IDEAL NETWORKS

NaviTEK IE

Technical Datasheet

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Specifications - NaviTEK IE

Connectors

Test Ports

RJ45

Used for - Cable Test
- Ethernet Test

Connector type - Lifejack with user-replaceable contacts

Optical

Used for - Ethernet Test

Connector type - SFP socket

System Ports

USB

Used for - Software Update
- Results transfer
- 802.1x certificate transfer
- Import/export of config
- Wi-Fi Adapter

Class - Host

Connector type - A

USB type – 1.1

Power

Used for – Battery charging
- Mains powering via adaptor

Connector type – 2.5mm pin power jack

Polarity – Centre pin positive

Voltage – 12v

Current – 2 A

Location – Bottom of optional power module
(Not present in standard alkaline battery pack)

Controls

ON/OFF

Push button

Used for – Power ON/OFF

Function Keys

F1 to F3

Used for – Screen-defined functions

Navigation Keys

Cursor and ENTER

Used for – User interface navigation

Escape

Used for – Return to previous menu

Autotest

Used for – Launch of automatic test function

Reset

Push button

Used for – Escape from exceptional lockup condition

Displays

Screen

LCD Touchscreen

Used for – Display of setup functions and results
Location – Front
Size – 2.8-inch diagonal
Type – QVGA Colour
Pixels – 240 x 320

LEDs

Charger LED

Used for – Indication of charging status
Colour – Green
Location – Bottom of standard power module
(Not present in optional alkaline battery pack)

RJ45 Link LED

Use– ON indicates link UP
Colour - Green

RJ45 Activity LED

Use – Flashing indicates link activity
Colour - Green

Optical Link LED

Use – ON indicates Optical link UP
Colour - Green

Optical Activity LED

Use – Flashing indicates Optical link activity
Colour – Green

Ports

RJ45

Setup

Auto Negotiation – Enabled
- Disabled

Speed – 10Mb/s
- 100Mb/s
- 1Gbps

Mode – Full Duplex
- Half Duplex

MDI - AUTO
- MDI
- MDIX

Min Rx Size – 19:99 bytes

MAC – Factory set

VLAN – Enabled / Disabled
- VLAN ID – 0 to 4094
- VLAN Priority – 0 to 7

802.1x - Enabled / Disabled
- EAP Method
EAP-MD5
EAP-MSCHAPV2
EAP-GTC
EAP-TLS
EAP-PEAP/MD5
EAP-PEAP/MSCHAPV2
EAP-PEAP/GTC
EAP-PEAP/TLS

EAP-TTLS/MD5
EAP-TTLS/MSCHAPV2
EAP-TTL/GTC
EAP-TTLS/TLS
- Username
- Password
- Certificate
- Import password
- Root/CA certificate

Results

Link pulse polarity – Normal or Inverted
Link pulse height – Normal or Low

Tests

Ethernet Mode
- Ping4
- Ping6
- Trace Route4
- Trace Route6
- Hub Blink
- Netscan
- Loopback
- NET TEST (Ping DNS/Gateway/Internet, Trace Route, Netscan)

Cable Mode
- Wiremap
- Tone Generator
- Auto (Wiremap)

Service Detection

Detected Services
- PoE (802.3af/at. Not Cisco pre-standard)
- ISDN S
- PBX
- Unknown

Optical

Supported SFPs

The following SFP types are supported. Use of other types of SFP is possible but correct operation is not guaranteed.

SFP Type SX

Manufacturer Part # - Avago AFBR-5705Z / Apac LM28-C3S-TI-N-DD
Speed – 1Gbps
Fibre Type – Multimode
Wavelength – 850nm
Connector Type - LC Duplex

SFP Type LX

Manufacturer Part # - Avago AFCT-5705Z
Speed – 1Gbps
Fibre Type – Single mode
Wavelength – 1310nm
Connector Type - LC Duplex

SFP Type ZX

Manufacturer Part # - APAC LS48-C3U-TC-N-DD
Speed – 1Gbps
Fibre Type – Single mode
Wavelength – 1550nm
Connector Type - LC Duplex

Setup

Speed - 1Gb/s
Min Rx Size – 19:99
MAC – Factory set

VLAN – Enabled / Disabled
- VLAN ID – 0 to 4094
- VLAN Priority – 0 to 7

802.1x
- Enabled / Disabled
- EAP Method
  - EAP-MD5
  - EAP-MSCHAPV2
  - EAP-GTC
  - EAP-TLS
  - EAP-PEAP/MD5
  - EAP-PEAP/MSCHAPV2
  - EAP-PEAP/GTC
  - EAP-PEAP/TLS
  - EAP-TTLS/MD5
  - EAP-TTLS/MSCHAPV2
  - EAP-TTL/GTC
  - EAP-TTLS/TLS
- Username
- Password
- Certificate
- Import password
- Root/CA certificate

Tests

Optical
- Tx Power dBm (using a specified SFP)
- Rx Power dBm (using a specified SFP)
- Rx max and Rx min power limit for the pass/fail indication.

