



**NEXEYA**  
*A Hensoldt Company.*

**ELECTRICAL INTERCONNECT  
TEST SOLUTIONS**



Nexeya designs, manufactures and supports products and services used in the design, development, validation and verification of sub-assemblies, assemblies and complete systems. We cater to a variety of industries, with a focus on space, aviation, transportation and high-tech manufacturing. Our embedded and stand-alone solutions are designed for capital intense and mission critical environments and are deployed across the globe and into space.

Our strength lies in our ability to collaborate in combining leading edge technologies and best practices to create highly effective and reliable engineered solutions. Our customers choose Nexeya for our flexible and easy to use products and our dedication to outstanding customer support.



**More than 30 years**  
working with our customers  
to *reach new heights*.

## Detect and Protect

HENSOLDT is a global high-tech pioneer in the sector of defence and security electronics and a market leader in civilian and military sector solutions. In addition, HENSOLDT is developing new products for data management, robotics and cybersecurity by combining existing skills through software solutions.

### OUR MISSION

We strive to help our customers optimize their operations and save time and money by delivering engineered solutions that are cost effective, flexible and easy to use.

### OUR VISION

- Designing effective, reliable and powerful products and solutions
- Creating intuitive software that naturally fits the operator's environment
- Providing customers with prompt responses and customized solutions





