

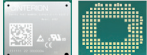




Product family: Automotive

Product	AGS2	AGS2-E	AHS2/AHS3	ALS3	ALx
					
Radio technology 2G-4G	GPRS	GPRS	HSPA+	LTE Cat 3	LTE Adv. Cat 6
Regional focus	AGS2-E EMEA/APAC AGS2-W Global	Global	AHS2-E EMEA/APAC AHS3-W Global AHS3-US NORAM	ALS3-E EMEA/APAC ALS3-US NORAM	Global and regional variants
Frequency bands	2G Quad Band	2G Quad Band	AHS2-E 3G (1,8) 2G Dual Band AHS3-W 3G (1,5,6,8) 2G Quad Band AHS3-US 3G (2,5) 2G Quad Band	ALS3-E LTE (1,3,7,8,20) 3G (1,3,8) 2G Dual Band ALS3-US LTE (2,4,5,17) 3G (2,4,5) 2G Quad Band	LTE Adv., 3G, 2G (Band combination depending on variant)
max. Data Rate DL / UL	Multislot Class 10 85.6 / 42.8 kbps (DL / UL)	Multislot Class 10 85.6 / 42.8 kbps (DL / UL)	4.4 / 5.7 Mbps (DL / UL)	Cat 3 100 / 50 Mbps (DL / UL)	Cat 6 300 / 50 Mbps (DL / UL)
Dimensions/ Mounting	27.6 x 18.8 x 2.7mm, LGA	33 x 29 x 2.2mm, LGA	33 x 29 x 2.4mm, LGA	33 x 29 x 2.3mm, LGA	40 x 32 x 2.9mm, LGA
Temperature range	-40°C to +95°C	-40°C to +90°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Features					
Gemalto Security	•	•	•	•	•
Embedded Processing					
Embedded IP services	•	•	•	•	
Voice support	•	•	•	VoLTE, CSFB	VoLTE, CSFB
Location based services		GNSS	GNSS	GNSS	GNSS
Advanced Temperature Management	•	•	•	•	•
RLS-Monitoring (Jamming Detection)	•	•	•	•	•
Interfaces					
USB			USB 2.0	USB 2.0	USB 3.0
Serial interfaces	UART, I ² C	UART, I ² C	UART	UART	UART
Audio	Digital (PCM), Analog	Digital (PCM), Analog	Digital (I ² S, PCM), Analog	Digital (I ² S, PCM), Analog	Digital (I ² S, PCM)
ADC/DAC	•	•		•	
Multiple GPIOs	•	•	•	•	
Ethernet/WiFi					optional, via PCIe



Connect. Secure. Monetize.™

Gemalto Cinterion® Automotive Product Family

In the fast-paced automotive industry, innovation and leading-edge technology are paramount to success. Gemalto's award-winning Cinterion Automotive Wireless Modules are revolutionizing the industry providing a new frontier for evolving connected car technology and advanced telematics.

Cinterion automotive grade wireless modules deliver trusted cellular connectivity for all network standards from 2G to LTE Advanced and beyond. Feature-rich and engineered to withstand the extreme environments and requirements of long life on the road, they offer unparalleled performance providing full support for eCall and ERA-GLONASS. In addition, they are developed according to VDA 6.2 and manufactured according to TS16949 quality standards, to meet the highest level of automotive specification compliance.

Gemalto's complementary offering of solutions, services and platforms delivers a virtuous circle of support for the entire automotive and transportation ecosystem offering: secure authentication for virtual car keys, embedded payment systems, On Demand Connectivity and remote product monitoring and lifecycle management. This allows carmakers, OEMs and drivers to unleash the power of the IoT providing a solid foundation of Trust based on three key pillars:



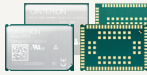





Connect. The backbone of any IoT solution, Cinterion modules, terminals and secure services deliver future-proof, reliable connectivity, remote service provisioning and subscription management.

