

Education and Campus Solutions

Brand-Rex | a **LEVITON**
company



Challenges and Drivers

From interactive white boards in the classroom to HD and 3D multimedia on large screen monitors, pc's and tablets - the demands on IT infrastructure for bandwidth, latency and quality of service are ever more stringent.

Books and microfiche in academic libraries are being replaced by digital equivalents on massive storage networks - with students, lecturers and researchers all expecting near-instantaneous retrieval. Storage and bandwidth requirements are increasing by orders of magnitude as HD video becomes a mainstream format for teaching, conferencing and studying.

With the youth of today epitomizing the 'always on' generation and the fact there are now more mobile connected devices than fixed, many institutions have already implemented campus wide wireless access. The growing adoption of 'mobile education' offers students access to e-learning, e-tutoring, e-assessments and the ability to interact with peers and teachers - more importantly at any time in any location. Utilising smart phones, tablets and laptops is building a compelling learning platform that will be harnessed by a significant proportion of the education market.

At the research level, massive quantities of Big Data are collected and analysed. This requires transfer to storage networks and to grid computing arrays or supercomputers, all adding increased strain to existing networks.

Consideration must also be given to the facility management applications such as lighting, voice over IP, surveillance, security and climate control. Not forgetting the the normal back-office IT systems required for admin, HR, payroll, student records etc. All of which means the passive network infrastructure reliability is essential in order to keep the university, college or school functioning.

Against this backdrop, educational establishments have possibly the most dynamic IT needs of any organisations with highly transient user base and complex network environments regularly requiring Moves Adds and Changes (MACs).

These challenges become even more precarious with the requirement to work under continuous and evolving budget constraints, making both cost optimisation and better use of the installed capacity key design criteria for the IT manager.

With an increasingly interconnected society we are experiencing the inexorable evolution from a connected era to an interconnected one, with cross campus communication driving requirements. Offering knowledge sharing capabilities never seen before, agile networks of the future will need to span schools, campuses, cities and continents.

Increasingly, societies around the world are recognising that investment in education and the IT network that underpins it, is an investment in their future growth and economic prosperity.

Network Infrastructure Challenges

As an IT professional or consultant responsible for the network infrastructure at a school, college or university it is often difficult to forecast what will be required from the converged IP network in the long to medium term or sometimes even the following year.

What is clear, is a vision for a next generation learning experience in a cutting edge environment. This future will naturally require higher bandwidth and increased storage, as well as fixed and mobile wireless connections to ever more devices.

Additionally there will be a requirement to bring your establishments multiplicity of existing networks up to a common standard to permit anything-anywhere functionality and security managements for users.

Brand-Rex understands these pressures and uncertainties having delivered flexible high-reliability infrastructure solutions to thousands of educational establishments around the world. This know-how and experience make Brand-Rex the intelligent choice for your network ensuring you receive the best technical and economic solution while supporting your unique and specific needs.

Specialised Needs

Brand-Rex manufactures a full range of standards compliant system solutions supporting the migration from 10-40-100 Gigabit applications, all providing exceptional performance and superior headroom.

We offer a broad range of highly flexible solutions for rapid installation and reconfiguration, because we understand the deployment restrictions with which you need to operate.

We are experienced in designing backbone, campus and fibre-to-the-user network solutions using our Blolite Air Blown Fibre technology – allowing cost effective deployments today with a pre-planned upgrade path, avoiding the risk of selecting a technology now that might not be the most suitable option in future years.

We believe in innovative bespoke solutions backed by our 25 year systems and applications warranties and we can help you plan fault-tolerant networks.

Understanding extensive and complex networks need to work even harder in ten years time than they do on day one, means we ensure flexibility and bandwidth upgrade roadmaps are built-in from the start.

Brand-Rex is dedicated to reducing its impact on the environment and offers sustainable solutions. As part of this commitment Brand-Rex achieved Carbon Neutral status for its Global organisational and operational activities in accordance to the PAS2060 and ISO14064 standards.

