologies today.

Investing in a 10GPlus solution today provides the end user with the comfort that his high speed networking needs, for at least the next 10 years, will be covered with a product set that is capable of supporting all future applications designed to run on Augmented Category 6/Class E<sub>A</sub> cabling systems. Brand-Rex believes that the smartest option is always to cable today to meet your networking needs of tomorrow as the cabling system will always outlive the active equipment you install.

### 3. A proven capability

Implementing high speed networks has presented a number of new challenges to the network designer due, in part to;

- (i) A new electrical phenomenon known as Alien Crosstalk that introduces specific issues associated with cable segregation

- (ii) Physical size- Augmented Category 6/Class E<sub>A</sub> – UTP cables are much bigger than the traditional Category 6/Class E<sub>A</sub> products resulting in much greater care and attention being required around cable containment and routings.
- (iii) The re-introduction of screened cables which introduces a whole new challenge in terms of earthing and bonding.

With over 1 million 10GPlus ports already installed globally, Brand-Rex is ideally placed to offer the best advice in terms of the challenges faced when installing new high speed networks.

Our 10GPlus solution is supported by an international team of Brand-Rex experienced technicians who can assist with planning and installation advice ensuring an optimised network performance.

### 4. Quality built in

Our passion for Customer Service provides the foundation through which we deliver a consistent level of quality and support to all Brand-Rex customers around the globe.

Through this Customer Service principle all 10GPlus solutions are built to deliver the quality of service demanded by high speed networking applications such as 10 Gigabit Ethernet ensuring that the specified bit error rate is achieved thus avoiding increased network latency created through repeat packet transmissions that result in unacceptable network inefficiency.

The maintenance of an Independent Verification programme is the final seal of quality and assurance that our 10GPlus products comply with the latest national and international standards.

### 5. A systemic approach to design

Brand-Rex has repeatedly earned the reputation for delivering passive networking solutions that deliver premium performance to support the reliable transmission of high speed network applications.

10GPlus has been designed and developed by our R & D team in Scotland as a complete solution with each components electrical performance optimised to assure an industry leading channel performance up to 500MHz that exceeds the requirements of the most demanding Class E<sub>A</sub> specification as outlined within ISO/IEC 11801:2002 Amendment 1.

10GPlus is available as both screened and unscreened solutions with options available to comply with the toughest commercial EMC environments.

### 6. A novel approach addresses the key issues

10GPlus is an industry leading Augmented Category 6/Class E<sub>A</sub> solution and as such incorporates a number of patented design features that cover the connectors, the RJ-45 plugs and the cables. The product set boasts no fewer than 6 new patents or registered designs which have been realised through our determination for product excellence and reliability.

The weakest point with all high speed networks is associated with the connectivity therefore the connectors and RJ-45 plugs within the 10GPlus range have been designed and tested using the latest component validation techniques that ensures they not only to provide an industry leading Augmented Category 6 component performance but also ensures the backwards compatibility with legacy Brand-Rex networking equipment.

Competitive benchmarking has confirmed that our connector technology is probably the best in the industry. Enhancements to the electrical performance of the connectors has simultaneously been coupled with the deployment of our 'Tool-free' technology that ensures fast, reliable terminations whilst guaranteeing the electrical performance required by the end user.

The factory made patch cords include the latest Brand-Rex designed low profile RJ-45 plug that supports high density switch applications which incorporates an integral anti-snag clip feature and a unique internal management guide that assures consistent reliable electrical performance.

The most obvious invention has seen the use of the 'Reuleaux Triangle' shape in our UTP cable design to overcome the issues of Alien Crosstalk whilst ensuring that the cable diameter remains as small as possible to optimise installation containment requirements. The 10GPlus range is further enhanced through the introduction of the 'Zone Cable' – the smallest diameter Augmented Category 6/Class E<sub>A</sub> solution in the market today.

Originally designed for the shorter runs (<70m) within the data centre the Zone Cable is now recommended by Brand-Rex for general applications and in particular for those applications where space is at a premium such as Data Centre and Equipment Room applications.

#### 7. Screened or Unscreened?

In 2005 Brand-Rex presented the technical case for screened copper cabling to support the then emerging 10GBASE-T application primarily, to guarantee the Shannon capacity required to support the technology over a 100 metre channel (Approx. 18Gb/s).

This work also explored the susceptibility of high speed networks to external interference (EMI) and concluded that in some commercial environments we would not support the deployment of unscreened solutions.

Our position in this matter remains unchanged and when asked to recommend an Augmented Category 6/Class E<sub>A</sub> solution Brand-Rex would always proposed a screened 10GPlus solution for optimum reliability and network performance. The screened 'Zone Cable' is the smallest diameter Augmented Category 6/Class E<sub>A</sub> cable solution on the market which was purposely designed for high speed applications in the data centre where space is often at a premium. The deployment of screened cables also minimises the issues associated with cable segregation as often experienced through the use of UTP cables to safeguard against the potential interference affects.

With an eye to the future, the IEEE has already started work to develop 40Gigabit and 100Gigabit technologies that may require a bandwidth of beyond 2GHz.

One thing is certain, a solution for these applications will not involve UTP cabling.

#### 8. Channel performance guaranteed

All networking applications depend upon the performance of the complete channel to maintain the quality of service demanded by next generation Ethernet applications.

Mismatches in cable and component Impedance will result in return loss discontinuities that will compromise the transmission of network traffic. Typically this will result in the need to retransmit data which, if unchecked, will affect the network performance and ultimately the networks reliability.

10GPlus has been designed to minimise mismatches between the connectors, patch cords and cables ensuring Brand-Rex can guarantee an Augmented Category 6/Class E<sub>A</sub> performance of the channel with up to 4 connections – a performance capability that has been confirmed through independent testing.

In addition to matching the performance of all parts of the cabling system 10GPlus solutions offer enhanced reliability through optimising the channel ACR (Attenuation to Crosstalk Ratio) which provides an assurance of the quality of the 500MHz transmission line.

#### 9. Peace of mind

The 10GPlus offering is supported by the Brand-Rex 25 year product and lifetime applications warranty.

Through our commitment to product validation and development Brand-Rex can assure the performance of its 10GPlus products for the next 25 years against the requirements laid down within ISO/IEC 11801:2002 Amendment 1 and ANSI/TIA-568B.2-10.

The Brand-Rex warranty is only available through our approved global partner network and only from those partners who have completed the necessary training and maintained their training credentials. With each warranty application our team of technicians will analyse every single result to ensure compliance and identify any specific underlying issues that may require intervention before sign-off to assure the long term reliability of the network.

#### 10. More than just copper

10GPlus forms part of a family of advanced copper and optical solutions provided by Brand-Rex to support high speed Local Area Networking applications throughout the horizontal and backbone areas of the network to the Data Centre and Storage Area Environments where applications such as 10 Gigabit Ethernet are likely to be deployed first.

Fibre backbone solutions are delivered through our FibrePlus range of cables and connectivity.

High bandwidth multi-mode OM3 and OM3+ fibre cabling solutions are available, as standard, to support applications up to and beyond 10Gigabit Ethernet. A complimentary range of single mode fibre solutions employing low water peak G-652D fibre as standard is available to support those high speed networks where WDM is deployed.

Our high speed networking fibre cabling solutions including our MT Connect Pre-Terminated are specified with a range of low loss connectivity to enable the network designer to maximise link budgets in those areas where an increased number of terminations is required without compromising the network effectiveness.