Secure. Gemalto's end-to-end security solutions protect vehicles, devices, the network and the cloud while managing the entire application lifecycle.

Monetize. Gemalto's agile Sentinel Monetization solutions enable innovative business models and new revenue streams through embedded licensing.

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Product family: Industrial

Product	BGS1/BGS2	BGS5	EHS5/6/8	ELS31	ELS61	ELS81	EMS31	ENS22
								
Radio technology 2G-4G	GPRS	GPRS	HSPA	LTE Cat 1	LTE Cat 1	LTE Cat 4	LTE Cat M	LTE Cat NB1
Regional focus	BGS1/BGS2-E EMEA/APAC BGS2-W Global	Global	EHS6/8 Global EHS5-E EMEA/APAC EHS5-US NORAM	ELS31-V NORAM ELS31-J Japan	ELS61-E EMEA/APAC ELS61-US/-USA NORAM ELS61-AUS Australia	ELS81-E EMEA/APAC	EMS31-V/-US NORAM EMS31-X NORAM EMS31-W Global, incl. Japan & Australia	ENS22 EMEA
Frequency bands	BGS2-W 2G Quad Band BGS1/BGS2-E 2G Dual Band	2G Quad Band	EHS6/8 3G (1,2,5,6,8) 2G Quad Band EHS5-E 3G (1,8) 2G Dual Band EHS5-US 3G (2,5) 2G Dual Band	ELS31-V/-VA LTE (4,13) ELS31-J LTE (1,18,19)	ELS61-E LTE (1,3,8,20,28) 3G (1,8) (Rel.2 only) 2G Dual Band ELS61-US/-USA LTE (2,4,5,12) 3G (2,4,5) ELS61-AUS LTE (3,5,8,28) 3G (1,5,8)	ELS81-E LTE (1,3,8,20,28) 3G (1,8) 2G Dual Band ELS81-US LTE (2,4,5,12) 3G (2,4,5)	EMS31-V-US LTE (4,13) / (2,4,12) EMS31-X LTE (2,4,12,13) EMS31-W LTE Multiband LTE	ENS22 LTE (3,5,8,20,28)
max. Data Rate DL / UL	Multislot Class 10 85.6/42.8 kbps (DL / UL)	Multislot Class 12 85.6 / 85.6 kbps (DL / UL)	7.2 / 5.7 Mbps (DL / UL)	Cat 1 10.3 / 5.2 Mbps (DL / UL)	Cat 1 10.3 / 5.2 Mbps (DL / UL)	Cat 4 150 / 50 Mbps (DL / UL)	Cat M 300 / 375 kbps (DL / UL)	Cat NB1 50 / 50 kbps (DL / UL)
Dimensions/ Mounting	27.6 x 18.8 x 2.7mm, LGA	27.6 x 18.8 x 2.7mm, LGA	27.6 x 18.8 / 25.4 x 2.3mm, LGA	27.6 x 18.8 x 2.1mm, LGA	27.6 x 25.4 x 2.2mm, LGA	27.6 x 25.4 x 2.2mm, LGA	27.6 x 18.8 x 2.1mm, LGA	27.6 x 18.8 x 2.1mm, LGA
Temperature range	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Features								
Gemalto Security	•	•	•	•	•	•	•	•
Embedded Processing		Java	Java		Java	Java	Java*	
Embedded IP services	•	•	•	•	•		•	•
Voice support	•	•	•	VoLTE (-VA only)	VoLTE (-USA only) CSFB			
Location based services			GPS (EHS8 only)		On demand cell location service	On demand cell location service	On demand cell location service	
Advanced Temperature Management	•	•	•	•	•	•	•	•
RLS-Monitoring (Jamming Detection)	•	•	•	•	•	•	•	•
Interfaces								
USB		USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0		
Serial interfaces	UART, I ² C	UART, I ² C, SPI	UART, I ² C, SPI	UART, I ² C, SPI	UART, I ² C, SPI	UART, I ² C, SPI	UART	UART, I ² C, SPI
Audio	Digital (PCM), Analog	Digital (I ² S, PCM), Analog	Digital (I ² S, PCM), Analog	Digital (I ² S, PCM)	Digital (I ² S, PCM)			
ADC/DAC	•	•	•	•	•	•	•	•
Multiple GPIOs	•	•	•	•	•	•	•	•
Ethernet/WiFi								