# SOLUTIONS AND SERVICES

## 3 LEVELS OF INTERCONNECT TESTING



MANUFACTURING VERIFICATION

PERFORMANCE VALIDATION

MAINTENANCE/TROUBLESHOOTING



Honeywell

HARRIS  
Amphenol



tyco



MOOG BOMBARDIER

Lufthansa

AIRBUS ABB

MDA

Celestica



HITACHI  
Inspire the Next

Glencair

Parker

AMTRAK

L3  
communications

Schlumberger

SIEMENS

TE  
connectivity

ALSTOM

LOCKHEED MARTIN

CARLISLE

iridium

THALES

Boston  
Scientific

BOEING

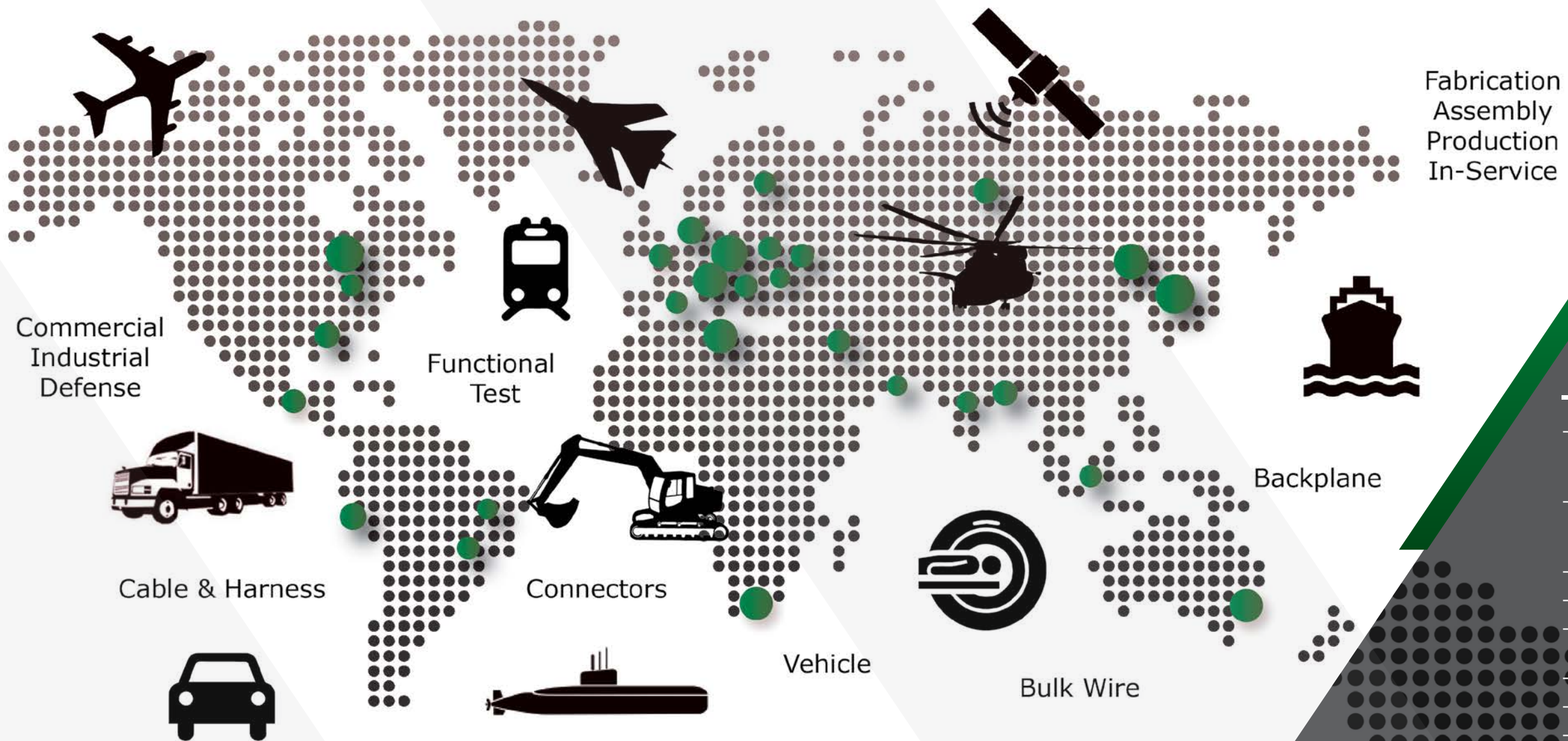
ZODIAC  
AEROSPACE

Sumitomo Corporation

LAFARGE

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## THE NEXEYA

## DIFFERENCE

- Modular solutions that can be configured to meet current needs and 'built up' over time to address future customer requirements
- Open architecture enables interaction with a variety of third party products and current installations
- Proven and competitively priced solutions
- Local resources, global reach
- Complete command of the product development process
- Regulatory agency approved
- Ease of use and flexibility
- Dedication to outstanding customer service

NEXEYA

## SERVICES

### PRODUCT DEVELOPMENT

Commercial & modified off the shelf offerings, fully designed, engineered manufactured turn key products & systems, test program development.

### UPGRADE SERVICES

Asset management to ensure systems are up to date, optimized and delivering the latest capabilities, re-engineering support services, obsolescence management.

### SPARES SUPPORT

Standard spare packages, fully customized spares support offering for specific applications.

### TECHNICAL SUPPORT

Live phone & video support, standard & customized training sessions, one on one applications support.

### GLOBAL MAINTENANCE

On site assistance, corporate wide asset management services, global frame agreements, "Front of the Line" support contracts.



A LOOK AT NEXEYA'S

## SOLUTIONS IN ACTION



### COMMERCIAL & MILITARY AVIATION

From aviation OEMs through the entire supply chain NEXEYA delivers test equipment, validation and verification solutions and embedded hardware to virtually every make and model.



### RAIL & ROLLING STOCK

NEXEYA is an industry leader in Rail for delivering test solutions that optimize the manufacturing process and push the capabilities of verification and validation.



### SATELLITES

NEXEYA offers a variety of satellite solutions. From large satellite structures, to wiring harnesses and power distribution systems, active and passive thermal controls and full small sat design and build projects.



### MANUFACTURING

NEXEYA offers a variety of test equipment solutions for all types of manufacturing environments, support all stages of the manufacturing process.



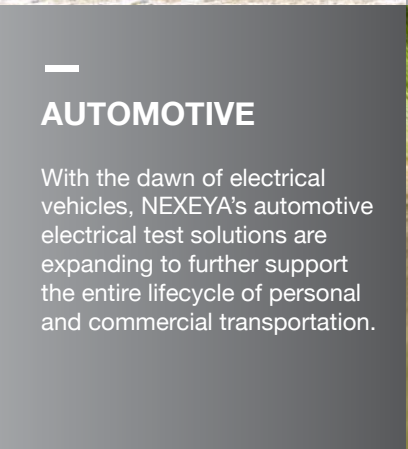
### NAVAL VESSELS

From test equipment, imbedded power distribution systems to command and control / mission management solutions to civilian ship protection systems, NEXEYA sails with the world's navies and commercial vessels.



