

# DIM100

## Dynamic Impedance Monitoring Module

A module designed to provide signal redundancy with automated fault recovery while monitoring and dynamically adjusting the termination impedance to ensure optimum performance of RS485 communication paths



## Overview

The DIM allows for up to two protocol-independent lines to be matched with the correct impedance in order to reduce the levels of reflected signals that would otherwise present themselves, while providing the full advantage of link redundancy as required for "life safety" systems.

It is designed to improve the Quality of Service (QoS) of critical communication networks while operating under the performance criteria required by EN54-13 and BS5839 part 1.

The DIM is dynamic in the sense that it continuously monitors the electrical characteristics present on the RS485 line from both ends of the line and identifies any unacceptable condition through comparison to a conditioned line.

The DIM creates a 2.5kV electrical isolation barrier between its two terminals in the form of galvanic isolation. It operates in an RS485 repeater mode with the RS485 driver boosting the signal in both directions.

The DIM has the ability to isolate a fault on any of the balanced links with full indication on fault detail. The DIM can identify a variety of fault types including open circuit, short circuit or partial short circuits. It has the ability to track the data format and error statistics if required. The DIM is the ideal device to use for maintaining the best possible line quality through continual configuration management by adapting the line termination impedance for the radial link.

The DIM100 can be used with the LINKVIEW graphical software application, supporting the generation of detailed reports, to present the 20 most recent network recovery events.

The system reports can be used to track changes to the network configuration and identify signal degradation. This information is also useful for improved preventative maintenance planning.

## Features

- Eliminates the common problem of additional network loading with the addition of new radials due to termination management and link isolation
- 2.5 kV isolation between ports A and B1/B2
- Can operate on Hosted Fiber/Ethernet links
- Simple LED system status indication
- Signal quality and amplitude visual indication
- Enables preventative maintenance management through system degradation monitoring
- Reports generation with event tracking for maintenance and commissioning sign-off
- Time stamped records for fault analysis support
- Visual interface provided by LINKVIEW, the INSTANCE graphical user interface with monitoring, diagnostic and reporting
- Dynamic link monitoring using the LINKVIEW application
- Monitors the signal amplitude to determine the need for boosters
- Wireless connectivity for remote monitoring using a Bluetooth or Wifi communication connection
- Data extraction or dynamic monitoring supported via RS232, USB, Bluetooth or Wifi
- Non-volatile memory retains the 20 most recent network events
- DIN Rail mounting
- Supports networks at 9600-115kbits/sec
- Site, User and Unit identity tracking for maintenance



**Instance**

Managing Data Xchange

501-DIM100IE-D-01

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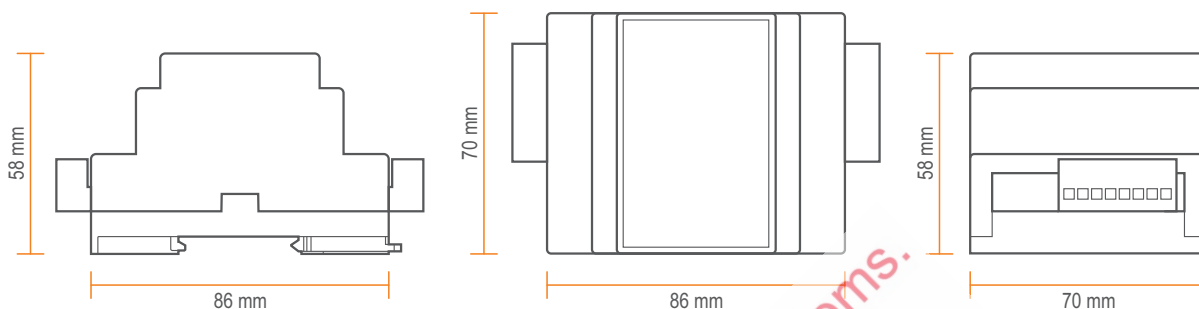
EMAIL: info@comsec.ie • WEB: http://www.comsec.ie

## Specifications

### Dimension Diagram

Dimensions: 70 X 58 X 86 mm

Weight: 0.2kg



### Power

Operating voltage: 18 to 36V (24V DC nominal)

Rated current: 250mA (at 24V)

### Interfaces

RS485: Port A: Fixed Termination  
 Port B: Dynamic Termination  
 Port C: Dynamic Termination  
 Port B & Port C: Isolated (2.5kV)  
 Baud Rate: 9600 to 115200 (selectable / configurable)

USB: USB Micro-B connection (Device / Slave Mode)

### Temperature

Operating: -10 to 70°C

Storage: -40 to 70°C

### Agency Approvals and Standards

CE, RoHs, WEEE compliant

EMC EN 61000-6-2, Immunity Standard (Industrial Environments)  
 EN 61000-6-4, Emission Standard (Industrial Environments)

