

# WHITE PAPER

HD BROADCAST:  
TRIAX OR FIBER?

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## HD BROADCAST: TRIAX OR FIBER?

THERE IS MUCH WRITTEN ABOUT THE QUESTION WHICH IS THE BEST FOR HD BROADCAST: TRIAX OR FIBER? THERE ARE A LOT OF MISUNDERSTANDINGS ABOUT THE REASONING TO DECIDE FOR ONE OR THE OTHER OPTION.

This article seeks to explore simply why a user would choose either option. You, the investor, or the end user do have a choice, but how do you decide on what is best without compromising on the end result?



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## INTRODUCTION

The production of television programs worldwide has seen a major technical evolution over the last years. While in the past one type of still camera was used, miniaturization, high definition solutions and the increase in camera types available have changed the landscape drastically. Technical evolution also increased the number of (live) productions on location, coupled with the digital TV channel explosion, and online viewing. To fulfill all of this, more content than ever is being acquired and produced.

## THE ENVIRONMENT

*Television production takes place in the controlled environment of a studio. The connectivity for studio broadcasting is based upon a fixed installation. Studio Cameras on pedestals, partially fixed installations and well-handled equipment which doesn't move very much are the characteristics of this working environment. Users of that equipment are well trained and generally have technical in-house teams behind them. This has an influence on the connecting techniques used for studio broadcast. The main goal is to have steady extremely high performance connections that don't need to be plugged and unplugged regularly. Standard Triax cables with relatively larger diameter can easily be used to get the signal from the cameras to the production area, while Triax HD Pro+ connectors are also widely used.*

*A second part of television production is broadcast on location, often outdoor. The infrastructure of this type of production varies a lot and can be hard to predict. Ideally the location is already equipped for a television production, like several large congress centers, sports stadiums, theatres and government buildings. Although most of the cable structure is already in place, equipment has to be brought in and out of the facility and needs to be connected and disconnected quickly and often.*



HUNDREDS OF CAMERAS WERE IN USE DURING THE LONDON 2012 OLYMPICS

*One of the main requirements is a stable and reliable connection between the camera's and the OB (Outside broadcasting) van. An OB van is used to secure the electronic field production (EFP) of television program from a mobile remote broadcast television studio. Professional video camera and microphone signals come into the production truck for processing, recording and possibly transmission. Depending on the infrastructure*

*present at the location, cables with high performance connectors are the essential link between the production site and the OB van, the first step in ensuring a viable transmission to your home.*

*On a large OB, the number of connectors can increase rapidly. Many outside television productions use multiple cameras, microphones and other equipment, while the distance and number of cables needed will result into hundreds or sometimes thousands of meters of cables present onsite. Another set of cables is needed to guarantee the interface between the OB van and the satellite upstream of video and audio directly to the networks. This can either be done from a separate mobile satellite truck or the OB van itself when properly equipped.*



FILMING IN DRY AND DUSTY CONDITIONS

Broadcast on location requires several types of cameras. In addition to the fixed placed cameras, ENG (Electronic News Gathering), super-slow-mo and miniature wireless cameras are often used. Somewhere along the line, they will all need a connection, and HDTriax could well be a solution.

Broadcast on location is not only applicable for major events or large productions. For a press conference, news item or other shooting on a location not directly suitable and equipped for television production, other techniques from miniature cameras to Satellite News Gathering (SNG) are used worldwide.

Location environments are mixed, from a controlled environment to a desert. Users will be required to shoot in extreme heat and extreme cold, as well as being on, in or under sand, mud or water. In these conditions, you need to have a robust connector during mating and un-mating. All of these conditions have the potential to affect the condition of signal and subsequent image acquisition. Without extreme care, a fiber optic connector which uses a 9 diameter core single mode fiber (such as SMPTE 304) can cause problems.



FISCHER 1051TRIAx HD PRO+™

The Fischer 1051 Triax HD Pro+™ is the right selection for the connection between the camera and the production area, whether this is a television studio or an OB van. Already a recognized industry standard for both studio and outside broadcasting, it was awarded in 2010 the Best of IBC award for innovation and cost-efficiency. Triax is a major technology to connect HD video cameras and related equipment. To ensure flawless transmission, cameramen are eager for increased user-friendliness of their video equipment on top of a highly reliable signal performance. Long HD transmission distances are possible, in fact up to 1.5 kilometers using HD Pro+™ without the need of a repeater.

