# siae microelettronica

## Our experience, your advantage

## AGS20 SERIES

### Universal Aggregation Platform

AGS20 is a Universal Microwave Aggregation Platform that flexibly addresses the different RAN generation needs over a common wireless transport infrastructure, including LTE-Advanced and 5G new stringent requirements. The AGS20 is a family of microwave aggregators with multiple mechanical arrangements designed to fit different needs and deployment scenarios in a modern mobile backhaul infrastructure. The ASNK ODU is extremely compact in size with less than 2 liters volume and with a benchmarking power consumption of 10W, help operators in diminishing CO2 emissions.

AGS20 addresses the need for carrier-class multi-technology traffic aggregation, with high performance Carrier Ethernet 2.0 and IP/MPLS engine, with multiple 1/2,5/10Gbps ports, while maintaining full support of the legacy traffic E1 and STM-1 services.

The platform enables convergence of the major microwave application segments:

• Next Generation indoor unit for advanced packet processing
• Aggregation of IF and All-Outdoor Radio including E-Band
• Modular configuration for evolving complex sites



AGS20 SERIES IDUs and ODUs

# UNIVERSAL PRODUCT ARCHITECTURE

Microwave radio products have evolved in terms of functionality and physical arrangements to cover in an effective and efficient way they can be employed in any application.

AGS20 as part of the SIAE MICROELETTRONICA Unified Product Architecture, utilizes at its core the SM-OS operating system based over three major components:
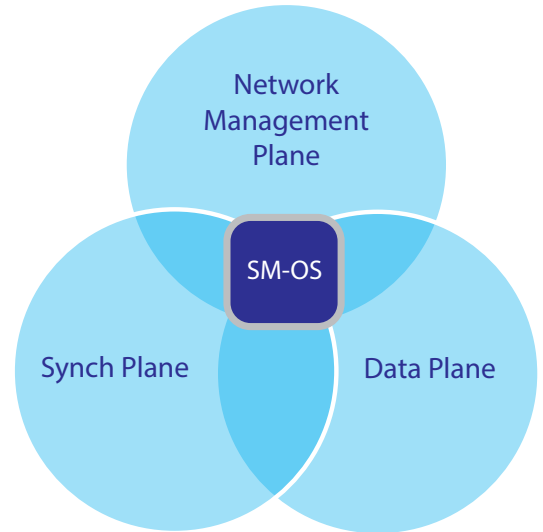
## Network Management Plane

- NETCONF/Yang in SDN deployment
- SNMP v1/v2c/v3, HTTPs, SSH, SFTP
- RADIUS for centralized user management

## Data Plane

- MEF 2.0 – Carrier Ethernet Services
- IP/MPLS – L2/L3 VPN Services
- QoS/HQoS – queue management/policing and shaping

## Synch Plane

- Synchronous Ethernet
- ITU-T G.8275.1 Profiles (T-BC)
- 1 PPS in/out port

# SPLIT MOUNT PLATFORM FAMILY

AGS20 series is the state of art microwave radio solution and the next Generation Indoor Unit for split Mount Radio, capable of addressing traditional split mount application with multiple IF radio, as well as aggregation of multiple all out door radio solutions, or a mix of the solutions.

AGS20 include three physical mechanical arrangements to satisfy simple point to point needs to the most complex sites including nodal configurations and scaling capacity in line with network growth.

The IDU can support a variety of interfaces with a mix of GE and Radio IF interfaces, for maximum flexibility when interconnecting heterogeneous technologies.

## AGS20

AGS20 is a fully integrated single box solution. It offers a complete range of interfaces: Radio, 10/2.5/1 Gigabit/Fast Ethernet, E1 both native and pseudo wire and STM-1.
AGS20 can support up to four IF interfaces, allowing the set up a four direction nodal solution in a single rack unit IDU, or Radio LAG over 4x ODUs, with best cost/performance relationship. AGS20 minimizes space consumption without renouncing to functionalities.

**AGS20**
integrated single unit

## AGS20M

AGS20M is an expandable split-mount edge node that hosts a frontal expansion slot. Its innovative structure provides both simplicity and flexibility matching the requirement of maintaining a low total cost of ownership (TCO) by giving the possibility to expand the node with more radio or client interfaces to meet the growing demands of the network.

