ARKA

SOFTFEP®

TELEMETRY & COMMAND FRONT END PROCESSOR (FEP)

For Satellite Control Centers

Telemetry and command processing

Full CCSDS support

Our modular, scalable software Apps allow you to tailor and evolve capabilities

FEATURES

FRAME SYNCHRONIZATION OF TELEMETRY:

The Telemetry and Command (T&C) Front End Processor (FEP) receives serial (data / clock) or network telemetry streams. It performs the frame synchronization, error decoding, CCSDS processing, and time-tagging of the satellite's downlink data.

FORMATTING OF THE COMMAND UPLINK:

Commands are received by the T&C FEP over a network connection and formatted into the uplink data stream. The system performs functions such as command spacing, CLTU formatting, and serialization. Ternary, EXU, and Dibit commanding and binary commanding formats are supported.

CHECKING OF COMMAND ECHOES:

The T&C FEP receives a command echo and compares the returned data stream, notifying the T&C software if errors are detected.

COMSEC:

The system natively supports the plain-text (unencrypted) traffic interfaces with various COMSEC devices, including the KS-252, KG-255XJ, MYK-16, MYK17, KI-17, and KIV-7MS.

RECORDING OF TELEMETRY DATA STREAMS:

Telemetry data streams can be archived to disk storage on the server platform. The input channels to be recorded are configurable. Playback of recorded data is also configurable, allowing all or only a subset of the recorded channels to be output from the system.

TEST DATA STREAM GENERATION AND CHECKING:

The T&C FEP generates simulated data streams from the network, stored files, or bit error rate generators. These test data streams support checkout prior to satellite passes.

THE POWER OF SOFTLINK®

All of our systems are built on SOFTLINK, ARKA's flexible and configurable software-defined architecture. SOFTLINK leverages a vetted library of modular, scalable software applications (Apps) and services to tailor and evolve system capabilities with minimal risk and cost. SOFTLINK's open architecture and open API enable Apps to be truly "platform agnostic," meaning Apps can run on premise (our hardware or yours), on Virtual Machines (VMs), in containers, or natively in the Cloud.

VIRTUAL AND CLOUD DEPLOYMENTS:

When ARKA Apps are deployed in the Cloud, they can be hosted in VMs or orchestrated in containers—interoperating across network boundaries. Multiple instances of these environments can exist simultaneously in various locations to provide resilient, fail-safe solutions. What's more, ARKA Apps are "Cloud agnostic," allowing them to perform seamlessly across Cloud platforms.

SPECIFICATIONS

FUNCTIONAL	SPECIFICATIONS
Telemetry Data Rates	1 Kbps to 20 Mbps
Telemetry Inputs / Outputs	Data / clock, UDP, TCP
Telemetry Frame Synchronizer	Frame length up to 64 KB Sync pattern 16-256 bits Programmable sync strategy CRC and Reed-Solomon
Downlink CCSDS Processing	AOS VCDUs Reed-Solomon decoding Space packets, MPDUs, BPDUs
Command / Echo Data Rates	100 bps to 5 Mbps
Command Formatter	Binary, Ternary formats, CLTU, command Spacing
COMSEC Interfaces	KS-252, KS-255XJ, KIV-7MS, KI-17, MYK-5, -7, -12, -15, -16, -17
Simulated Telemetry Source	BER patterns Stored files Network clients
Other Options	Data recording Telemetry / command display
Time References	IRIG, NTP, PTP (IEEE 1588)
Time Resolution	10 ns
Other	Remote RESTful JSON interface Remote GEMS interface

INTERFACE	SPECIFICATIONS
Telemetry Inputs	Scalable
Telemetry Outputs	
Command Outputs	
Command Echo Inputs	
Serial Electrical Interface	RS-422
Clock / Signal Polarity	Configurable
IRIG	IRIG-B, BNC
Ethernet Ports	2 1-GigE, Expandable to 6
Network Protocols	UDP, TCP / IP
Optional Connector Panel	DB-9, DB-25

PHYSICAL / ENVIRONMENTAL	SPECIFICATIONS
Dimensions	3.5" (H) x 30" (D) x 17.5" (W)
Power	120 VAC, 50 / 60 Hz, 500 Watts
Temperature	5-30° operating 0-35° non-operating
Humidity	< 90% non-condensing

FOR ADDITIONAL INFORMATION:

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