ICON™ Series

ICON4000 SERIES
SYSTEM AMPLIFIERS

The ICON4000 Series system amplifiers set a new standard for network performance and efficiency in the cable broadband market. Engineered for seamless evolution, these amplifiers support 1.8 GHz in the forward path and are fully prepared for DOCSIS® 4.0-capable network rollouts, making them an excellent choice for both legacy networks and next-generation upgrades.

Designed to support intelligent adjustments, automated alignment, and remote monitoring, the ICON4000 Series doesn't just amplify signals—it optimizes network performance. It also simplifies troubleshooting together with Teleste's remote management and telemetry tools, enabling operators to rapidly identify and address issues.

By reducing operational complexity and enhancing network reliability, the ICON4000 Series empowers operators to maximize efficiency and streamline future upgrades. Thanks to its advanced architecture, these system amplifiers deliver robust high-output performance while minimizing power consumption. Discover how ICON4000 can elevate your network's performance and keep you ahead in a rapidly evolving broadband landscape.

TELESTE

ICON4000 SYSTEM AMPLIFIERS
FUTURE-READY PERFORMANCE WITH INTELLIGENT AUTOMATION

The ICON4000 Series does more than just boost RF signals to the next level. Thanks to field-swappable diplex filters and true plug-and-play automatic alignment, operators can avoid time-consuming bench upgrades and quickly adapt to new frequency splits for DOCSIS® 4.0. Seamless integration is further reinforced by a modular transponder, which unlocks remote telemetry, advanced ingress detection and analysis, and real-time monitoring. Combined with advanced gain blocks and bias current control, alongside a PFC-equipped power supply, the ICON4000 Series helps reduce operational costs through lower power consumption.

Advanced Remote Control & Monitoring

For comprehensive visibility and control, ICON4000 system amplifiers can be equipped with an optional transponder.

- Track upstream signal quality in real time
- Locate and block ingress before it impacts subscribers
- Collect proactive metrics for preventive network maintenance

Adaptable, Modular Design

Use RF modules for North American legacy housings or opt for Teleste's ICON4000 housing, built to withstand harsh outdoor conditions. This flexibility ensures a seamless fit for a variety of deployment scenarios.
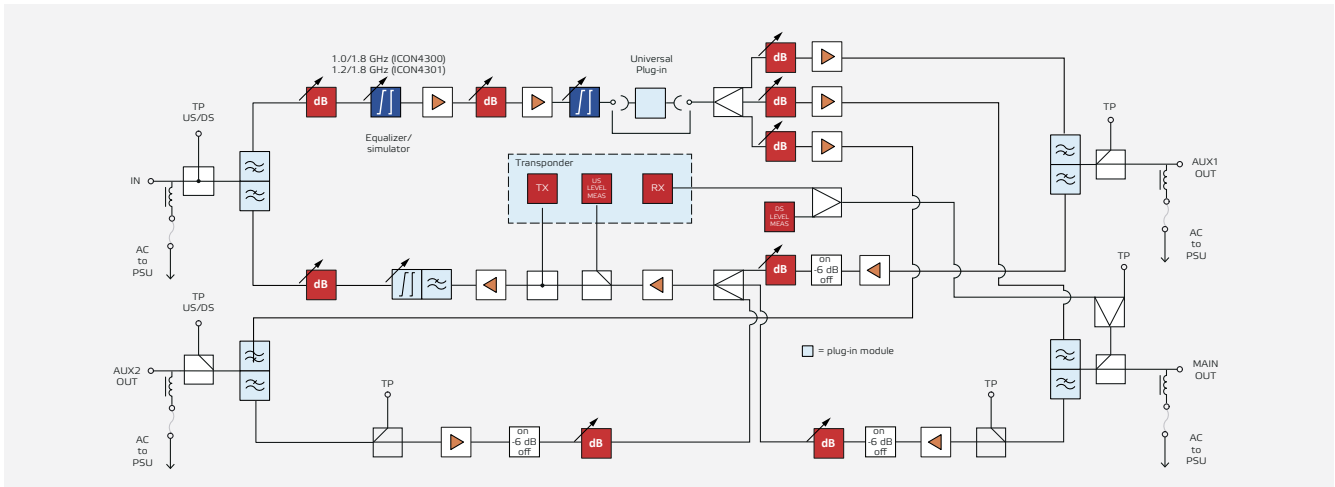
Superior performance

