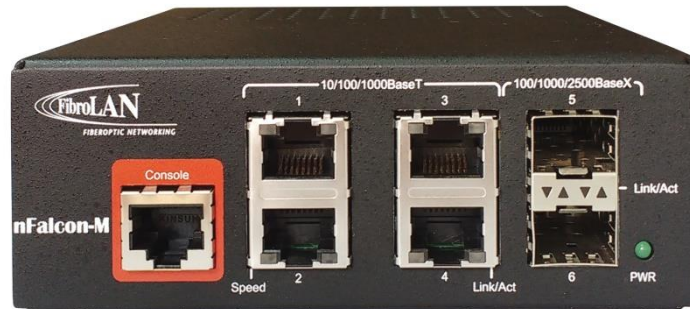# nFalcon-M4

1/2.5G Service Demarcation

- Demarcation unit for business Ethernet services
- Based on 3rd generation Falcon architecture
- Full set of MEF compliant services
- Advanced QoS and service level traffic management
- Complete OAM toolbox (802.1ag, Y.1731, RFC2544, Y.1564) for OPEX reduction
- Advanced high speed protection mechanisms for link, path, and ring service resilience
- 2.5Gbps support on optical ports
- Compact design, low power consumption, fan-less design

Product Overview

The **nFalcon-M4** (nano Falcon M) is an ultra-compact, high performance, service demarcation device, delivering high end Ethernet services.

This product extensively supports the evolving needs for broadband access services delivery, including high throughput, granular SLA enforcement and monitoring, flexible management capabilities, and a high degree of scalability and flexibility to cater for future requirements and technology trends.

Support for 2.5GE allows an intermediate step for high speed access (>1G) while avoiding the costs of 10G, as required in applications such as Wifi access points (802.11ac Wave 2).

The **nFalcon-M4** primarily addresses the rapidly-expanding market of business Ethernet access applications.

The **nFalcon-M4** series is equipped with 2 x triple-rate SFP ports (100/1000/2500BaseX) and 4 x tri-speed Copper ports (10/100/1000BaseT). All ports can operate at full wire speed, with a total processing capacity of 14Gbps (non-blocking).

The **nFalcon-M4** offers advanced Quality of Service (QoS) features including classification and mapping based on layer 1 through layer 4 attributes, rate limiting per service, with highly flexible scheduling, queuing and shaping options (including HQoS).

All MEF defined services (EPL, EVPL, ELAN, etc) can be configured on the **nFalcon-M4** series and can also be protected through use of high performance mechanisms, based on G.8031, G.8032, etc., for link, path, and ring resilience.

These features make the **nFalcon-M4** highly comprehensive package that can handle virtually any network topology and type of service.

The system implements current OAM standards (802.3ah, 802.1ag, Y.1731with HW assist as well as proactive measurements and alarming facilities.

To complete the OAM toolset, the **nFalcon-M4** has a built in packet generator and analyzer to implement RFC2544/Y.1564 for quick service turn-up and verification. The **nFalcon-M4** series is MEF CE2.0 compliant.

The **nFalcon-M4** is housed in an ultra-compact housing, implements a fan-less design, and has an integrated internal, wide range AC or DC power supply.

Technical Specifications

Interfaces & Indicators

- 2 x 100/1000/2500BaseX (SFP)
- 4 x 10/100/1000BaseT (RJ45)
- Supported SFP/SFP+: MM, SM, SFS, xWDM, Copper
- 1 x RS232 (RJ45) Console

- *LEDs*
  - Link/Activity (per port)
  - Power

Architecture & Forwarding

- 256MB RAM, 256MB flash memory
- L2 forwarding (802.1D MAC bridging)
- Flow-based forwarding
- Performance: wire-speed, on all ports, all frame sizes
- Switching fabric: 14Gbps, non-blocking
- MTU: 10K bytes
- MAC table: 8K addresses
- VLANs: 4K concurrent

- Provider bridging: 802.1ad (Q-in-Q)
- Private VLANS
- L1-L4 ACLs
- *Multicast:*
  - IGMPv3 snooping
  - MLD snooping
  - Up to 8K MC groups

Quality of Service

- Classification based on L1-L4 information
- Ingress policing per flow (MEF BW profiles)
- Two rate, 3-color marking
- Hierarchical queuing/scheduling
- Hierarchical shaping
- Priority based flow control (802.1Qbb)

- Scheduling: Strict and DWRR (WFQ equivalent)
- 4 drop precedence levels w/ WRED and tail drop for CA
- P-bit and DSCP remarking
- Storm control: UC, MC, BC
- QoS Control Lists

Protection

- Link aggregation: static or LACP
- Linear protection: G.8031
- Ring protection : G.8032v2

- Spanning tree: STP, RSTP, MSTP
- Loop protection

OAM & Diagnostics

- IEEE802.3ah link OAM
- IEEE802.1ag CFM (HW assisted)
- ITU-T Y.1731 PM (HW assisted)
- RFC2544 traffic generator & analyzer (up to wire speed)
- L2/L3 loopbacks w/ MAC/IP swap
- Throughput metering
- SFP diagnostics (SFF-8472)
- Traffic mirroring and remote mirroring
- sFlow