As a leading network infrastructure manufacturer we understand the environmental impact of our operations, that's why we are committed to reducing our impact on the environment by utilising sustainable energy sources and materials to manufacture sustainable solutions.

Brand-Rex was not only the first network infrastructure company to achieve carbon neutral status for its global operations, but also the first to introduce a range of Carbon Neutral products.

To find out more about our commitment to the environment and to sustainable design visit: www.brand-rex.com/environment



EDUCATIONAL SOLUTIONS

Brand-Rex offers a wide range of fully tested, durable and reliable solutions ideally suited for educational installations. This is a market sector where high performance networking is essential. Brand-Rex has the knowledge, experience and solutions to support the most sophisticated and ambitious data network.

Whether it is high speed, robust connectivity within the class room, lecture theatre or a campus fibre network ring – Brand-Rex solutions deliver a capability to support the needs of today and tomorrow.



Wireless Networks

A range of high performance network cabling solutions are required throughout educational facilities to provide students and staff with reliable and high speed wireless internet connectivity 24 hours a day.

Wireless Access Points (WAPs) are required as part of the structured cabling system in order to communicate with the rest of the Local Area Network. Wireless Access Points are located at high levels above/below ceiling height where the best RF coverage is achieved.

To support this, Brand-Rex offers a 10GPlus outlet and consolidation point cassette delivering true Augmented Category 6/Class EA performance. Providing superior screening characteristics in a light yet robust construction that can be used with or without a patch panel, makes them the ideal plug and play consolidation point solution.



Public Areas

High fire safety performance cables can prevent the spread of fire and smoke, an important safety decision. For indoor data cables Brand-Rex offers a range of low flammability, zero halogen materials that carry a fire safety rating in line with IEC 60332-1-2 and the more demanding IEC 60332-3-24. In such areas where there will be a high footfall of public and where the backup of business critical data transmission must continue in the event of an emergency then solutions such as optical Fire Survival cables become the ultimate solution of choice.

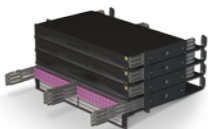


Data Centre

The data centre is an essential part of the learning centre IT infrastructure, ensuring instant access to current and accurate student data on demand and without disruption. The solutions within this environment need to allow for the growth and expansion of educational services, in relation to both technology and space availability.

With a greatly reduced diameter, Brand-Rex zone cable overcomes containment issues by saving pathway space in trays and cabinets. This unique cable offers 30% weight reduction and 50% space saving compared to equivalent horizontal cables, offering a flexible and easier installation with excellent transmission parameters.

HI-DEX is an ultra high performance, pre-terminated, modular optical fibre cabling system based on MT ferrule connector technology. This solution is an ideal option to improve the operational efficiency of the facility as well as future proof for change and growth.



Research Laboratories

Whether it's a teaching laboratory with educational needs or a research laboratory at the forefront of developmental breakthroughs, superior performance data networking systems provide a safe, secure and reliable network solution to support the data hungry demands of today's laboratory environment.

Adaptable future proof solutions such as the pre-terminated HI-DEX range maximises levels of flexibility to support migration paths for the speeds of tomorrow.





Security and CCTV

With campus security of growing importance, high performance cables provide an advanced network infrastructure for building management systems (BMS) to converge multiple vital services such as access control, CCTV, data and voice communications, lighting and climate control. Previously considered peripheral devices are now fundamental parts of a network infrastructure and the use of Power over Ethernet has become the increasingly popular choice to power them. Brand-Rex's copper cabling systems support the applications for Power over Ethernet technologies (PoE & PoE+). Consideration needs to be given to the heat generated in this process with improved heat dissipation experienced using shielded solutions. The Brand-Rex 10GPlus shielded patch cords provide optimum and consistent performance while ensuring the reliability of the system.