*) optional



Connect. Secure. Monetize.™

Gemalto Cinterion® Industrial Product Family

In today's quickly evolving digital landscape, connected assets and IoT applications need to meet wide-ranging and ever-changing demands. Gemalto's Cinterion® Industrial Wireless Modules deliver trusted cellular connectivity offering scalability and an easy path to upgrades as technology needs evolve.

Now including the latest Machine Type Communication LPWAN standards (Low Power Wide Area Network) such as LTE Cat. M and LTE NB-IoT, the Cinterion Industrial Modules are designed for IoT applications that rely on efficient network connectivity along with long product lifecycles. Benefits include maximum flexibility, ease of integration, optional embedded system variants plus a rugged design that ensures reliability in the most demanding industrial environments. All products within the Industrial Family share a common footprint offering backward and forward compatibility for easy product evolution that preserves your technology investment. Like all Cinterion products, they come with full type approval (FTA) and are certified by the largest global network operators.

Gemalto's complementary offering of solutions, services and solid identity management helps enterprises unleash the power of the IoT, providing a solid foundation of Trust based on three key pillars:

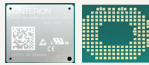

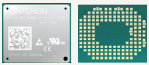
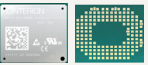



Connect. The backbone of any IoT solution, Cinterion modules, terminals and secure services deliver future-proof, reliable connectivity, remote service provisioning and subscription management.

Secure. Gemalto's end-to-end security solutions protect vehicles, devices, the network and the cloud while managing the entire application lifecycle.

Monetize. Gemalto's agile Sentinel Monetization solutions enable innovative business models and new revenue streams through embedded licensing.

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Product family: Industrial Plus