### HEAVY VEHICLES

NEXEYA supports the manufacturing, production, assembly and servicing of the power distribution and interconnect systems of everything from heavy industrial equipment to road transport to military land vehicles.



### AUTOMOTIVE

With the dawn of electrical vehicles, NEXEYA's automotive electrical test solutions are expanding to further support the entire lifecycle of personal and commercial transportation.



### MEDICAL

From pacemakers to MRI systems, NEXEYA's test solutions are testing a variety of life saving technologies.



## ELECTRICAL INTERCONNECT PRODUCT OFFERING



### EZX SERIES

Based on over 20 years of success, EZX series is the latest in our benchtop analyzers and is NEXEYA's response to customers seeking economical yet powerful and expandable solution for their cable and wire harness test requirements.

### CTX SERIES

For customers seeking an economical yet powerful and expandable solution for their cable and wire harness test requirements, NEXEYA offers the CTX series. With industry leading accuracy, high voltage and energization capabilities required in production assembly lines to validate complex cable and wire harnesses for aircrafts, ships and trains.



### MPT SERIES

The most powerful, versatile and flexible product offering in the catalog, the MPT series offers customers the ability to adapt and optimize the system to their every need. Ideal for complex assemblies, distributed systems, larger scale manufacturing of everything from submarines to satellites.

### WIDD

When faced with permanent or intermittent wiring defects, the WIDD product offering is ideal to identifying and locating electrical faults. Designed for troubleshooting and service tasks, the WIDD offering addresses unplanned maintenance, increases asset availability and lost revenue by keeping downtime to a minimum.





## CASE STUDY

## SUMITOMO ELECTRIC WIRING SYSTEMS (SEWS) A GLOBAL LEADER IN AUTOMOTIVE PARTS AND WIRING

### AUTOMOTIVE ASSEMBLY LINE TESTING

Automobiles of the past were quite basic, needing only rudimentary wiring, connections, and components to power their systems. As automobiles evolve into a highly technical array of systems and components that add safety, comfort, fuel economy and convenience to the driving experience there is a greater reliance on electronics and the automobile's electrical systems.

All automotive suppliers face the challenges associated with this evolution, Sumitomo is no exception. To address this evolution Sumitomo had a need to update their automated assembly and test processes to ensure they would continue to delivery on-time quality to budget.

Sumitomo's current test solutions provider could not meet the needs of the changing market conditions and so entered Nexeya. Sumitomo was seeking updated technology, reduced test times, local support and spares and Nexeya delivered.

#### BENEFITS AND VALUE ADDED

The Nexeya solution enabled Sumitomo to perform the tests required as their products evolved from one technology to the next. The solution was able to test the product through its manufacturing cycle ensuring that the next assembly process would only continue if the previous steps passed inspection.

The Nexeya solution enabled Sumitomo to identify issues at the earliest point in the manufacturing process thus increasing first time quality, reducing rework and saving time and money. In addition to providing the verification and validation system desired by Sumitomo, Nexeya provided installation and integration support, test program development as well as ongoing phone, video and on-site service.

#### THE NEXEYA SOLUTION

What attracted Sumitomo to Nexeya Canada was that our basis is in test and integration. Nexeya is not simply a supplier of test equipment. We specialize in verification, validation, integration. Nexeya seeks to provide the features and functions required through a mix of standard, modular, open architecture products and customized interfaces.

## CASE STUDY

## AVIATION TEST TIME REDUCTION

Military aircraft are complex and require extensive safety and performance verification and validation. An aviation OEM approached Nexeya with a dilemma; 8 hours of set up time to run a 15 minute test.

Nexeya delivered a test system which reduced the set up time by 55% and our current iteration will reduce the original set up time from 8 hours to less than 10 minutes. Increased test coverage and test reliability, reduced testing

costs, increased manpower utilization and a payback of 14 months. With our experience in various markets Nexeya brings a wealth of knowledge to resolving challenges.