Campus Environments

Educational establishments rely on quick installation and minimal disruption of services when implementing new advances in technology. To support this Brand-Rex offers a unique Air Blown Fibre System which provides complete freedom from risk by pre-installing a ducting route and blowing in the fibre element as required. The Blown Fibre system offers solutions for tortuous Internal and External applications (Blolite and MicroBlo) and is versatile with backbone and/or fibre to the student links for distances up to 1km, ideally suited to connecting multiple campus sites as well as offering a future proof and sustainable solution.



Future Demands

High Performance shielded copper solutions and fibre optic cabling are ideally suited to both mission critical and Enterprise areas within an Education facility. The ability to easily migrate to speeds of 10G and above require scalable and adaptable solutions that offer optimum levels of future proofing. In naturally "electrically noisy" environments the defence against electromagnetic interference is imperative and therefore Class E_A performance 10GPlus high performance cabling is recommended as a minimum. Brand-Rex offers an extensive range of cabling designed to support 10GBASE-T providing user friendly installation features and allows for a simple and speedy deployment of high speed cabling infrastructure. The Brand-Rex 10GPlus solution provides a complete end to end solution in both shielded and unshielded system options.



The product offering also includes high performance singlemode and multimode optical fibre cables, pre-connectorised MTP® and MPO based Optical Fibre cabling system and micro – distribution optical cables. All are available in tight-buffered, multi-loose tube or central loose tube constructions for a wide range of applications and are compliant with the latest standards.



Campus Infrastructure Management System - SmartPatch

Improving availability, increasing efficiency and facilitating existing and future planning, SmartPatch enables IT managers to design and deliver a complete solution which supports the management of assets, connectivity and capacity within the physical layer network. Not only that but SmartPatch offers security or at least visibility of any unauthorized patching or de-patching should a student decide to disrupt a network either maliciously or not.

SmartPatch offers the flexibility that IT managers require in a continuously evolving educational campus environment, where network assets often require relocation or enhancements to the live network. SmartPatch enables real time visibility and management of both interconnect and cross connect architectures, whilst extending true monitoring and management capability right down to the active device.

The range includes Connectivity Management Software (CMS) that can be utilised as a standalone offering to support your end to end infrastructure or combined with the Intelligent Patching System (IPS) to fully support the data network requirements. Should there be an uncertainty today about the requirement for intelligence, you can install an 'Intelligent ready' solution and upgrade at a later, more appropriate date.

SmartPatch supports copper and fibre solutions, both individually and in a mixed configuration in the same system, with 10Gbps and 40/100Gbps. The system also supports complete zero-U installation for maximum space savings.



Compliance

Standards compliance and network infrastructure planning are critical parts of cabling in an educational establishment. Detailed planning is required to ensure all levels of complexity from small schools to large university campuses are understood. These can be more complex than a standard enterprise network to support not only the classroom IT infrastructure but also the building, where additional IT functionality is required such as access control, IP cameras and wireless access points.

Advanced cabling solutions are required to support not only the current usage, but also future high bandwidth demand.

To help network designers and IT managers with cabling in the educational environment, the TIA have published TIA-4966 – Telecommunications Infrastructure Standard for Educational Facilities, which addresses the unique requirements of cabling systems in educational buildings.

This standard addresses not only horizontal and backbone cabling but cabling topologies, work areas, wireless access points and other key requirements.

The standard recognises existing cabling technologies such as Cat5e, Cat6, OM2 multimode and singlemode fibre, but also recommends that Cat6_A (Class E_A) and OM3 or OM4 high bandwidth fibre cabling should be chosen as a minimum requirement for new installations. This will provide the transmission paths to 10GbE on copper and higher speed channel technologies on fibre.

Policies and Regulation

Educational buildings also have an extended life over commercial premises or office spaces, so planning and network design is critical.