Management

- *Interfaces*:
  - CLI: Console (RS232), Telnet, SSH1/2
  - SNMP: v1/v2c/v3, extensive MIBs, trap profiles
  - Web: HTTP/HTTPS
  - Management VLAN
  - IPv6 management
- *Authentication:*
  - RADIUS, TACACS+
  - Multiple local users
  - User access levels (15)
  - Management ACLs
  - 802.1x (port/MAC based)
- DHCP client & relay (incl. option 82)
- Link discovery: LLDP, CDP snooping
- *Operations:*
  - Remote System Update (TFTP or Web)
  - Configuration upload/download (TFTP or Web)
  - Text based config files
- *Alarms:*
  - SNMP traps
  - Syslog (internal and remote server)
  - CLI events
  - Dying gasp (802.3ah or SNMP trap)
- Remote temperature reading & alarm
- Per port, EVC and CoS detailed statistics, RMON; NTPv4
- Integrated into the NetACE NMS

Power & Environmental

- *Internal Power Supply*
  - AC/DC: 100-240VAC, 50/60Hz
  - 20-60VDC
- *Power consumption:*
  - Maximum: <10W; typical: <8W
- *Operating temperature:*
  - Standard: -10°C ÷ +50°C (14°F ÷ 122°F)
  - Extended: -40°C ÷ +65°C (-40°F ÷ 149°F)
- Storage temperature: -40°C ÷ +80°C (-40°F ÷ 176°F)
- Humidity: 10-90%, non-condensing

Physical

- Dimensions (HxWxD): 42x120x150mm (1.65x4.72x5.90 inch)
- Weight: ~0.47Kg (1.04 lb)
- *Mounting:*
  - Desktop
  - Rack
  - Wall
- *Accessories:*
  - Power cable
  - RS232 cable (console)
  - Rack mounting kit (optional)

Regulatory & Compliance

- *Safety:*
  - IEC EN60950-1
- *EMC:*
  - EN 300 386 V1.3.3: 05
  - FCC CFR 47 part 15, subpart B, Class A
- MEF: **CE2.0**
- CE
- RoHS

Typical Application: Business Access
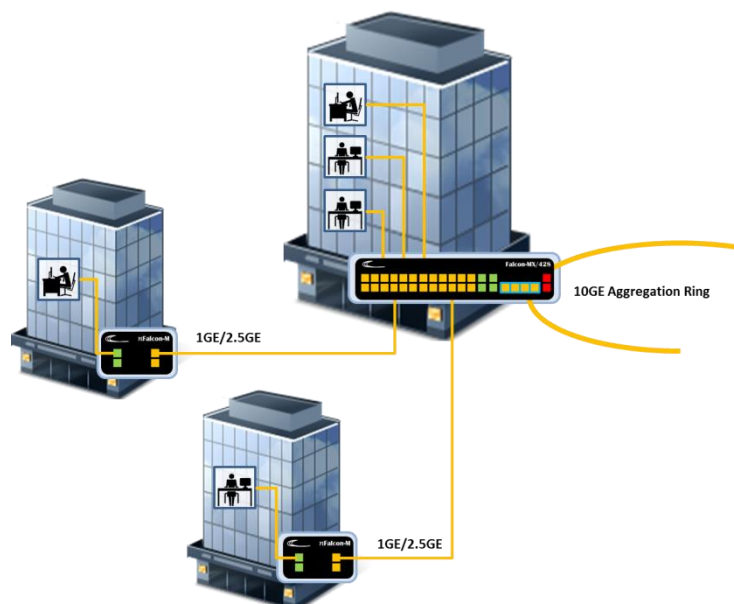
Ordering Information

Model	Part #	Description
nFalcon-M4/A	**7132**	Compact demarcation device, 2x100/1000/2500BaseX (SFP), 4x10/100/1000BaseT, internal AC power supply
nFalcon-M4/D	7133	Compact demarcation device, 2x100/1000/2500BaseX (SFP), 4x10/100/1000BaseT, internal DC power supply

Specifications are subject to change w/o prior notice

Fibrolan Ltd. (International)
Hacarmel 2, Yoqneam-Illit, 2066724, Israel
Tel: +972 (4) 959 1717
Fax: +972 (4) 959 1718
info@fibrolan.com

Fibrolan Inc. (North America)
350 W Passaic St., Rochelle Park, NJ 07662
Tel: (201) 843 1626
Fax: (201) 843 1628
us-info@fibrolan.com

Fibrolan CEE GmbH. (Central/East Europe)
Kulturstraße 1
A-2522 Oberwaltersdorf, Austria
Tel.: +43 2253 21188 – 0
Fax.: +43 2253 21188 – 99
office@fibrolan.at

www.fibrolan.com