

SWCE-3400 SERIES

10G CARRIER ETHERNET DEMARCATION DEVICE

Benefits

- 10G L3 switch
- Fanless
- Carrier Ethernet CE 2.0 MEF compliant
- L2 / L3 switching
- SFP+ : 10GE
- SFP : 2.5GE/GE/100FX
- RJ45 10/100/1000
- CE 2.0: EVC, E-LINE, E-LAN, E-TREE
- UNI, NNI
- G.8032v2, ERPS, 50 ms Ring Protection
- SyncE,
- PTP 1588v2
- STP, RSTP, MSTP
- VLAN, Double-Tag VLAN / Provider Bridge
- 802.1G, Q-in-Q
- 802.3ad (Link aggregation)
- IGMP
- QOS, 8 priority queues per interface
- Jumbo frame up to 9K
- Service-Aware Architecture, hardware based wirespeed switching, CoS, OAM and performance monitoring
- Performance and Service Quality Supervision
- Compact industrial design with 19" mounting kit

Applications

- Eth Demarcation Device
- Transportation, Defense and Utility infrastructures
- Service Provider wholesales Mobile operators



10 GIGABIT ETHERNET SWITCH INDUSTRY & HARDENED GRADE

SWCE-3400 series is a 10 Gigabit Carrier Ethernet switch that complies with the MEF CE 2.0 standard. It performs Layer 2 and 3 switching functions.

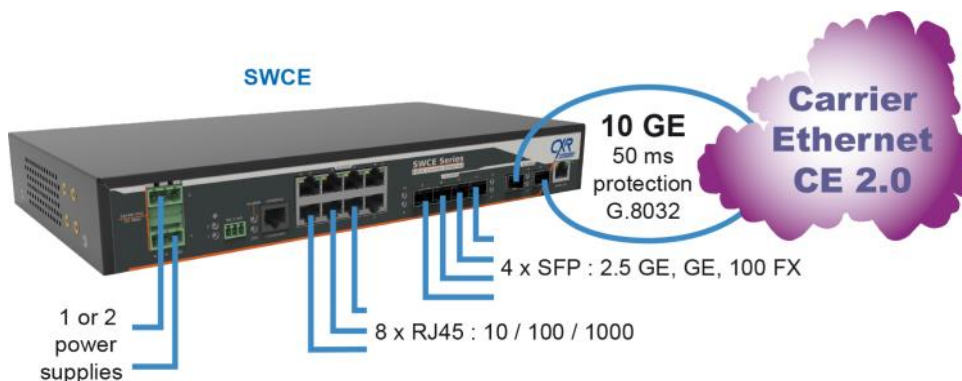
SWCE-3400 provides 10GE SFP+ interfaces, four multi-standard SFP interfaces for 2.5GbE / GbE / 100FX speeds, and up to 6 GigaBit Ethernet RJ45 ports (see model table). It is a compact product with a robust industry/hardened grade design that suits most stringent integration requirements of the Carrier, Transportation, Defense, and Utility infrastructures.



SWCE-3400 enables Carrier Ethernet 2.0 and IP connectivity services including EVC, E-LINE / E-LAN / E-TREE at a UNI / NNI Carrier Ethernet network access.

SWCE-3400 helps industry networks to extend to very high bandwidth 10GbE. It builds resilient Rings at GbE, 2.5GbE and 10GbE speeds and delivers high speed Ethernet connectivity to Control centers, hospitalities, video-surveillance systems, Transportation sites, water and electric utilities, etc.

SWCE-3400 is a best choice networking and communication equipment for Mission Critical Networks thanks to its resilient and robust design and extended operating temperature range.



10GE CARRIER ETHERNET DEVICE

CE 2.0 Carrier Ethernet Services

SWCE provides managed services at the UNI / NNI Ethernet network provider to deliver **EVC / E-LAN / E-TREE** services according to the **MEF CE 2.0 standard**.

SWCE is based on a **Service Aware architecture** with hardware processing of real time functions such as switching, CoS, G8032, OAM. This carrier grade architecture guarantees best performance whatever the traffic load and SLA requirements.