### TESTIMONIAL FROM BOMBARDIER TRANSPORT

Nexeya Canada Inc. has provided quality wire test systems to Bombardier Transportation Americas for over 20 years, and in that time, their products and solutions have proven to

be exceptionally reliable, robust, and cost effective. In compliment of their great products, Nexeya Canada Inc. has provided outstanding service and customer support. Overall, Nexeya Canada Inc.

has had a close, and mutually beneficial, relationship with Bombardier that is expected to continue well into the future.



## CASE STUDY

**BULK WIRE ANALYZERS**

The world continues to grow more and more with respect to connectivity. As human to human digital interactions, human to machine interfaces and machine to machine data transfers multiply at exponential rates so do the requirements for reliable connectivity.

Belden (Cable & Wire) is a leader in this market and with the advances in technologies and development of more and more restrictive specifications they required a new test solution. A solution that would verify and validate their products as well as support their manufacturing processes; Nexeya delivered.

The new test requirement presented many challenges including; the safe and cost effective switching of larger voltages (greater than 5000VDC) and the high power requirements (to energize high capacitive loads (x gage, x feet)) was a critical requirement of the test system.

Nexeya delivered a safe and efficient system by integrating current commercial (Nexeya) products with several custom design (by Nexeya) components that resulted in a complete turnkey system fully supported by Nexeya's engineers and technical support network. The right mix of off-the-shelf and customized components



ensured a reliable, serviceable, cost effective solution.

Bulk Wire Analyzers use a proprietary high voltage switching architecture to evaluate and test reels of bundled twisted-pair cable up to 30,000 feet in length for conductor resistance, insulation resistance, conductor to conductor dielectric strength up to 10 kVDC and core to sheath dielectric strength up to 15 kVDC. AC High Voltage testing is available (as a standard offering) up to 6000VAC for 30,000 foot cables.

**KEY FEATURES INCLUDE:**

- Mass HiPot Algorithm
- High Voltage Discharge
- Customized fan-out fixtures
- Tare & Temperature Compensation
- EPO and Safety Interlocks
- Easy to use menu driven software



## TRANSORB CASE STUDY

**LIGHTNING PROTECTION**

The average plane is  
**hit by lightning,**  
*once every 1,000 flight hours*

**THE CHALLENGE**

With the growing number of aircraft OEMs adopting carbon composite airframes and implementing more electronics, avionics and fly-by-wire technologies aircraft are more susceptible to the negative impact of lightning strikes.

Black box manufacturers protect aircraft systems from lightning strikes by deploying Transient Voltage Suppressor (TVS) devices in the design of their products. These devices, built into onboard electronics, protect the equipment from lightning strikes and the associated voltage surge.

Once equipment OEMs have design 'in' and manufactured their black boxes for protection from surges they turn to Nexeya's MPT Transorb Tester; a test solution that ensures all the TVS protection circuits operate as intended. The Transorb Test Solution provides the highest level of verification and validation, so much so that airlines utilize the solution during their periodic maintenance checks.

With the large number of products developed that require TVS protection circuits, Honeywell was in search of a test solution. That's where Nexeya enters into play.

Today, Transorb Model MPTs have been delivered around the globe, including; Canada, the United States, Mexico, Europe and India.

**THE NEXEYA SOLUTION**

Nexeya starts with a standard MPT Tester, integrates several COTS (commercial off the shelf) instruments, selected from industry leading manufacturers and based on the clients specific needs, and develops a customer specific test program that links all the sub-assemblies together to work in unison.

The Nexeya solutions allows product OEMs such as Honeywell, and operators such as Lufthansa, the ability to verify and validate the products they delivery and aircraft they fly will be protected from the impact of a lightning strike.





## CASE STUDY

# AIRBUS ENSURES AIRCRAFT SAFETY WITH NEXEYA'S WIDD 200

## THE CHALLENGE

With the constant addition of new technologies, features and functions today's aircraft are becoming more and more complex. Many of these complexities are in the electronics resulting in kilometres of wiring, cables and harnesses, hundreds of bends and thousands of connections.

Nexeya offers a variety of test, validation and verification solutions when cables and harnesses are being manufactured and installed. But, what happens when an aircraft completed is, when all is 'buttoned up', panels in place, seats adjusted? What happens when you have a fault and the cable or harness or connector is hidden behind a structure, in a conduit, running through a bulkhead?

How can you effectively and efficiently test installed systems? How can you make the repair without removing everything installed in front of the electrical system?