Ethernet Mode
- Ping4
- Ping6
- Trace Route4
- Trace Route6
- Hub Blink
- Netscan
- Loopback
- NET TEST (Ping DNS/Gateway/Internet, Trace Route, Netscan)

Cable Tests

Wiremap

Setup

Cable Type
- Cat 3, Cat 5, Cat 5e, Cat 6, Cat 6A, Cat 7 and 7A, Cat 8, USOC8 1Pair, USOC8 2Pair,USOC8 3Pair, USOC8 4Pair, ETH 1236, ETH 1278, PROFINET 4W, COAX RGxx, ISDN BRI, DB, Custom

Shield
- UTP
- STP
- UTP/STP

Display Reference
- None,
- 568A
- 568B
- USOC
- TERA

NVP
- Fixed 72%
- Custom 59% - 89%

Split Pair - Enable or disable
Xover Allowed - Enable or disable

Termination Type
None - Open
Active Remote - #1 - #12

Tests (No Termination)
Faults – Open circuit by pair
- Short circuit by pin
Length of pair – Metres / Feet (Set in System Setup)
- Range 3-100m / 10-330ft

Tests (Active Remote Termination)
I/D – Remote #
Indications on Remote – Voltage Warning (>±10volts on any pins)
- Pass/Fail
Faults – Open circuit by pin
- Short circuit by pin
- Crossed pairs
- Split pairs
- Bridged shorts
- Remote shorts
Length of pair – Metres / Feet (Set in System Setup)
- Range 3-100m / 10-330ft

Tone Generator

Setup
No of Tones – 3
Wire I/D – *Tone applied to one of 8 pins relative to the other 7*
- *Tone applied across one of 4 pairs*

Test
Audible tone detected using compatible tone probe

Ethernet Tests

IPv4

Setup
Addressing - DHCP
- Static
Numerical - Address
- Netmask
- Gateway
- DNS1
- DNS2

IPv6

Setup
IPv6 Enable- Enabled
- Disabled
Addressing - Stateful (DHCPv6)
- Stateless
- Static
Numerical - 128bit HEX IP address
Network Prefix - 64 bit
- 128 bit

Pingv4

Setup
Target - Numerical address
- URL (Store up to 10)
Count - 1 to 999999

Pause - 1 to 5 Sec
Length - 8 to 1000 bytes.

Results

Info - READY
- IN PROGRESS
- PASSED
- NO RESPONSE
- UNKNOWN HOST

Tx Count - 1 to 999999
Rx Count - 1 to 999999
Delay(ms) - Minimum
- Average
- Maximum

Pingv6

Setup

Target - IPv6 address
- URL (Store up to 10)

Count - 1 to 999999
Pause - 1 to 5 Sec
Length - 8 to 1000 bytes.

Results

Info - READY
- IN PROGRESS
- PASSED
- NO RESPONSE
- UNKNOWN HOST

Tx Count - 1 to 999999
Rx Count - 1 to 999999
Delay(ms) - Minimum
- Average
- Maximum

Trace Routev4

Setup

Target - Numerical address
- URL

Max Hops - 2 to 100
Timeout - 2 to 30 sec
Type - ICMP
- UDP

Results

Info - READY
- IN PROGRESS
- PASSED
- NO RESPONSE
- UNKNOWN HOST

Hop - Numerical address
Delay(ms) - t1
- t2
- t3

Trace Routev6

Setup

Target - Numerical address
- URL

Max Hops - 2 to 100

Timeout - 2 to 30 sec
Type - UDP

Results

Info
- READY
- IN PROGRESS
- PASSED
- NO RESPONSE
- UNKNOWN HOST

Hop - Numerical address
Delay(ms)
- t1
- t2
- t3

Netscan

Setup

Netscan
- Local
- Custom
- Disabled

IP Address - IPv4 address
Scan Range
- 0 (class C /24)
- 1 (class C /20)
- 2 (class B /16)

Results

- *List of IPv4 hosts*
- *List of IPv6 hosts*

Blink

Test

Sequence
- Off/10/Off/100/Off/1000 Mb/s (RJ-45)
- Off/On (Optical)

Loop

Setup

Loop Type
- Wireline
- MAC
- IP
- UDP

All Traffic
- Yes
- No

PROFINET Tests

Node Discovery

- **Number of nodes (station) detected** - 254 (max)
- **Node colour status criteria (traffic light)**
  - Red indication (Critical events detected)
    - No or duplicate name set
    - Duplicated or wrong IP address set
    - No or wrong device subnet mask set
    - Device communication failure
    - Device IP outside the tester subnet mask
    - Packet error ratio exceeding $1x10^{-7}$ limits
    - Link load > 50%
  - Amber indication (No critical events detected)
    - Packet errors ratio occurring > 0 but < $1x10^{-7}$ limit
    - Link load 10% ~ 50%
    - Another identical device model found but has different firmware / hardware version
    - Device speed is 10Mb/s
    - Device port half duplex
  - Green indication (No abnormal events detected)
    - No errors
    - No alarms
    - No duplicated IP address or name
    - Link traffic load below 10%
- **Node (station) details**
  - Name
  - Address
  - Subnet
  - Gateway
  - Type
  - Role
  - Vendor name
  - Device ID
  - System description
  - Serial No.
  - Firmware Version
  - Hardware Version
  - Order ID
- **Partner details**
  - Name
  - Port No.
  - MAC address
  - Description
- **Interface ports selection**
  - 1 to 3
- **Port statistics**
  - Link status (Up, Down)
  - Link Up time
  - Link speed (Mb/s)
  - MTU
  - Link Type
  - Link description
- **Port Input (Rx) Statistics**
  - Errored packets count
  - Utilisation (%)
  - Traffic (Mb/s)