- Broad frequency range: Up to 1.8 GHz downstream and 492 MHz upstream
- Advanced ALSC: Surpasses traditional AGC for both upstream and downstream
- Automated alignment: Simplifies initial setup for US/DS paths
- Precision adjustments: Electrical level and slope controls for accurate tuning
- Rugged construction: Enhanced ESD and surge protection
- The amplifier stages feature a 4th-generation architecture that expands usable gain ranges and delivers robust output levels—without compromising efficiency.

Intuitive Operation

Thanks to its advanced yet user-friendly design, the ICON4000 Series provides true plug-and-play functionality. With a single-button automatic alignment, even technicians with minimal experience can quickly install each unit in the field, reducing downtime and simplifying daily operations.
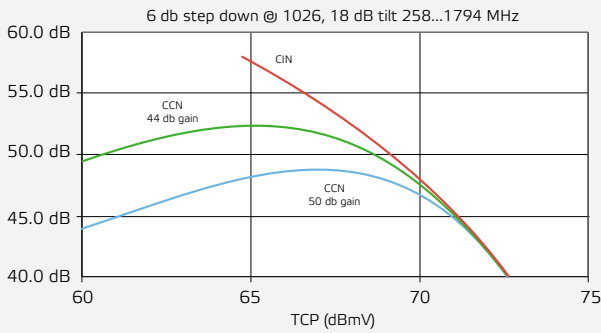
Effortless On-Site Management

A built-in USB port enables quick local access. Combined with wireless BT support, the ICON4000 integrates smoothly with Teleste's CATVisor software for smartphones and tablets, letting you configure and fine-tune directly in the field.
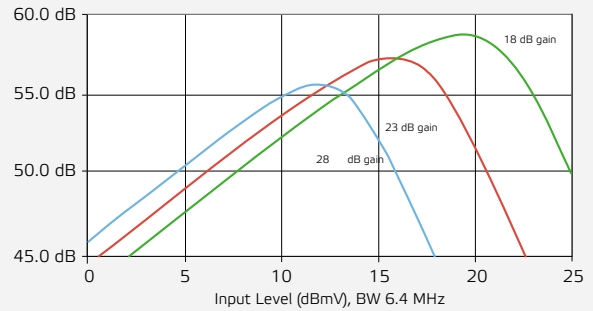
ICON4300/4301 block diagram

CCN @ 987 MHz (Downstream)

6 db step down @ 1026, 18 dB tilt 258...1794 MHz

CIN

CCN 44 db gain

CCN 50 db gain

TCP (dBmV)

CCN @ 204 MHz, full load (Upstream)

18 dB gain

23 dB gain

28 dB gain

Input Level (dBmV), BW 6.4 MHz

ICON4300/4301 CCN charts

Future-Ready Performance

The ICON4000 Series redefines RF amplification for cable broadband, **bridging existing 750–1.2 GHz networks with upcoming 1.8 GHz**, DOCSIS® 4.0 expansions. By offering straightforward scalability and field-swappable plug-in units for new frequency splits, ICON4000 ensures your network can easily adapt to emerging demands.

Effortless Installation & Operation

The ICON4000 series system amplifier simplifies installations with **software-controlled output ports**. Operators can easily enable, disable, or individually adjust these ports through software, replacing multiple amplifier models with one versatile solution. This reduces inventory complexity, streamlines deployments, and supports varied output levels, making network management efficient and future-proof.