Safety EN 60950, IT Equipment



## Instance Network Equipment

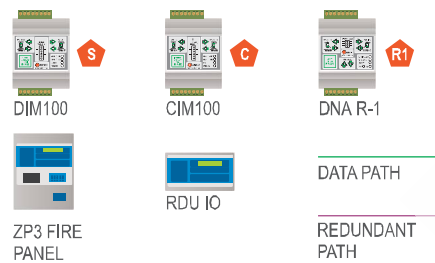
### Application:

Ziton Multiple Fault (wiring) Network Redundancy for BS5839-1

### Products Used:

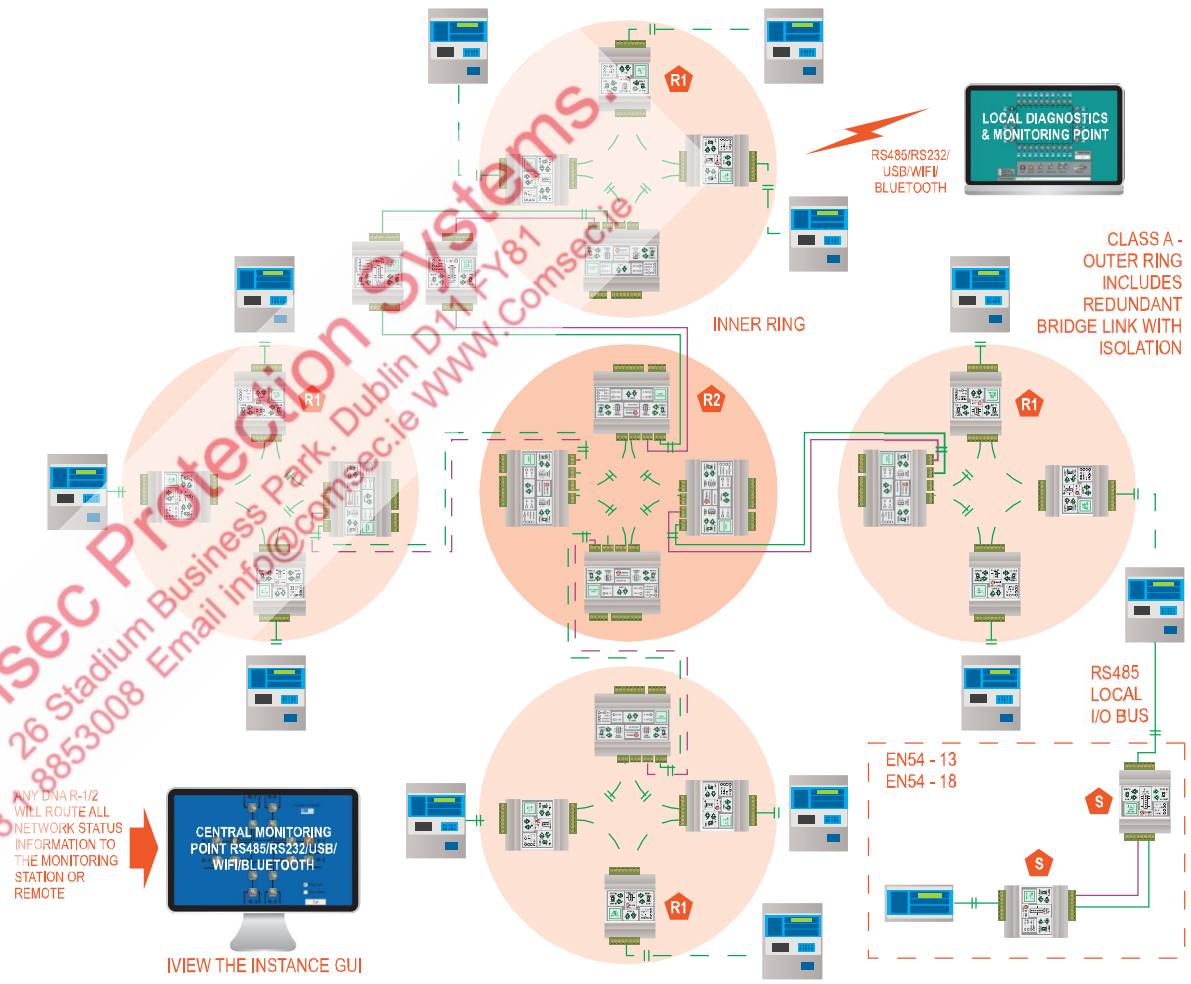
- DNA-R2** Dynamic Network Analyzer (Dual CIE port with CIE & Link Isolation)
- DNA-R1** Dynamic Network Analyzer (Single CIE port with CIE Isolation)
- CIM100** RS485 Isolator/Repeater Module
- DIM100** DIM Impedance (Redundancy) Module
- IVIEW** Graphics Monitoring Tool

### Legend:



ANY DNA R-1/2 WILL ROUTE ALL NETWORK STATUS INFORMATION TO THE MONITORING STATION OR REMOTE

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## Instance Network Equipment

