Smart solutions for smart networks

Version 1.6

SWCE-2114 Series

10 Gigabit Carrier Ethernet Switch

4X SFP
8X GE

INDUSTRIAL GRADE

10 GE CARRIER ETHERNET CE 2.0

HIGHER RESILIENCY

10 GigaBit Ethernet Switch

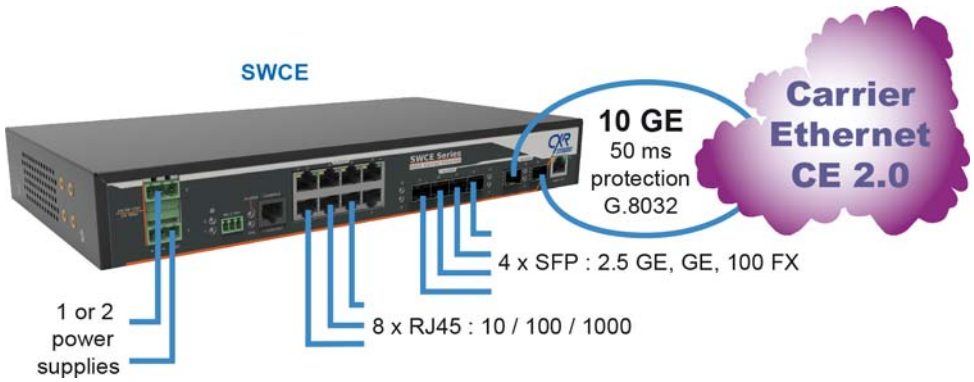
Industrial Carrier Ethernet

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

SWCE enables CE 2.0 managed services including EVC, E-LINE / E-LAN / E-TREE at a UNI / NNI Carrier Ethernet network access.

SWCE helps industry networks to extend to very high bandwidth 10GbE within an affordable 'Pay-as-you-grow' approach that best preserves long term investments and reduces OPEX costs. 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 is a best choice networking and communication equipment for Mission Critical Networks thanks to its resilient and robust design and extended operating temperature range.



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CE 2.0 Carrier Ethernet Switch

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 guaranties 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**.

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

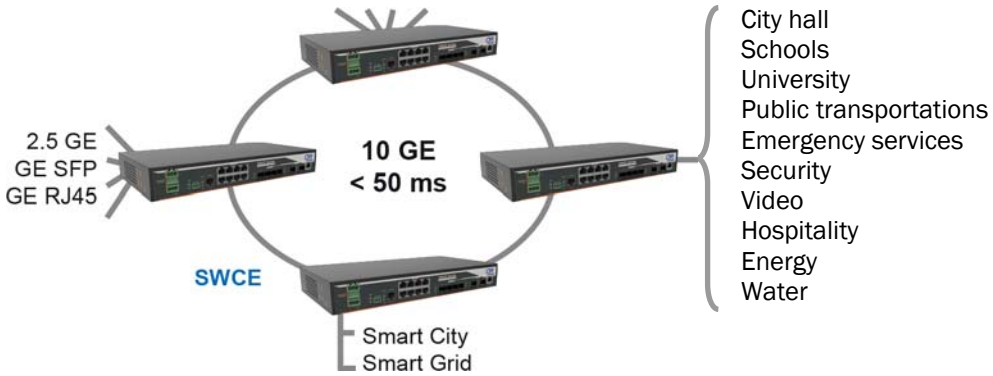
SWCE is a 1U compact and robust product. It comes with a choice of a single 110 - 230 Vac mains power supply, or one or two 24 - 48 Vdc power converters with fault tolerance and redundancy. It can be installed in a standard communication rack with mounting brackets.

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 –20 to +60 °C with its 24-48 Vdc power options.

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). I 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.



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Specifications

10 GE 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

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)
- 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

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
- IP / MAC binding
- WEB and CLI interface authentication
- ACL
- IP source guard

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Specifications

ETHERNET INTERFACES

- 2x SFP+ ports, 10 GigaBit and GE rates
- 4x SFP ports, 2.5 GE, GE and 100FX rates
- 8x RJ45 ports, 10 / 100 / 1,000 Mbps
- 1x RJ45 port, 10/100/1000 Mbps, management and / or user traffic
- MDI/MDIX automatic detection
- 802.1x Authentication
- 802.3X flow control
- DDMI management on SFP ports
- VeriPhy function for port diagnostic
- Ethernet MAC address memory : 32 K
- Ethernet frame buffer : 32 Mb
- EEE: Green Ethernet
- Statistics : transmitted frames and interface diagnostics
- Max frame size : 4,776 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, Loopback

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
- -2D model : 2x 18 - 60 Vdc power inputs and converters
- Max power consumption : 45 W
- Typical power consumption : 21 W

ENVIRONMENTAL

- Stainless metallic enclosure
- Protection Class : IP-40
- Dimensions : 327 x 172 x 44 mm
- Weight : 1.9 kg
- 19'' bracket weight : 0.25 kg
- Operating temperature range : -20 to +60 °C
- CE compliance : EN60950, EN55022, EN55024, EN50121-4
- MTBF : 380.000 hours
- MTBF : 380.000 hours

Product References

Reference	Description
SWCE-2114-R-A	**Ethernet Switch, 110-230 Vac power supply**
SWCE-2114-R-D	**Ethernet Switch, 24-48 Vdc power supply**
SWCE-2114-R-2D	**Ethernet Switch, two redundant 24-48 Vdc power supplies**
SWCE-L10	**Option, 10 GigaBit activation license**
SWCE-LCE	**Option, MEF CE 2.0, EVC and OAM service license**
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**

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