Product	AGS2-E	PDS5/6/8	PHS8	PXS8/PVS8	PLS8	PLS62-W	PLAS9 *
							
Radio technology 2G-4G	GPRS	HSPA	HSPA+	CDMA/HSPA+	LTE Cat 3	LTE Cat 1	LTE Adv. Cat 6
Regional focus	Global	PDS5-E EMEA/APAC PDS5-US NORAM PDS6/8 Global PDS6-J Japan	PHS8-P Global PHS8-J Japan PHS8-K Korea PHS8-E EMEA/APAC PHS8-US NORAM	PXS8 Global PVS8 USA	PLS8-E EMEA PLS8-US NORAM PLS8-J Japan PLS8-X NORAM PLS8-V USA (Verizon)	Global	PLAS9-E EMEA PLAS9-W EMEA/APAC PLAS9-X NORAM
Frequency bands	2G Quad Band	PDS5-E 3G (1,8) 2G Dual Band PDS5-US 3G (2,5) 2G Dual Band PDS6, PDS8 3G (1,2,5,6,8) 2G Quad Band PDS6-J 3G (1,5,6,8,19)	PHS8-P/-J/-K 3G (1,2,4,5,6) 2G Quad Band PHS8-E 3G (1,8) 2G Dual Band PHS8-US 3G (2,5) 2G Dual Band	PXS8 CDMA2000 EV-DO Rev. A BC0, BC1, BC10 3G (1,2,5,6,8) 2G Quad Band PVS8 CDMA2000 EV-DO Rev. A BC0, BC1, BC10	PLS8-E LTE (1,3,7,8,20) 3G (1,3,8) 2G Dual Band PLS8-US LTE (2,4,5,17) 3G (2,4,5) 2G Quad Band PLS8-J LTE (1,3,19) 3G (1,19) PLS8-X LTE (2,4,5,13,17) 3G (2,4,5) 2G Quad Band PLS8-V LTE (2,4,13)	LTE (1, 2, 3, 4, 5, 7, 8, 12 (17), 18, 19, 20, 28) 3G (1, 2, 4, 5, 8, 9, 19) 2G Quad Band	LTE, 3G, 2G (Band combination depending on variant)
max. Data Rate DL / UL	Multislot Class 10 85.6 / 42.8 kbps (DL / UL)	7.2 / 5.7 Mbps (DL / UL)	14.4 / 5.7 Mbps (DL / UL)	3.1 / 1.8 Mbps (DL / UL) 14.4 / 5.7 Mbps (DL / UL)	Cat 3 100 / 50 Mbps (DL / UL)	Cat 1 10.3 / 5.2 Mbps (DL / UL)	Cat 6 300 / 50 Mbps (DL / UL)
Dimensions/ Mounting	33 x 29 x 2.2mm, LGA	33 x 29 x 2.4mm, LGA	33 x 29 x 2.0mm, LGA	33 x 29 x 2.0mm, LGA	33 x 29 x 2.3mm, LGA	33 x 29 x 2.4mm, LGA	40 x 32 x 2.9mm, LGA
Temperature range	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Features							
Gemalto Security	•	•	•	•	•	•	•
Embedded Processing		Java				Java	
Embedded IP services	•	•	•	•	•	•	
Voice support	•	•	•	•	VoLTE, CSFB *		Data only
Location based services	GNSS	GPS (PDS8 only)	GNSS	GNSS	GNSS	On demand cell locati- on service	
Advanced Temperature Management	•	•	•	•	•	•	•
RLS-Monitoring (Jamming Detection)	•	•	•	•	•	•	•
Interfaces							
USB	-	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 3.0
Serial interfaces	UART, I ² C	UART, I ² C, SPI	UART	UART	UART	UART, I ² C, SPI	
Audio	Digital, Analog	Digital (PCM), Analog (PDS6 only)	Digital, Analog	Digital, Analog	Digital		
ADC/DAC	•	•			•	•	
Multiple GPIOs	•	•			•	•	
Ethernet/WiFi							optional, via PCIe



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Gemalto Cinterion® Industrial Plus Product Family

In today's quickly evolving digital landscape, connected assets and IoT solutions need to meet wide-ranging and ever-changing demands. Gemalto's Cinterion® Industrial Plus Wireless Modules deliver trusted cellular connectivity for a variety of high performance, long-lived industrial applications.

The Industrial Plus Family is designed for IoT applications that require the latest cellular technologies and M2M features including high-speed data and voice, multiband capabilities for worldwide coverage and an optional embedded system. Benefits include ease of integration, high performance connectivity ranging from 2G up to LTE Advanced plus a rugged design that ensures product longevity and reliability in extreme industrial environments. All products within the Industrial Plus Family share a common footprint offering backward and forward compatibility for easy product evolution that preserves your technology investment. Like all Cinterion products, they come with full type approval (FTA) and are certified by the largest global network operators.

Gemalto's complementary offering of solutions, services and solid identity management helps enterprises unleash the power of the IoT, providing a solid foundation of Trust based on three key pillars:

Connect. The backbone of any IoT solution, Cinterion modules, terminals and secure services deliver future-proof, reliable connectivity, remote service provisioning and subscription management.

Secure. Gemalto's end-to-end security solutions protect vehicles, devices, the network and the cloud while managing the entire application lifecycle.

Monetize. Gemalto's agile Sentinel Monetization solutions enable innovative business models and new revenue streams through embedded licensing.