Adherence to not only the TIA-4966 standard but also ISO/IEC 11801 and EN50173 can provide the network designers and IT managers the peace of mind that the cabling infrastructure will not only support today's applications, but Brand-Rex leading solutions can assist you in building the infrastructure that supports your needs well into the future.

HI-DEX

HI-DEX

An ultra high performance, pre-terminated, modular, Optical Fibre cabling system based on MT ferrule connector technology. Pre-terminated solutions are designed for quick installation as well as change and repair to support modular builds. Ideal for duplex fibre technology and ready for new parallel optics technologies.

FibrePlus

FIBREPLUS

An extensive range of Optical Fibre cables and connectivity designed to support the varied and challenging requirements of the educational facilities.

10GPlus



An extensive range of premium Class E_A performance level shielded and UTP network infrastructure designed to transmit 10GBASE-T technologies.

Cat6Plus

CAT6PLUS

A wide range of Category 6 performance structured cable products to support Class E Enterprise applications.

SmartPatch

SMARTPATCH

An industry leading intelligent infrastructure management system designed to monitor and manage physical networks connections.



Case Study – Imperial College London

Ranked as the fifth best university in the world and the third in Europe, Imperial College London is a science-based institution with a reputation for excellence in teaching and research. With 60,000 outlets across campuses as far afield as Charing Cross, South Kensington and Harrow and with 60 plus building and refurbishment projects on the go, Imperial College decided to standardise on Brand-Rex copper and fibre for their network.



Case Study – Guildhall School of Music & Drama

Located in London's prestigious Barbican Centre, the Guildhall School of Music & Drama offers aspiring musicians, actors, stage managers and theatre technicians a creative and stimulating environment in which to develop as artists and professionals.

The design involved over 2,000 10GBASE-T channels to be installed to wall mounted and floor box outlets. OM4 multimode optical fibre from the Brand-Rex FibrePlus range was installed in the network's 10 Gigabit Ethernet backbone with singlemode (OS2) optical fibre used in the campus wide area network.

Complete peace of mind

Exceeding standards compliance at cable and component level is achieved through stringent design, manufacturing and operational processes, enabling us to offer the highest performance and quality our customers have come to expect.

Superior performance

Increased use of mobile devices and the need for file sharing, networking and instant access have all increased application size and data transfer rates. These applications are complex and require higher bandwidth, leading to the introduction of 10, 40 and 100G technology. Brand-Rex connectivity solutions have evolved to meet these requirements, including the adoption of plug and play solutions and low loss HI-DEX connectivity to ensure a seamless migration to higher speed Ethernet.

Flexibility

Education service facilities are far more complex than commercial buildings. Recognising this, Brand-Rex solutions are designed to support all elements of campus services across an extensive range of work areas and unique requirements. It is critical that infrastructure design supports current and future applications.

Faster installation

Whilst technologies continue to grow at an exponential rate, installation practices have been slower to evolve. Legacy often dictates that familiar products and processes offer reassurance; however the drive for more efficient and financially viable solutions is changing that rationale. Delivering significant savings in time and money, pre-terminated copper and fibre solutions have become an attractive option for maximising return on investment. Simplifying the 'Smart Design' premise and using premium quality 'factory tested' performance ensures improved operational efficiency.

Proven reliability

The focus on reliability, increased density and modularity during installation and throughout the life of the project is paramount. Superior and consistent performance is achieved using process capability to control the repeatability and consistency of the manufacturing process. This ensures long-term reliability and optimal application performance. For additional peace of mind our systems are supported by our leading 25 year system warranty.

Sustainability

Brand-Rex is dedicated to reducing its impact on the environment and offers sustainable solutions.

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We help our education partners minimise cost, ensure availability and resilience while supporting a corporate sustainability responsibility.

References

Brand-Rex has a wealth of experience to share with you as you deal with your own unique requirements. Our networking cabling solutions are installed in schools, colleges, universities and other educational facilities around the world.