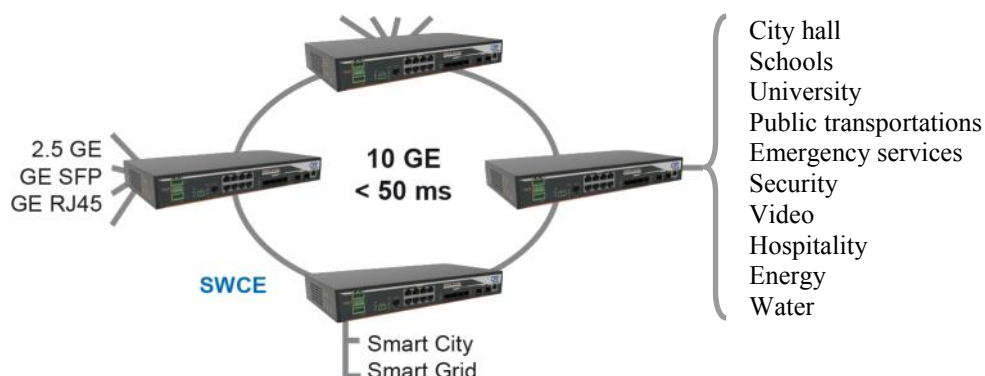


SWCE distinguishes from other existing products from its **compact form factor** and integration, its CE 2.0 carrier class, its **two redundant power supplies**, its **wide operating temperature range** and its **cost effectiveness**.

Scalable Ethernet communications for Industry Infrastructures

SWCE supports very high speed backbone communications for large infrastructures such as Public Transportation (railway, road) and Transport / Distribution Utility (electricity, oil and gas, water). It comes with a very cost effective approach for best flexibility and scalability to suit current requirements and anticipate future developments. Its four SFP optical ports can be set to 1xGbE and 2.5 GbE speeds. Two 10GbE interfaces can be activated when higher bandwidth capacity is required.

Increasing speed is not enough to Mission Critical Networks. Communication network must provide continuous control and monitoring of performance, services availability, latency, traffic load with reactivity and accuracy but no application traffic disruption. A Carrier Class equipment with compliance to the Metro Ethernet Forum CE2.0 is a guaranty for such long lasting performance and precise network monitoring.



Management

SWCE offers many management protocols and interfaces including a user-friendly **web interface** with **help pages**. System operation is secured by strong authentication and encryption protocols such as **HTTPS** and **SNMP v3**. The product embeds a **dual IP stack** with versions v4 and v6. The Command Line Interface is based on industry standards and enables batch configuration script.

Integration

SWCE is a **1U compact and robust product**. It comes with a choice of a single 110 - 230 Vac mains power supply, or one or **two 24 - 48 Vdc power converters** with **fault tolerance and redundancy**. It can be installed in a standard communication rack with mounting brackets.

SWCE is an industry grade product that combines high performance Carrier Ethernet processing and **severe industry robustness and reliability**. It works over a wide temperature range from -10 to +45°C with its 24-48 Vdc power options.

SWCED (hardened device) operate from -20°C to +65°C.

SPECIFICATIONS

10GbE CE 2.0 Service Aware Switch

SWCE distinguishes from other products by its combined addition of a newer generation Ethernet switching solution dedicated to 10GE Carrier Ethernet Services, and extensive software features according to Ethernet industry and MEF CE 2.0 standards. A number of hardware accelerators perform real time critical functions for wirespeed switching, SLA controls and OAM test and maintenance which guaranty minimum latency whatever equipment settings and network load and type of traffic. SWCE exceeds MEF CE 2.0 specifications. Each EVC virtual connection can be assigned specific QoS and resources.

SWCE embeds all standard Ethernet protocols - VLAN, Provider VLAN, QOS, IGMP, RSTP, MSTP, GVRP, EVC, ERPS G.8032, etc. It has many security functions including Access Control List and authentication protocols - 802.1X, Radius, TACACS+.

SWCE is offered to Ethernet network operators and industrial infrastructure managers with the most attractive price strategy. It is a flexible equipment with hardware options and software licenses that enable users to invest only for today requirements in a scalable and future-proof solution that can evolve in speed and features. This Pay-as-you-grow approach best preserves investments and future developments.

SWCE gives many benefits as an industry grade and a cost effective Carrier Ethernet equipment:

- Controlled and determinist performance
- Best bandwidth and resource allocation
- 99.999% availability
- Reduced Time-To-Service
- Scalable and future-proof network
- Lower cost of provisioning, deployment, support and maintenance and best customer experience and satisfaction
- Fault and Performance monitoring with end to end OAM functions
- Sustainable solutions and technical skills thanks to widely adopted and Metro Ethernet Forum supported standards

Protocols

Layer 2 Switching

- VLAN: translation, MAC based, protocol based, IP address based, VLAN trunking, GVRP registration, Private VLAN, Voice VLAN
- Provider Bridge 802.1ad, native or translated
- EVC, MEF Layer 3 traffic classification, 4 K EV services
- E-LINE (EPL, EVPL), EPL-Access, EPVL-Access, E-LAN (EP-LAN, EVPLAN), E-TREE
- RSTP, STP
- Link Aggregation, LACP
- IGMP v2 Snooping, MLD v1 Snooping, IGMP filtering
- MVR, LLDP
- DHCP Snooping

Layer 3 Switching

- DHCP option 82 relay
- UPNP
- IP v4 unicast static routing
- IP v6 unicast routing