The Fischer 1051 Triax HD pro+™ is fully backwards compatible with all genuine Fischer Connector 1051 Series products. That can help reduce the need for major investment, for example HD Pro+ can be used with existing Fischer 1051 series installations as part of a modular or staged upgrade.

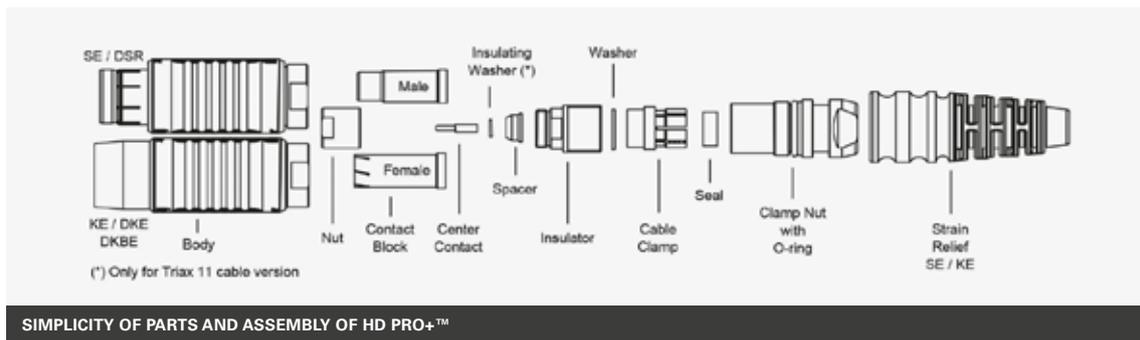
**VALUABLE TIME AND THE REAL COST OF OWNERSHIP**

One of the constraints of broadcast on location is time. Technicians only have a short amount of time to set-up and break down. Larger events require additional resource, with temporary labor often bought in to help out. Hiring of equipment is often needed as it reduces both the financial investment and space needed by the Broadcast operator. This leads to the potential of inexperienced hands setting up a rented technical system. At this point, all equipment needs to be easy to use, robust and work first time.

Back at base, after a shoot, you can waste many hours testing cables and getting them back to a repair facility. Some of the larger Operations have trained technicians and have invested in the high cost of equipment which is needed to terminate and repair SMPTE304 connectors. Other operators have chosen to invest in the principle of high cost additional stock, therefore guaranteeing that when a cable breaks they can get another off the shelf. Others just have to accept that if you want a repair or a new cable you have to pay the price and wait for shipping and manufacturing to take their time.

Generally, it's accepted that the operator doesn't buy the SMPTE solution as a connector, but as a fully assembled cable assembly. Therefore a service network should be allowed for as part of the purchase plan and backup plan.

The Fischer 1051 Triax HD Pro+™ is fully available and proven. You can choose to buy a connector or assembled lines. If you want to repair it yourself, you can buy just the parts that are damaged and repair times are about 10 minutes. You only need simple tools and you certainly don't need specialized skills. So, as well as more choice, there are cost savings in terms of time + skills + inventory.



**WHICH CAMERA DOES HD PRO+™ WORK WITH?**

The answer is simple, most camera manufacturers have HDTriax options, don't be afraid to consult with them. The Fischer 1051 Triax HD Pro+™ range has been fully tested and proven in conjunction with most major camera manufacturers.



### **ABOUT FISCHER CONNECTORS**

Fischer Connectors has been designing, manufacturing and distributing high-performance connectors and cable assembly solutions for more than 60 years. Known for their reliability, precision and resistance to demanding and harsh environments, Fischer Connectors' products are commonly used in fields requiring faultless quality, such as medical equipment, industrial instrumentation, measuring and testing devices, broadcast, telecommunication and military forces worldwide.

Primary design and manufacturing facilities are located in Saint-Prex, Switzerland, with subsidiaries and distributors located worldwide.



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