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Product family: Terminals

Product	BGS2T	BGS5T	EHS5T	EHS6T-USB/-LAN	ELS31T / ELS61T-LAN	PLS62T-USB *
						
Radio technology 2G-4G	GPRS	GPRS	HSPA	HSPA	LTE Cat 1	LTE Cat 1
Regional focus	EMEA APAC	EMEA APAC	EMEA APAC	Global	EMEA USA Australia Japan	Global
Frequency bands	2G Quad Band	2G Quad Band	3G (1,8) 2G Dual Band	3G (1,2,5,6,8) 2G Quad Band	ELS61T-E LTE (1,3,8,20,28), 3G (1,8), 2G Dual Band ELS61T-US LTE (2,4,5,12), 3G (2,4,5) ELS61T-AUS LTE (3,5,8,28), 3G (1,5,8) ELS31T-V LTE (4,13) ELS31T-J LTE (1,18,19)	LTE (1, 2, 3, 4, 5, 7, 8, 12 (17), 18, 19, 20, 28) 3G (1, 2, 4, 5, 8, 9, 19) 2G Quad Band
max. Data Rate DL / UL	Multislot Class 10 85.6 / 42.8 kbps (DL / UL)	Multislot Class 12 85.6 / 42.8 kbps (DL / UL)	7.2 / 5.7 Mbps (DL / UL)	7.2 / 5.7 Mbps (DL / UL)	Cat 1 10.3 / 5.2 Mbps (DL / UL)	Cat 1 10.3 / 5.2 Mbps (DL / UL)
Dimensions/ Mounting	80 x 55 x 23mm ex. connector	115 x 86 x 26mm	115 x 86 x 26mm	115 x 86 x 26mm	115 x 86 x 26mm	115 x 86 x 26mm
Temperature range	-30°C to +75°C	-30°C to +65°C	-30°C to +65°C	-30°C to +65°C	-30°C to +65°C	-30°C to +65°C
Features						
Gemalto Security	•	•	•	•	•	•
Embedded Processing		Java	Java	Java	Java (ELS61T only)	Java
Embedded IP services	•	•	•	•	•	•
Voice support						
Location based services		On-Demand Geo Location Service	On-Demand Geo Location Service	On-Demand Geo Location Service	On-Demand Geo Location Service	On demand cell location service
Advanced Temperature Management	•	•	•	•	•	•
RLS-Monitoring (Jamming Detection)		•	•	•	•	•
Interfaces						
USB		USB 2.0	USB 2.0	USB 2.0 (-USB variant only)		USB 2.0
Serial interfaces	RS232 or RS485	RS232	RS485	RS232	RS232	RS232
Audio						
ADC/DAC			•	•	•	•
Multiple GPIOs		•	•	•	•	•
Ethernet				• (-LAN variant only)	•	



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Gemalto Cinterion® Terminal Product Family

In today's quickly evolving digital landscape, connected assets and IoT applications need a faster time-to-market to stay competitive. Gemalto's Cinterion® Cellular Terminal family delivers trusted plug-and-play wireless connectivity allowing new IoT implementers to quickly connect industrial applications offering a swift enterprise optimization solution.

Cinterion IoT Terminals work out of the box to quickly and easily add secure IoT connectivity to smart industrial and enterprise applications. With very little integration effort, Terminals can be connected to applications via a wide variety of standard industrial interfaces. An optional embedded system offers code libraries, a broad choice of tools and a proven security concept for fast application development. Highly flexible mounting schemes allow fast and simple deployment. Encased in robust plastic housing, the products' rugged design, unparalleled engineering and highest quality manufacturing ensures reliability in the most demanding environments and over the long life cycle of industrial IoT solutions. Like all Cinterion products, they come with full type approval (FTA) and are certified by the largest global network operators. They are ideal for mid- to small-sized IoT deployments or any implementation that needs immediate connectivity.

Gemalto's complementary offering of solutions, services and solid identity management helps enterprises unleash the power of the IoT, providing a solid foundation of Trust based on three key pillars:

Connect. The backbone of any IoT solution, Cinterion modules, terminals and secure services deliver future-proof, reliable connectivity, remote service provisioning and management.

Secure. Gemalto's end-to-end security solutions protect vehicles, devices, the network and the cloud while managing the entire application lifecycle.

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