



# icREC | DIGITAL RECORDERS/REPRODUCERS

IngeniComm's icREC Recorders/Reproducers represent the next generation of low-cost, high-performance multi-mission data capture and archiving solutions. The icREC product line combines IngeniComm's proven Configurable Ground Systems (CGS) software framework with robust enterprise hardware platforms to provide multi-channel archive and playback capabilities at rates of up to 10 Gbps per channel.

## Turn-Key Data Capture

The icREC recorder/reproducer provides an optimized turn-key solution for mission-critical data recording and distribution applications. The icREC allows users to capture one or more streams of network or serial data to disk, replay the recorded data, and distribute it in file format via FTP/SFTP protocols directly to end users or long-term archives. The icREC implements a comprehensive range of automated capture and storage management capabilities, including automated file distribution and aging, in-band and out-of-band metadata capture and correlation, and heuristic data presence detection to enable automatic data capture from data-agnostic serial-to-IP conversion devices.

## Integrated Data Processing

The capabilities of the icREC go beyond SLE data transport. By integrating IngeniComm's full CGS software processing suite, the icREC enables users to take advantage of a full range of telemetry and command processing, decoding and de-encapsulation, data quality metric generation, test pattern verification, link performance analysis, and file management and distribution capabilities. When deployed in prototyping and test environments, the CGS framework allows seamless integration of user-written software components, allowing custom data processing and archive manipulation capabilities to be easily added to the standard system.

## Easy Local and Remote Configuration

The icREC recorder/reproducer can be controlled either locally or remotely via a highly flexible web-based graphical user interface. A full-featured command-line interface is also provided to allow easy scripting and automation, and service-oriented cluster management components are available to allow single-point control of multiple icREC systems simultaneously.

## Robust Platform Architecture

The icREC product line is based on a robust enterprise-grade server architecture to provide component-level redundancy and high resiliency against failure. The systems are highly scalable, and can be expanded to include additional interfaces and increased storage capacity as required.



## Key Features

- Simultaneous multi-channel data capture and playback
- Configurable heuristic data presence detection and automatic recording activation
- Automatic time-tagging and user-configurable aging of recorded files
- User-configurable multi-path file distribution
- Selectable data search and playback via timestamps or data/meta-data characteristics
- Real-time and scheduled distribution of recorded files via FTP/SFTP, SMB, and HTTP

IngeniComm, Inc. is a leading provider of ground and range equipment and enterprise engineering services for civil and commercial aerospace programs, as well as the defense and intelligence communities. To learn more about IngeniComm's service and product offerings, visit <http://www.ingeniComm.net> or contact IngeniComm at [info@ingeniComm.net](mailto:info@ingeniComm.net) or +1-703-943-7236.



## System Capabilities

### Input and Output Interfaces

- Gigabit Ethernet at rates up to 800 Mbps per channel
- 10-Gigabit Ethernet at rates up to 10 Gbps per channel
- TTL/RS-422 at rates up to 30 Mbps per channel
- ECL/LVDS at rates up to 800 Mbps per channel

### Telemetry Processing and Simulation

- CCSDS Conventional (version 1) and AOS (version 2) Transfer Frames
- CCSDS VCA and Bitstream service
- CCSDS Space Packets
- Fully configurable VCID and APID filtering and routing

### Data Archiving and Playback

- Heuristic data presence detection and automated recording
- Segmented and multi-file recording and playback
- Automatic time-tagging and aging of recorded files
- Data search and playback via session names, timestamps, or data/metadata characteristics
- Real-time and scheduled distribution of files via FTP/SFTP or SMB

### Network Encapsulation

- NASCOM
- LEO-T CDH/TFDH
- SFDU/AXAF/ACE
- VRT

### Encoding and Decoding

- Pseudo-randomization and de-randomization
- Reed-Solomon (255,223) or (10,6) decoding
- CRC checksum verification

### Test Data Generation

- Fully configurable PRBS generation and verification
- Fixed and user-provided pattern generation and verification
- Single- and multi-bit burst error simulation
- Bit and packet error rate calculation

### Monitoring and Control

- Local and remote command-line interface
- Web-accessible graphical user interface
- Fully integrated documentation and user help features
- Integrated scripting and automation
- Multi-instance and multi-system cluster management

## Platform Specifications

Data Rate	1 bps – 30 Mbps	30 Mbps – 800 Mbps	800 Mbps – 1.5 Gbps
Models	icREC-30	icREC-100 icREC-400 icREC-800	icREC-1200 icREC-1500
Chassis	3U 19" rack-mount chassis (5.2" x 17.7" x 25.5")		
Processor	Intel® Xeon® 3.1 GHz quad-core CPU	Dual Intel® Xeon® 1.8 GHz quad-core CPUs	Dual Intel® Xeon® 2.5 GHz six-core CPU
Memory	8 GB DDR3 1600 MHz ECC-registered RAM	16 GB DDR3 1600 MHz ECC-registered RAM	32 GB DDR3 1600 MHz ECC-registered RAM
Interfaces	4 Gigabit (10/100/1000) Ethernet ports 4 bi-directional TTL/RS-422 ports	2-6 Gigabit (10/100/1000) Ethernet ports 2 bi-directional ECL/LVDS ports	2-6 Gigabit (10/100/1000) Ethernet ports 2 10-Gigabit Ethernet ports
Drives	250 GB hot-swap RAID-1 system drive array 1–200 TB hot-swap RAID-0/1/5/6/10 archive drive array 22x DVD-RW optical drive		
Power	760 W triple-redundant (2+1) power supplies		

**Operating System** Red Hat® Enterprise Linux 6.2 or Windows® 7 Professional

**Remote Management** IPMI 2.0 remote management with dedicated NIC

Ingenicomm, Inc. is a leading provider of ground and range equipment and enterprise engineering services for civil and commercial aerospace programs, as well as the defense and intelligence communities. To learn more about Ingenicomm's service and product offerings, visit <http://www.ingenicomm.net> or contact Ingenicomm at [info@ingenicomm.net](mailto:info@ingenicomm.net) or +1-703-943-7236.