

## Electrical and Optical SmartClass Ethernet Testing



### Key Features

#### Full traffic generation tester

- Layer 2 and Layer 3 traffic generation
- Layer 3 Ping and Traceroute connectivity verification
- RFC 2544 throughput verification and circuit qualification

#### Loopback and Traffic Generation modes

- Installation of point-to-point and point-to-multipoint Ethernet services
- Cable diagnostics to find electrical cable faults
- Optical power measurements to check laser levels
- Loop back and filter incoming traffic at IP or Ethernet layer
- Link Statistics and Results to measure incoming frames and link status

### Applications

- Throughput and round trip delay measurement
- Traffic analysis and filtering
- Connectivity and path verification testing
- Loopback frame generation and response
- Copper cable diagnostics

### Ethernet Services Testing

The JDSU SmartClass Ethernet tester, a member of the SmartClass family of products, is an easy to use, cost effective Ethernet testing solution for basic physical layer cable testing, layer 2 and layer 3 traffic generation, and full RFC-2544 testing. The rugged, battery operated, application specific test tool enables field technicians to turn-up Ethernet and IP services by running an RFC-2544 test or following a set of methods and procedures. The product has been designed for front-line technicians who do not have experience dealing with emerging Metro Ethernet technologies and need a simple-to-use solution for Ethernet and IP testing. The SmartClass product comes in two major configurations, one a loopback only device and the other featuring full traffic generation.

**Specifications & Features**
**Interfaces**
**Electrical Ethernet/IP**

100/100/1000 Mbps Single RJ-45

**Optical Ethernet/IP**

1000 Mbps SFP Interface

**Ethernet Testing**

Duplex Modes Full/Half

**Flow Control**

Supported Modes of Operation Terminate

**Ethernet Traffic Generation**

Constant, Ramp, Bursty, Flood

Configurable Source and Destination MAC address, Frame Format, Type Field (for DIX), Frame Length (including under-sized and Jumbo frames), VLAN ID, VLAN Priority, Frame Payload, Utilization %

**IP Traffic Generation**

Constant, Ramp, Bursty, Flood

Configurable Source and Destination IP Address, Packet Length, Packet Payload, Utilization %, DHCP

Configurable VLAN ID, VLAN Priority, TOS/DSCP fields

ARP support

**Ethernet Traffic Filtering**

MAC Source and Destination Address, VLAN ID, VLAN Priority

**IP Traffic Filtering**

Source and Destination IP Addresses, Prefix Length, TOS/DSCP fields

**Bit Error Testing Patterns**
**Layer 2 (Framed) Bit Error Testing Patterns**

 PRBS (2<sup>23</sup>-1, 2<sup>31</sup>-1, and inverted selections)

All 1s

All 0s

User defined

**Framed Pattern Test Per NCITS TR-25:1999**

Long Continuous Random Test Pattern (CRPAT)

Long Continuous Jitter Test Pattern (CJPAT)

Long Compliant Supply Noise Pattern (CSPAT)

**Key Results**
**Link Status**

Optical Power Measurement

Link Active

Frame Detected

Sync Obtained

**Configuration Status**

Auto-negotiation Link Configuration ACK

Auto-negotiation Link Advertisement Status

DHCP Lease Time

Destination MAC address when using ARP

**Link Stats**

Bandwidth Utilization, Frame Rate, Rx/Tx L1 Mbps, Rx/Tx L2 Mbps, Rx/Tx L3 Mbps, Round Trip Delay, Service Disruption Time

**Link Counts**

Total Received and Transmitted Frame, Pause Frames, VLAN Frames, Unicast Frames, Multicast Frames, Broadcast Frames, Frame Length (Bins)

**Errored Counts**

FCS Errored Frames, Runt, Jabbers, Undersized Frames, OOS Frames, Lost Frames, IP Checksum Errors, Acterna Payload Errors

**Conformance with RFC-2544**

Throughput Test

Latency Test

Frame Loss Test

Back to Back Frame Test

**Cable Testing**

Link speed, Link Status, Cable Status, MDI/MDIX, Distance to fault, Pin mapping, Pair length, Polarity, Skew

**Power Supply**

4 AA field replaceable batteries (NiMH and Alkaline)

Operating time approximately 4 hours of typical usage

Supports sleep mode

(Instant-On, Auto power off after 2 hours)

AC line operation via external adapter/charger

AC converter provides country specific adaptor support (USA, UK, Australia, and Europe)

Charging time, internal: 4 hours from empty to full

**General Specifications**
**Permissible Ambient Temperature**

Nominal range of use 0°C to +50°C

Storage and transport -10°C to +60°C

**Humidity**

Operating humidity 10% to 90%

**Physical Specifications**

Size (H x W x D) 230 x 120 x 50 mm (9.05 x 4.72 x 1.97 in)

Weight, including batteries &lt;1 kg (2 lbs)

Display 240 x 160 monochrome display

CE Marked

**Configurations Available**

Single port 10/100/1000 Electrical Only

Single port 10/100/1000 and Optical Gig-E SFP

10/100/1000 Electrical Loopback Only (No traffic generation or RFC capability)

10/100/1000 Electrical and Gig-E Optical Loopback Only (No traffic generation or RFC capability)

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