Nexeya came up with a solution.

## THE NEXEYA SOLUTION

In 2016 Nexeya introduced their latest electrical wiring interconnect system test tool: WIDD (Wiring Intermittent Defect Detection). The WIDD is ideal for identifying electrical faults and pinpointing their location, enabling technicians to make repairs in a timely manner without having to dismantle and replace more access panels than necessary.

In addition to finding permanent and intermittent faults, the WIDD solution enables operators to collect the data required for life cycle material management of their assets electrical systems.

By characterizing the electrical system at set intervals\*, operators can utilize analytics to determine how an electrical system is aging and thus the optimal time to initiate repairs.

The WIDD product is extremely effective in both shortening the repair cycle of electrical faults in aircraft and enabling life cycle material management. Airbus partnered with Nexeya to develop a full (reactive & proactive) electrical maintenance program for the A320, A350 and A380 aircraft.

Dubbed the "SWITS" by Airbus, Smart Wiring Troubleshooting, it takes advantage of the WIDD's reflectometry and LCR measurement (impedance, capacitance and resistance) technology to detect faults in a record time. Matching the WIDD's information to their maintenance procedures and pre configured data packages, the client and their customers around the world can now rectify AOG (Aircraft on Ground) issues in record time.

\*The cycle matches predefined maintenance cycles.

## Why did the aerospace company select Nexeya and WIDD?

### PERMANENT AND INTERMITTENT FAULTS

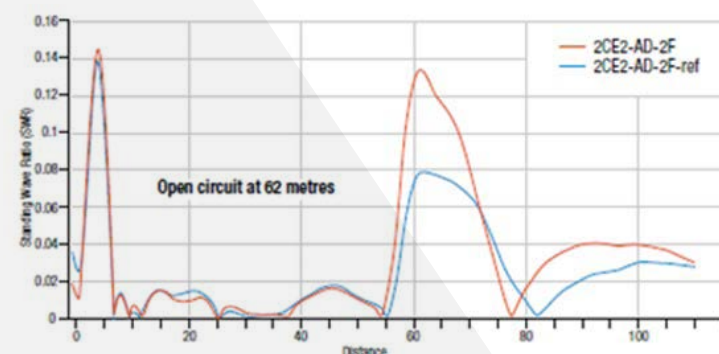
Permanent or intermittent fault occurrences can take place anywhere in the electrical system. These issues can take a considerable amount of time to locate and repair. In addition, in many cases intermittent electrical faults, which occur in flight, can be nearly impossible to replicate on the ground, resulting in countless hours of trial and error. The SWITS program addresses this issue.

### ONGOING MAINTENANCE AND REPAIRS

Transportation assets are constantly undergoing some type of preventive maintenance as part of the checks and balances that keep the equipment and its passengers safe during normal operations.

In executing these operations there can be considerable 're & re' that takes place; the removal and replacement of 'other' assemblies that need to be removed and replaced to execute the service cycle.

These operations can induce an error or fault if everything is not returned back to its original configuration. An advantage of the WIDD product is that an operator can characterize an area of the electrical system before any maintenance is undertaken. They can perform the maintenance and then take a second characterization. Any change in those two 'takes' and the system will identify where a potential error or fault has been introduced.



### THE WIDD IS AN ALL-IN-ONE TOOL THAT OFFERS THE ABILITY TO:

- Detect and locate an electrical fault
- Reduce or eliminate the introduction of future electrical faults during normal maintenance operations
- Capacity to chart the life cycle of the electrical system over time to ensure optimal life cycle asset management

The WIDD solution is capable of checking 62 channels sequentially, which enables incredibly fast fault analysis (2 msec. for a 1024 points harness of 100 meters). This empowers maintenance personnel to go directly to the problem (defect

located to +/- 50 cm), reducing the time and expertise needed to troubleshoot and pinpoint a defect such as:

- Short circuit
- Open circuit
- Bonding
- Grounding
- Intermittent

The WIDD solution is ideal for any electrical application including; satellites, aircraft, trains, naval vessels, ground vehicles; anything with an electrical interconnect wiring system where faults have to be discovered and repaired in record time to keep vehicles in service satisfying customers and generating revenue.







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