Unicast packets count
Multicast packets count
Discarded packets count
Unknown protocols packets count
Bytes

Port output (Tx) Statistics

Errored packets count
Utilisation (%)
Traffic (Mb/s)
Unicast packets count
Multicast packets count
Discarded packets count
Bytes
Queue Length

Node Setup

IP Address
Subnet mask
Name
Factory default
Flash LEDs

Map Comparison

Category - Same
- Mismatch
- New
- Missing

Result - Media: USB memory key
- Format: pdf

MAP list - Media: USB memory key
- Format: xml

Error event log

Duration - 1 hour
- 24 hours
- 48 hours

Resolution - 1 min

Node No. - One

Node Port - 1 to 3 selectable

Details - Node Name
- Node IP address
- Node port interface selection
- Time remaining
- Event count
- Event time
- Input (Rx) packets count
- Input (Rx) packet errors count
- Output (Tx) packets count
- Output (Tx) packet errors count
- Node status

Log file - Media to USB memory
- Node details as above
- Error event with time stamp
- Excel file format
- File name with date and time

Statistics

IP

Results

IPv4

- info: listening, assigned, DHCP failed
- DHCP or Static
- IPv4 Address
- IPv4 Netmask
- IPv4 Gateway
- IPv4 DNS1
- IPv4 DNS2

IPv6

- Enabled or Disabled
- info: listening, assigned, DHCP failed
- Stateful (DHCPv6) or Stateless or Static
- IPv6 Address
- IPv6 Network Prefix, 64 bit or 128 bit
- IPv6 Link Address
- IPv6 DNS

Discovery

- LLDP/CDP/EDP
- Protocol
- MAC address
- Hostname / address
- Port Name
- Max 10 hosts

VLAN

Detection

- 1 Level VLAN ID
- Rx

802.1x

Status

- Auth Not Started
- Auth Started
- Auth Completed Successfully
- Auth Failed
- Connected Successfully (auth)

Port Status

- Unauthorised
- Authorised

EAP Method Used

Key Management Used

LINK

Results

PORT

- PoE Voltage 0 – 60V
- PoE Pairs 12/36 or 45/78
- Speed, Duplex
- MDI / MDIX
- Signal Level
- Polarity

PARTNER

- *10M-HD*
- *10M-FD*
- *100M-HD*
- *100M-FD*

- *1000M-HD*
- *1000M-FD*

ERRORS
- *Collisions*
- *FCS Errors*
- *Undersize*
- *Oversize*
- *Jabbers*
- *Bad Length*

Traffic Utilisation

Bargraph

Direction - *Rx*

Format
- *Percentage of Link rate*
- *Peak value*

Time Interval- 1 min
- 10 min
- 60 min

Storage

Configurations

Internal storage

Number of configurations – 2 (Current & Factory settings)

Export/Import

Port – USB

Format - xml

Certificates

802.1x

Max number - 10

Results

Internal storage

Max Number of Jobs (Projects) - 50

Max Number of result sets per Job – 5000 depending on tests performed

Max total number of result sets - Up to 5000 depending on tests performed.

Export

Port – USB
- Wi-Fi

Format – PDF
- CSV (summary only)

System

Setup

Owner

Details
- Name
- Company
- Address
- Phone

Preferences

Language
- English
- French
- German
- Spanish
- Italian
- Portuguese
- Chinese

Auto off - Disabled

- 3 mins
- 10 mins
- 30 mins

Backlight - Always On
- Dims to 50% after 3 mins

Length Units- Meters
- Feet

Date Format- dd/mm/yy
- mm/dd/yy

Time Format- 12 hour
- 24 hour

Software update

Upgrade - Via USB

General

Date/Time

Internal Clock

Used for – Timestamping results

Autonomy – Up to 1 day with battery removed

Power

Battery

Supported Types - Standard power module (4 x AA NiMH cells)
- Alkaline battery pack with 4 AA cells

Autonomy - Up to 5 hours (power module only)

Recharge time – 3 hours (Power module only)

Battery level Indication - Full
- 2/3
- 1/3
- Empty

Physical

Dimensions

Length - 175mm

Width - 80mm

Depth - 40mm

Weight

Unit - 0.22kg

Batteries – 0.18kg

Environmental

Temperature

Operating – 0°C to 40°C

Storage – -20°C to 70°C

Relative Humidity

Min 5%

Max 90% non-condensing

Approvals

EMC

EN 55022:2006 / A1:2007

EN55024:1998 / A1:2001 / A2:2003

Safety

IEC 60950-1:2005+A1:2009/EN 60950-1:2006+A1:2010

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