Designed for rapid deployment, ICON4000 features one-button automatic alignment for both upstream and downstream paths. Diplex filters can be swapped in the field, **eliminating the need for separate bench upgrades** and reducing downtime. Integration with both legacy and new housings makes network transitions seamless.

Superior Signal Performance and Reliability

Intelligent algorithms continuously optimize Modulation Error Ratio (MER) for robust, stable signals, while Automatic Level and Slope Control (**ALSC**) and Return Follows Forward (**RFF**) maintain consistent performance under challenging conditions. The amplifier also includes sophisticated features to compensate for both frequency-dependent losses and non-linear distortions introduced by long coaxial cable spans and passive network elements, minimizing signal degradation and ensuring consistent performance across the entire operating bandwidth. One such feature is the **haystack corrector**, which further refines frequency response and preserves signal quality for your subscribers.

Real-Time Monitoring and Smart Automation

Optional telemetry provide remote oversight for both preventive maintenance and rapid troubleshooting, minimizing service calls. With **advanced ingress detection** and analytics, technicians can quickly pinpoint issues, ensuring peak performance and maximum uptime across your network.

ICON4000 SERIES SYSTEM AMPLIFIERS

DOWNSTREAM SIGNAL PATH (values with diplex filters and ICON4000 housing)			
Frequency range	108…1794 MHz	Nominal interstage slope	20 dB
Return loss	18 dB	Flatness	±0.5 dB
Maximum gain	3 x 54 dB	Test point	-20 dB
Nominal operational gain	3 x 50 dB	Noise figure	10 dB
Gain control	9…54 dB	Max. TCP	70 dBmV
Input slope control	-10…20 dB	CNN	see graphs
Interstage slope control	11…26 dB		

LEVEL MEASUREMENT UNIT: ALSC AND SPECTRUM ANALYSER			
Forward path measurement range	138…1794 MHz, 0.25 MHz steps	Dynamic range	20…60 dBmV
Measurement bandwidth	0.5 MHz	Detection mode	Digital
Measurement inaccuracy	< 1.0 dB		

UPSTREAM SIGNAL PATH			
Frequency range	7…492 MHz	Slope control	2.5…22 dB
Return loss	18 dB	Flatness	±0.5 dB
Maximum gain	3 x 30 dB	Test point	-20 dB
Ingress switching	0 / -6 / < -45 dB	Noise figure	12.0 dB
Gain control	4…30 dB	CNN	see graphs

GENERAL CHARACTERISTICS			
Power consumption (90 Vac)	57 W (45 W one port disabled)	Weight, fully equipped	20 lbs (9.1 kg)
Supply voltage	40…90 Vac	Weight: RF module	5 lbs (2.3 kg)
Maximum current feed through	15 A / port	Operating temperature	-40…+140 ºF (-40…+60 ºC)
Hum modulation	65 dB / port	Safety	EN60728-11, EN62368-1, UL62368-1
AC current resistance	15 mΩ / port	EMC	EN50083-2, FCC part 15
Test point connectors	F male	ESD	4 kV
Dimensions (H x W x D) ICON4000 housing)	8.45" x 17.4" x 6.95" (216 mm x 443 mm x 177 mm)	Surge	6 kV, EN 60728-3, ANSI/SCTE 81
Dimensions (H x W x D) ICON4300/4301 RF module	4.7" x 15.9" x 3.9" (119 mm x 404 mm x 99 mm)		

PRODUCT CODES			
ICON4300 (492M/1G/1.8G)	RF module, Mini-USB	ICON6996	HMS v2 transponder
ICON4301 (492M/1.2G/1.8G)	RF module, USB-C	ICON6404	Wall mounting bracket
ICON4000	Housing	AC6902	USB to BT module, Mini-USB
ICON6993	HMS v1 transponder	AC6903	USB to BT module, USB-C

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