苏黎世市正在将最高质量的
德特威勒布线系统运用在它的数据中心
改造和建设中。得益于大量预端接解决方案的运用，
TurnKey Communication 公司能够实施快速的、
节省空间的安装，并为未来的应用提供可靠的传输。
The City of Zurich is using top quality
Datwyler cabling systems in the conversion and
construction of its data centres. Thanks to largely
pre-assembled solutions TurnKey Communication
AG has been able to implement quick,
space-saving installations which will also allow
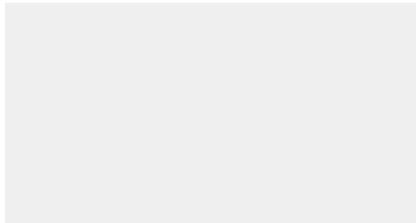reliable transmission of future applications.

高可靠性、高可利用率及高能源效率：Albis 数据中心获得 TÜViT 的第三等级认证
Reliability, high availability and energy efficiency: The Albis data centre is certified for Level 3 by TÜViT.

案例精选

REFERENCE PROJECT

高性能且节省空间
HIGH-PERFORMANCE
AND SPACE-SAVING

苏黎世Organisation and Informatics (OIZ) 是该城市的IT专业技术中心，它负责基本的IT 服务以及政府各部门IT项目的实施。作为市政IT战略的一部分（此战略以标准化和合并统一为基础），OIZ在都市区域以及位于Hagenholz的工业区内各建立了一个备份数据中心，目的是可以并行地为位于Albisrieden的数据中心提供关键部件冗余。

Zurich Organisation and Informatics (OIZ) is the city's centre of IT expertise, responsible for the provision of basic IT services and interdepartmental IT projects. As part of the municipal IT strategy, which is based on standardisation and consolidation, OIZ has built a second data centre in the metropolitan area, in the industrial area of Hagenholz, for the redundant provision of key components in parallel to the data centre in Albisrieden.

2011年6月，OIZ为这两个数据中心的现场的铜缆和光缆布线解决方案邀请厂家投标。其要求是厂家必须提供高性能的解决方案，并能为未来的应用量身定做，例如，OIZ规定必须采用的最新一代MTP连接技术，就能够适用于并行光纤传输的应用，例如40/100G以太网和120G的InfiniBand网络。

In June 2011 the OIZ invited tenders for a copper and fibre optic (FO) cabling solution for both data centre sites. The requirement was for high-performance solutions which were tailored to future applications as well, with outstanding port densities at the same time. For the FO data centre cabling, for example, OIZ stipulated the latest generation of MTP connection technology, also suited to parallel optic applications such as 40/100G (Gigabit) Ethernet and 120G InfiniBand.

8月底，苏黎世市将两个数据中心的通讯布线合同授予了Maréchaux Elektro公司。这家公司继而委托了TurnKey Communication公司来为此项目进行详细的规划和布线工作。TurnKey公司则与德特威勒公司合作，选择了一种新的优质布线系统解决方案。得益于独特的设计，此方案不仅满足了客户所有的规范要求，甚至在客户原有的规划上还做了进一步的提升。

At the end of August the city of Zurich awarded Maréchaux Elektro AG the contract for communications cabling to both data centre sites. This company commissioned TurnKey Communication AG to carry out the detailed planning and the cabling work for the project. Turnkey collaborated with Datwyler in selecting a new premium quality cabling solution which not only met all the target specifications, but even improved on the original plan thanks to its unique design.

144 LC 双重连接能够在三个机架单元上安装 德特威勒的数据中心解决方案
144 LC duplex connections can be implemented on 3 rack units with the Datwyler Data Centre Solution.

从2011年10月起，我们分四个建设阶段来安装这一布线系统，其中最后的一个阶段已在2012年4月份完成。在这两个数据中心的现场，安装团队一共安装了 大约10,000个光纤链路以及4,200个铜缆链路。

From October 2011 onwards the cabling systems were installed in four construction phases, the last of which was completed in April 2012. On the two data centre sites the installation team created altogether around 10,000 fibre optic and 4,200 copper links.

德特威勒数据中心解决方案
The Datwyler Data Centre Solution

OIZ数据中心的光纤系统采用了德特威勒公司最近研发的模块化扩充解决方案，其安装密度达到了每机柜单元(RU)96芯光纤。这个解决方案是通过安装有多个被称作"模块"的预端接插入盒的子机柜来实现。在每一个这样的模块背后具有两个MTP连接器，他们与MTP预端接迷你主干光缆连接。在模块的前端，按照OIZ的要求，提供了12个LC双工或E2000端口。

The FO system in the OIZ data centres is a modularly expandable solution recently developed by Datwyler, allowing packing densities of up to 96 fibres per rack unit (RU). It is based on sub-racks fitted with pre-assembled slide-in cassettes known as "modules". On the back of each of these modules are two couplers for MTP connectors, and they are cabled with MTP mini-trunks. At the front they provide OIZ with twelve LC Duplex or E2000 ports as required.

新的数据中心解决方案有OM3, OM4 和OS2 版本
The new Data Centre Solution is available in OM3, OM4 and OS2 versions.