**AGS20M**
integrated unit with single drawer expansion slot

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## AGS20L

AGS20L has a fully modular architectural design, addressing dense scenario applications where multiple directions, high capacity aggregation and convergence over the optical network are a need.

AGS20L aggregates traffic incoming from multiple IF based ODU and Ethernet based full outdoors, all feeding into a single node. Its modular design offers full redundancy (no Single Point o f Failure) regardless of the radio configuration, improving resiliency of aggregation and backbone sites.



**AGS20L
2RU - 8modular slots**

## ASNK ODU

- Modulation up to 4096 QAM
- Channel spacing up to 112 MHz
- Lower than 2 litre volume for easier installation
- Multicarrier Aggregation for Hybrid Link, applicable to any ASNK ODU variant (standard licensed frequency band and a millimeter wave 80 GHz band)



**ASNK**

## ASNK ODU EXTENDED PRODUCT FAMILY

### ASNK D

- Dual Carrier
- Modulation up to 4096 QAM
- Channel spacing up to 112 MHz
- Lower than 2 litre volume for easier installation
- Dual carrier configuration for 2 Gbps transport capacity in a single unit (ACCP)



**ASNK D**

### ASNK Q

- Quad Carrier
- Modulation up to 4096 QAM
- Channel spacing up to 112 MHz
- 4 litre volume
- Highly compact solution supporting up to 4 carrier configuration for 4Gbps transport capacity in a single unit (ACCP; ACAP; CCDP)



**ASNK Q**

### ASNK HP

- High Power
- Modulation up to 4096 QAM
- Channel spacing up to 112 MHz
- 6,5 litre volume
- Offering extra power compared to the standard ASNK for higher system gain performances, +3dB



**ASNK HP**

### ASNK UHP

- Ultra High Power
- Modulation up to 4096 QAM
- Channel spacing up to 112 MHz
- 7,5 litre volume
- Offering extra power compared to the standard ASNK for extended performances, +6dB



**ASNK UHP**

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# MAIN FEATURES

- SM-OS based platform
- 4 to 4096 QAM modulation
- Hitless Adaptive Code and Modulation
- Multi Layer Header Compression
- L1 Radio LAG over multiple ODU with XPIC
- Extended Ethernet connectivity: multiple 10/2,5/GE interfaces

- Multi Carrier Aggregation
- Mixed TDM/Ethernet interfaces for dual native transport
- PWE3 TDM services defined by software for full packet networks
- AES128/256 Encryption
- POE support
- Extended buffer for maximum TCP/IP efficiency in LTE networks

- Integrated antennas up to 1.8m (6ft)
- Single Universal ODU for any capacity and modulation
- Network Management System: NMS5
- SDN Microwave Domain Controller: SM-DC

# LAYER 2 MAIN FUNCTIONALITIES

- MEF 2.0 certified
- 8 queues with flexible scheduler (Strict Priority, WRR and mixed)
- 4 level hierarchical scheduler (H-QoS)
- Flexible QoS definition based on VLAN, IPv4, IPv6, MPLS exp bits

- Per queue WRED congestion avoidance
- Flow Based Ingress Policing (CIR & EIR definition)
- Egress shaping
- Ethernet Ring Protection G.8032

- RMON statistics per service VLAN stacking (IEEE 802.1ad QinQ)
- Link Aggregation IEEE 802.3ad
- Ethernet OAM 802.3ah/ 802.1ag/ Y.1731
- Jumbo Frames up to 12 Kbytes

# LAYER 3 MAIN FUNCTIONALITIES

- LDP (Label Distribution Protocol) / TLDP
- RSVP/RSVP-TE
- MPLS L2VPN / VPLS
- MPLS L3VPN
- MPLS TE using RSVP-TE

- OSPFv2 and OSPF with TE extension
- BGPv4, MP-BGP
- IS-IS
- eBGP
- BDF bidirectional forwarding detection for PW VCCV

- FRR Fast Re-route
- LSP RSVP-TE protection 1:1
- MPLS-OAM (with MPLS-TP)