Al Andalus Group of Schools

Al-Faisal University

Bournville College

ESEO Institute of Science & Technology

Harrow International School

Imperial College London

Jeddah Knowledge School

King Abdul Aziz University

King Faisal University

King Fahd University of Petroleum & Mining

King Khalid University Abha

Kuwait Ministry of Education

Ministry of Education, KSA

Ministry of Education, UK

New York University, UAE

Oslo University

Royal Scottish Academy of Music and Drama

Sofia University

Taiba University

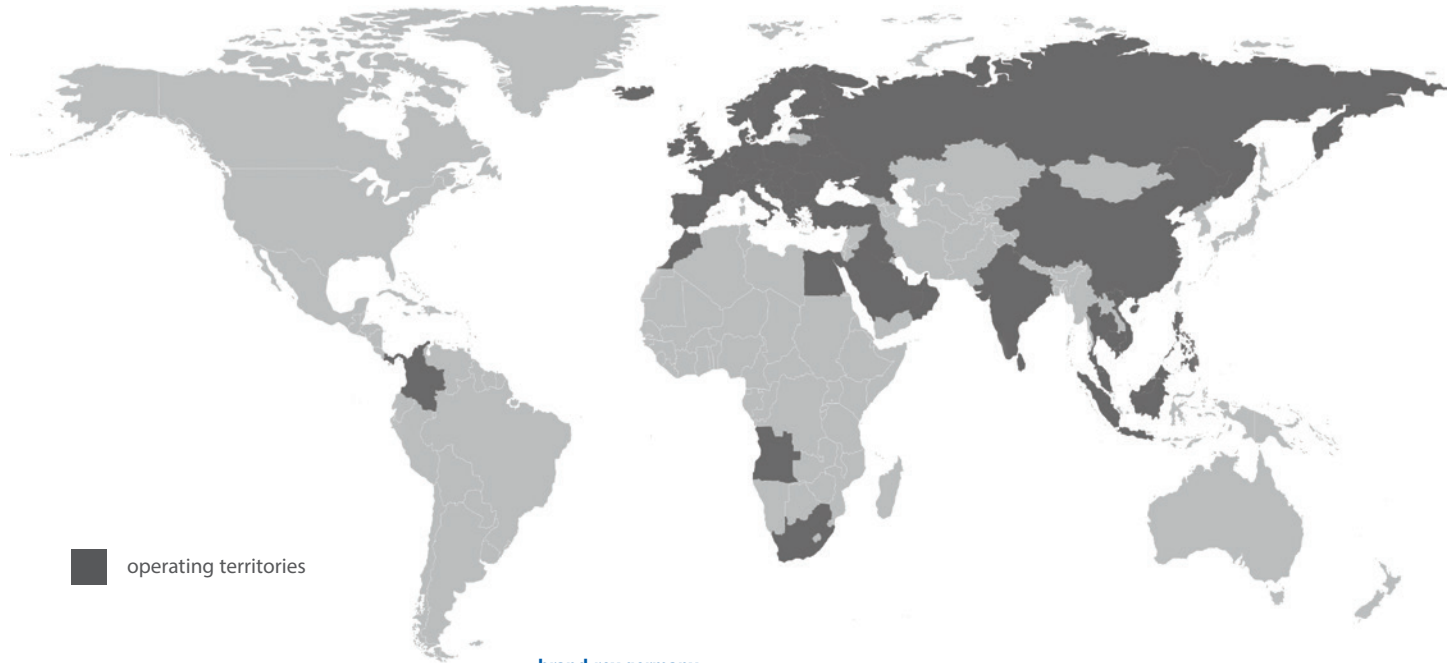
Tyndall National Institute

University of Malaga

University of Utrecht

University of Dammam

Brand-Rex is a leading technology company who design, develop and manufacture innovative fibre and high-end copper connectivity solutions for the network infrastructure cabling market and high performance cables for extreme environment applications.



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