Protection

- Port protection: 1+1, 1:1, 1:N
- G. 8031, G.8032, G.8032v2, Y.1731, Y.1564 SAT L2 & L3
- IEEE 802.3ad Link aggregation—active/standby or load balancing
- IEEE802.1Q, Q-in-Q, IEEE 802.1ag

QoS

- Traffic Classes : 8 priority levels
- Per port and per user priority
- QCL, QoS Control List
- DSCP classification, translation
- Rate limiting
- Storm control, UC / BC / unknown
- Service policing, bandwidth profiles
- WRED

Security

- 802.1X, per port, simple or multiple authentication
- MAC address authentication
- VLAN assignment, QoS assignment
- Guest VLAN
- Radius AAA, TACACS AAA, 802.1x
- IP / MAC binding
- WEB and CLI interface authentication
- ACL
- IP source guard

Synchronization

- ITU-T G.8261/G.8262/G.8264 Synchronous Ethernet on all interfaces (except management port)
- Sync status message support
- IEEE 1588v2 Precision Time Protocol
- ITU-T G.8265.1 and G.8275.1 PTP Telecom Profile

SWCE
10GE Carrier Ethernet



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SPECIFICATIONS

Ethernet interfaces

- See table below for interface type
- MDI/MDIX automatic detection
- 802.3X flow control
- DDMI management on SFP ports
- Ethernet MAC address memory : 32 K
- Ethernet frame buffer : 32 Mb
- EEE: Green Ethernet
- Statistics : transmitted frames and interface diagnostics
- Max frame size : 9000 bytes

Management

- RS232 - RJ45 local console port
- RJ45, 10/100/GE management port
- TCP-IP protocols : Telnet, http, ssh, https,
- IP v4 / v6
- Web interface, intuitive menus and on-line help pages
- CLI command line: ssh, RS232 port
- Snmp : v1/v2/v3
- Diagnostics : ping, traceroute
- Port Mirroring, Syslog , LLDP
- Statistics, RMON , NTP client
- 2x banks of firmware
- Alarm relay

Maintenance

- Link OAM: hardware based, 4K services, Loop-back
- RFC2819 RMON Group 1,2,3,9
- RFC.2544 LBM/LMR + Y.1564
- 802.3ah, TWAMP
- VeriPhy function for port diagnostic , G.8021

Light indicators

- Power
- Link / Activity for each Ethernet port

Power supply

- -A model : 110–230 Vac, 50-60 Hz
- -D model : 18 to 60 Vdc power input
- -2D model : 2x 18 - 60 Vdc power inputs and converters
- Max power consumption : 45 W
- Typical power consumption : 21 W

Environmental

- Stainless metallic enclosure, Fanless
- Protection Class : IP-40
- Dimensions : 327 x 172 x 44 mm
- Weight : 1.9 kg
- 19" bracket weight : 0.25 kg
- Operating temperature range : see table below
- CE compliance : EN60950, EN55022, EN55024, EN50121-4
- MTBF : 380.000 hours

PRODUCT REFERENCES

Reference	Description	RJ45 Mngt	Giga RJ45	Giga SFP	10G SFP+	Power Supply
SWCE-3406-RB-D	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -10 / +45°C	1		4	2	48Vdc
SWCE-3408-RB-D	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -10 / +45°C	1	6		2	48Vdc
SWCE-3410-RB-A	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -10 / +45°C	1	6		4	110-230 Vac
SWCE-3410-RB-D	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -10 / +45°C	1	6		4	48Vdc
SWCE-3410-RB-2D	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -10 / +45°C	1	6		4	Redundant 48Vdc
SWCED-3406-RB-D	L3 Carrier Ethernet Demarcation Device, Giga and 10G, 1588v2 and PTP, Fanless, 1 RJ45 Mngt, Temp -20 / +65°C	1		4	2	48Vdc
Option						
ACDC-48V-50W	AC to DC 48V 50W adapter for SWCE delivered in 48V (include IEC cable)					
SFP-10G-SR-MM	SFP+ 10GE LC/PC, multi-mode, 850 nm, 300 m					
SFP-10G-LM-SM10	SFP+ 10GE LC/PC, single-mode, 1310 nm, 10 km					
SFP-10G-ER-SM40	SFP+ 10GE LC/PC, single-mode, 1550 nm, 40 km					
SFP-10G-ZE-SM80	SFP+ 10GE LC/PC, single-mode, 1550 nm, 80 km					
SFP-TTX	SFP module for 100FX slot to copper Ethernet 100BaseT RJ45					
SFP-TGTX	SFP module for 1000FX slot to copper Ethernet 10/100/1000BaseT RJ45					
SFP-GLX-SMxx	SFP module 1000LX/100FX w DD, single-mode 1310nm, budget xx km, LC, -40°C to +85°C					