

Bespoke-Configurable, Pre-Terminated Solutions Make Life Easier

White paper

Introduction

Today's IT-centric world has set in motion trends that influence how enterprises of every size regard their technology and communication networks and networking infrastructure. While the established imperatives of "faster, better, more cost-effective" still hold power in the cabling and connectivity component market, some other important decision factors also have come into play.

In designing and implementing their high-density networks, many datacentres and data-reliant businesses are seeking to make more sustainable, environmentally sound choices. They want systems that provide high performance and reliability for maximum network uptime over the long term—but they don't want to incur the high costs down the road for upgrades, system maintenance and management. With an ever-increasing need for higher bandwidth and flexibility to accommodate future growth, they are now looking at the network's physical media infrastructure and its overall life cycle as a capital investment essential to achieving corporate goals.

One trend is the growing adoption of pre-terminated structured cabling systems. Pre-terminated optical-fibre and copper cabling systems are bundled and pre-terminated at the factory, eliminating the necessity for on-site field termination. They are most suited for network installations that are planned well in advance, taking into account both current and future requirements.

The past few years have seen the steady rise in the use of pre-terminated cabling system. This cabling solution is considered as the norm for some key areas, such as datacentres and commercial office fit-outs. Then, what is pre-terminated cabling system in essence? And what we can expect from this cabling alternative? This white paper intends to clear the confusion about pre-terminated cabling system, by analysing its definition as well as explaining the benefits and drawbacks of it. It also provides a better approach to building mission-critical technology networks—where they are economically feasible as a long-term investment.

What is Pre-Terminated Cabling System?

Pre-terminated systems are factory manufactured cables and modular components with connectors already attached, which usually have been tested, qualified and ready to plug and play in the network.

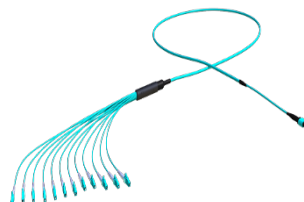
They are available in both fibre and copper cabling. Pre-terminated systems offer unsurpassed advantages over conventional field installed system, which partially explains why the use of factory pre-terminated assemblies continues to grow, especially for datacentres.



Copper Pre-Terminated Trunk Assemblies

Pre-terminated assemblies come in various forms, from trunk cables, connectorised fan-outs, attached or discreet cassette modules to cable bundles with

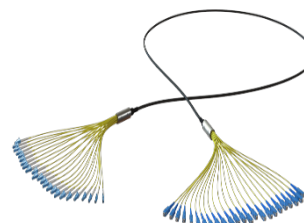
protective pulling grips installed over the connectors at one end.



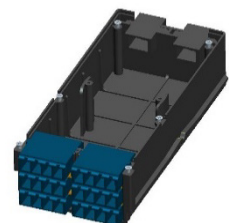
MTP® Fan-Out Assemblies



MTP® Loose Tube Trunk Assemblies



Multi-Fibre Loose Tube Cable Assemblies



MTP® Cassette

Its Applications

Pre-terminated cabling system commonly found its position in two fields, datacentres and open offices. In response to the accelerated network capacity and application processing demands, datacentres are expanding dramatically both in number and size. Which propel the advancement of alternative to improve the connectivity installation times and simplify the deployment for reliable and rugged cabling systems. The open office also benefits from the pre-terminated cabling system which can be quickly reconfigured to match the moves, adds and changes. Pre-terminated cabling system is expected to spread its influence in these types of scenarios.

In datacentres where there are many terminations, a project might require 20 technicians to perform field terminations — resources a small company can't provide. But with make-to-order pre-terminated assemblies, a contractor could get the same amount of work done on the same schedule with five technicians. They can get a foot in the door and potentially be the go-to contractor for future work, resulting in long-term profitability from a valued customer.

Also, next generation fibre systems increasingly rely on MPO/MTP® fibre connectors, and field terminating these connectors requires expensive equipment, such as ribbon splicers. In these applications, it simply makes financial sense for contractors to use pre-terminated assemblies. Since, cable assembly lengths are typically consistent between cabinets and rows in datacentres, it's also easy to know the exact length and custom solution you need. In datacentres, the distance between cabinet 1 and 2 is the same as between cabinet 2 and 3. Since you know what lengths you need, having them customer-configured and pre-terminated is a no-brainer.