### Application:

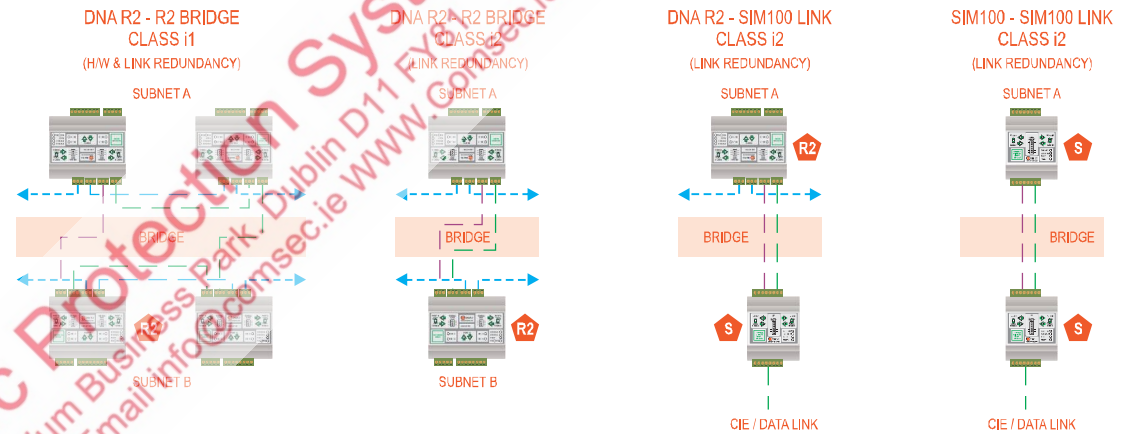
Instance Redundant Network Bridge for full EN54-13 Class i1 and BS5839-1 Class i2 compliance

The multi-Ring topology supported by Instance is utilised to increase the number of faults a network can tolerate while maintaining full communication.

### Products Used:

- DIM 100** Dynamic Impedance Module
- DNA-R2** Dynamic Network Analyzer (Dual CIE port with CIE & Link Isolation)

### Legend:



**Instance**

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## Instance Network Equipment

### Application:

Instance Redundant Network Bridge for full EN54-13 and BS5839-1 compliance

The multi-Ring topology supported by Instance is utilised to increase the number of faults a network can tolerate while maintaining full communication.

### Products Used:

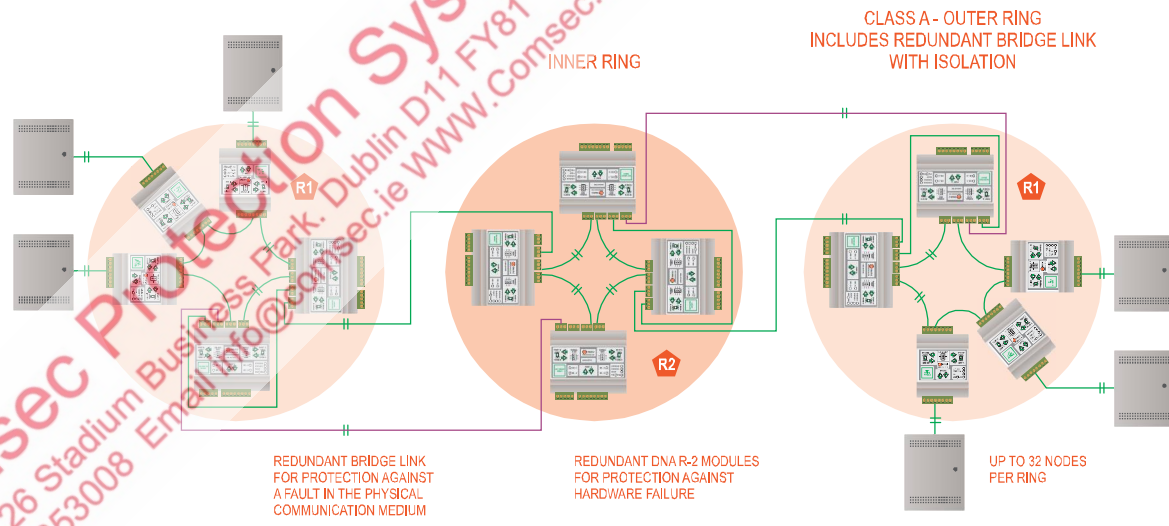
- DNA-R1 Dynamic Network Analyzer (Single CIE port with CIE Isolation)
- DNA-R2 Dynamic Network Analyzer (Dual CIE port with CIE & Link Isolation)

### Legend:



—= 2.5 kV ELECTRICAL ISOLATION

DATA PATH  
REDUNDANT PATH



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## Instance Network Equipment

### Application:

Ziton Network Redundancy for BS5839-1/EN54-13/EN54-18

The Inner Ring allows for a single fault in each subnet while maintaining full communication with each CIE node.

### Products Used:

- DNA-R2** Dynamic Network Analyzer (Dual CIE port with CIE & Link Isolation)
- DNA-R1** Dynamic Network Analyzer (Single CIE port with CIE Isolation)
- DIM100** Impedance (Redundancy) Module
- IVIEW** Graphics Monitoring Tool

### Legend:

