

Coaxial alternative enables a breakthrough in the journey toward smaller catheters

Junkosha launches its Multi-Channel Transmission cabling solution at MD&M Minneapolis

DATE - October 30th, 2018: A breakthrough in the design of medical device cables is the major step toward thinner, more flexible and higher capacity data signals utilised in catheters. The innovation, named Multi-Channel Transmission (MCT), is set to challenge existing twisted pair coaxial and Flexible Printed Circuit (FPC) technology and will enable new data-rich signals to be utilised in therapies including Intracardiac Echocardiogram, Ultrasound Endoscopy and Intervascular Ultrasound (IVUS). Japanese wire and cable pioneers Junkosha are set to launch the new product range at MD&M Minneapolis, 31st October-1st November, in what is billed as an innovation that will enable a new generation of small, flexible and intelligent catheters to effectively push back the boundaries of current medical procedures.

Existing catheters use twisted pair coaxial constructs to support signals along the device. This established technology has driven advances in catheter design and facilitated the delivery of many essential interventional, intervascular diagnostics and therapies. However, both progress of miniaturisation and flexibility has been hampered by the standard coaxial approach which comprises a core conductor, insulation and a shield wire. Physics and electromagnetics have prevented the development of smaller cables and has inhibited catheter flexibility.

In contrast, the new MCT cable design uses a cluster of simple microwires that are individually insulated with an innovative shielding/grounding construct, therefore increasing its signal capacity for a given size. Whilst the traditional catheter requires four coaxial cables to run in parallel carrying four individual signal streams, the MCT solution enables multiples of four signals to be brought together in one cable, therefore quadrupling the capacity. The benefits of this innovation are additionally demonstrated in the reduced size of the catheter that is delivered.

Early Junkosha prototypes have achieved a crucial 32% reduction in the size of the cable, a critical factor in the attainment of future procedures within narrower vessels. The MCT approach also provides a greater degree of flexibility compared to the existing approaches which promises major advances in the scope of medical procedures, especially within Endoscopy. Overall, this innovation

addresses the mutually exclusive needs of small size and signal integrity simultaneously. This in turn unlocks opportunities for catheter manufacturers to deliver valuable, previously unrealised options, to clinicians.

“As the requirement for smaller and smaller procedures increases through therapies like Intracardiac Echocardiogram, Ultrasound Endoscopy and IVUS, so the need for innovations such as our MCT solution become paramount to enable them,” explains Yohei Washiyama, Leader of Junkosha’s Medical Products Group. “We are continually pushing the boundaries of what is possible in this journey to miniaturisation, all the while unlocking opportunities for catheter manufacturers to deliver improved solutions.”

For more information about Junkosha’s range of medical and cabling solutions, click on <http://www.junkosha.co.jp/english/>.

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This release has been issued on behalf of Junkosha by Kredo Consulting Ltd. For further information please contact Andy Parker on andy@kredoconsulting.com or +44 (0) 1242 650573 or Steve Thomas on steve@kredoconsulting.com or +44 (0)1242 650574.

About Junkosha

Junkosha is a pioneer of sophisticated fluoropolymer application technologies across many sectors including microwave interconnect and medical devices. Operating from three centres in Japan, including its headquarters, the company also has sites in the US, UK and China. Junkosha has built a formidable reputation and it is one of the best kept advanced technology secrets outside of Japan. The company provides wire and cable products, featuring microwave interconnects, robot cables, high data rate cables, camera link cable assemblies, ultrafine coaxial cables and assemblies, cables for clean environments, and general wires and cables. It also provides tube and fitting products, including generic resin tubes, fluoropolymer tubes, high-barrier tubes, flexible multi-layered tubes, industrial hoses, degassing modules, heat-shrinkable tubes, and the market leading peelable heat shrink tubes.