Pros and Cons of Pre-Terminated Cabling System

We all know that one size does not fit all, so there are some serious pros and cons one must take heed of when dealing with pre-terminated cabling system.

Benefits of Pre-Terminated Cabling System

Once used properly, pre-terminated solutions can bring a raft of benefits to cable installers and end-users.

- **Time Saving:** Pre-terminated system helps to save time in various ways. Since the assemblies are factory terminated, they require minimal engineering or assembly work on site. Meanwhile, pre-terminated assemblies also save testing and troubleshooting time. Also, pre-terminated assemblies are factory terminated which reduce many of the problems that may occur with field terminations.
- **Cost Saving:** Although pre-terminated assemblies may have a higher initial cost since they include the factory termination time, the savings it provides go beyond the expense.
- **Labour Saving:** With pre-terminated assemblies, you don't need as many on-site engineers pulling cables in and terminating them. As the pre-terminated links have been pre-tested, this vastly mitigates the need for troubleshooting and retesting.
- **Space Saving:** For any datacentres, the available space is always precious. Datacentre managers will embrace anything that contributes to promoting space utilisation. With massive optical fibres being adopted in the datacentre to speed data transmission, pre-terminated assemblies offer much higher density and flexibility for datacentre upgrades.
- **Cooling Advantages:** Heating and cooling issues matter significantly especially in high density network environment. Pre-terminated cabling system allows much more flexibility in configuration for installers working in compact space. Optimised airflow can be achieved by using pre-terminated assemblies such as trunk cables and plug and play cassettes, in conjunction with high density frames.
- **Security Benefits:** Security is always put in a paramount place in datacentres. And pre-terminated cabling system does offer numerous security benefits. With pre-terminated solution, less manpower is required for the installation, making it simpler to manage "contract personnel". While less specialist skills required

to install pre-terminated assemblies, enterprises can even use their own team to do the job.

- Other benefits include high reliability operation, less field testing & troubleshooting, consistent quality, less waste generation, controlled & consistent performance, emergency restoration capability and company backed warranty

Drawbacks of Pre-Terminated Cabling System

For all its advantages, pre-terminated cabling system is something of a double-edged sword, which means it certainly has some downsides. One drawback concerning pre-terminated cabling solution is the accuracy measurement required. There is no turning up with cable assemblies that are too short or excessively long, and there is no containment space to store the excess cables. So accurate site surveys are rather essential.

Conclusion

Factory-terminated solutions specifically benefit contractors and by using pre-terminated products, small contractors have a more equal playing field when competing for larger projects. However, it is important to note that even though pre-terminated cables are factory-tested, contractors still play a critical role in performing cleaning and testing. Cable can still be damaged during the delivery and installation, so you need to spend the time on-site to ensure quality and performance after the installation is complete.

Pre-terminated solutions give you the ability to custom-configure a variety of fibre and copper products, which are then assembled and shipped quickly for fast turnaround. With the benefits absolutely outweigh the drawbacks, pre-terminated cabling system provides an increasingly popular way of delivering a project in a timelier and cost-effective manner. However, one should always carry out a comprehensive planning and site survey before installation to assure you can exactly benefit from pre-terminated cabling solution.

If you are considering adding a pre-terminated cabling system to your work space check out Optronics Plus fibre optic cables, copper cables and datacentre solutions. Optronics Plus gives you a wealth of options for configuring pre-terminated patch cords, fan-outs and trunk cables. You may choose the exact specifications you need (e.g., fibre type, cable length, polarity, etc.) to fulfil your requirements.

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Pre-terminated System Considerations:

There are a few things which are required to be considered before specifying, ordering and installing a cabling infrastructure. The types of cables used in the project should be carefully selected based on type of applications and settings.

OFNP (Plenum rated cables)

- Used in plenum space
- Made of flame-resistant material
- Horizontal and Backbone cables

OFNR (Riser rated cables)

- Used in non-plenum spaces
- Backbone and Horizontal cables