同时并行安装的10G铜缆布线则采用了7类7702四对数据铜缆，德特威勒公司提供的符合IEC标准的6_A类RJ45模块被端接在上述铜缆的一端，而另一端则会在系统移交之后连接。

The 10G-capable copper cabling installed in parallel consists of Category 7 type CU 7702 4P data cables, which Datwyler supplied with IEC Standard-compliant $Cat.6_A$ RJ45 modules connected to one end. The other end was linked up after the transfer.

在两个数据中心现场，机柜队列以面对面的原则来安放，冷却通道位于两者之间，以双层地板的方式来提供冷却空气，这些冷却通道是完全封闭的。铜缆和光纤主干通过天花板上的电缆托架系统拉入机柜。

On both data centre sites the rack rows are set up on the front-to front-principle, and the cold aisles in between, which are supplied with cooling air by way of the double floor, are completely enclosed. The copper and fibre optic trunks are fed to the racks via a cable tray system on the ceiling.

在核心配线机柜内，MTP预端接迷你主干光缆（绝大部分采用了弯曲性能优化的OM3多模光纤）与1,500个光纤模块连接，并在排列在270个4U子机柜（包括连接板管理盘）以及在服务器机柜里的210个1U光纤配线架。对于铜缆的终端，德特威勒公司则提供了135个带有总共1,160个6口配线模块的3U子机柜，以及285个24口1U配线架（取决于机柜的类型）。另外还有13,300条双工光纤跳线以及9,100条铜跳线用于有源设备的连接。

In the central distribution racks the MTP minitrunks – almost all of them with bend-optimised OM3 multimode fibres – are lined up with 1,500 FO modules in 270 sub-racks with 4RU (including patch management tray) and in the server racks in 210 FO panels with 1RU. For the termination of the copper cables Datwyler supplied 135 3RU sub-racks with 1,160 modular 6-port front panels and 285 1RU panels with 24 ports, depending on the rack type. There are also 13,300 FO duplex patch cables and 9,100 copper patch cables for the connection of active devices.

> **"在我们的数据中心安装的布线系统是一个真正顶级质量并且相对经济的系统解决方案…"**
> **"THE CABLING INSTALLED IN OUR DATA CENTRES IS A REALLY TOP QUALITY AND COMPARATIVELY ECONOMICAL SYSTEM SOLUTION …"**
> **Patrick Eggeler**

创建与项目相关的资源
Project-related resources created

用于数据中心现场的各型光纤主干涵盖了12, 24, 48, 72和144芯, 两端预端接MTP、双工LC或者E2000连接器, 或者一端预端接MTP连接器而另一端则预端接双工LC连接器。种类繁多的主干类型（其中大部分在很短的时间内订购）为材料供应商提出了特殊的挑战。德特威勒公司因此安排了一名特殊的项目经理负责这个项目, 以协调来自TurnKey Communication公司的所有要求, 并确保按计划完工。

The FO trunk variants used in the data centre sites include trunks with 12, 24, 48, 72 and 144 fibres, either pre-assembled with MTP, LCD or E2000 connectors at both ends or with MTP connectors at one end and LCD connectors at the other. Such a lot of trunk variants, for the most part ordered at very short notice, posed a special challenge for the material suppliers. Datwyler therefore put a special project manager in charge of this project in order to coordinate all the requirements with TurnKey Communication AG and ensure that set deadlines were met.

不同寻常的测试结果
Impressive test results

对于总共超过14,000个信息点的验收测试在每一个建设阶段完成后分别进行, 最近一次是在2012年春天进行的。得益于德特威勒公司采用的MTP低损插芯以及非常精确的连接器配置, 线缆和模块取得了极佳的插入损耗和回波损耗数据, 远远超过OIZ设立的已经很高的质量标准。甚至, 即使是第一次合作, 面对如此印象深刻的测试数据, 客户还是决定放弃已经计划了的后续跟踪测量。

Acceptance testing of more than 14,000 links in total was carried out on completion of each construction phase, most recently in spring 2012. Thanks to the MTP Elite ferrules and the very precise connector configuration used by Datwyler, the cables and modules achieved excellent Insertion Loss and Return Loss values which far exceeded the already high quality standards set by OIZ. The measured values even impressed the first collocation clients so much that they decided to forgo planned follow-up measurements.

OIZ的数据中心新建筑和营运经理Patrick Eggeler是这样总结他的经验的: "在我们的数据中心安装的布线系统是一个真正顶级质量并且相对经济的系统解决方案, 它将可靠地传输我们未来所有的应用。此项目的实施毫无瑕疵且按时交付。我们也非常满意TurnKey公司和德特威勒公司的规划支持, 以及他们提供的与安装有关的服务。"

This is how Patrick Eggeler, Manager of Data Centre New Buildings & Operation at OIZ, summed up the experience: "The cabling installed in our data centres is a really top quality and comparatively economical system solution which will reliably transmit all our future applications. It was flawlessly implemented and handed over on time. We are also very satisfied with the planning support by TurnKey and Datwyler, and with the services rendered in relation to the installation."

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