Polar Orbiter Ingester

Ingest software for HRPT, AHRPT, DMSP and X-Band EOS data from NOAA, Metop, Terra, Aqua, Suomi NPP, JPSS, FengYun-3 (FY-3) and DMSP-5D satellites

The Dartcom Polar Orbiter Ingester software tracks NOAA, Metop, DMSP, Terra, Aqua, Suomi NPP, JPSS and FengYun-3 (FY-3) satellites and ingests HRPT, AHRPT, DMSP and X-Band EOS data automatically.

Ingested data can be output to a range of formats and processing software. It can then be displayed and processed further using the Dartcom iDAP/MacroPro software.

Features of the Polar Orbiter Ingester software include:

- Multi-threaded architecture allowing ingest of a pass while the previous one is being processed.
- Automatic satellite tracking, ingesting, archiving and output.
- Calibration and navigation of HRPT, AHRPT and DMSP data.
- Output of Terra, Aqua, Suomi NPP and JPSS data to NASA RT-STPS and IPOP processing software, and FY-3 data to CMA FY3L0pp processing software.
- Automatic GPS position and time synchronisation.
- Automatic downloading and updating of satellite prediction data.
- Temperature monitoring with automatic tracking lockout if limits exceeded (requires optional temperature sensor unit).
- Full diagnostics facilities with on-screen and email alarms.
- LRD support will be added if any future JPSS satellites transmit it.
Satellite tracking
- Automatic calculation of pass schedule covering up to 15 days, with parameters including satellite selections, time windows, latitude limits and data type prioritisation.
- Manual schedule editing, with changes saved automatically.
- Automatic satellite tracking, with dedicated thread for minimum latency and maximum update frequency.
- Configurable antenna park mode to allow ingest of LRIT/HRIT data (requires optional Dartcom XRIT Ingester software).
- PC time automatically synchronised within 20ms of GPS time.
- Station position automatically synchronised with GPS, with automatic schedule recalculation if a significant change occurs.
- Automatic downloading and updating of satellite prediction data.

Data ingest
- HRPT, CCSDS, DMSP and X-Band EOS ingest engines supporting HRPT, AHRPT, DMSP, Terra, Aqua, Suomi NPP, JPSS and FY-3.
- Automatic receiver control and data ingest, with multi-threaded architecture for minimum latency and maximum throughput.
- Calibration and navigation of HRPT, AHRPT and DMSP data.
- Live preview displayed during HRPT, AHRPT and DMSP ingest, with automatic enhancement and creation of map overlays.

Archiving and output
- Automatic archiving of ingested data for up to 366 days with the option to group passes into folders by date.
- Output of HRPT, AHRPT and DMSP image data to Dartcom iDAP/MacroPro software for display and processing.
- Output of HRPT data to NOAA level 1B and other raw formats, together with ancillary data such as TIP and DCS.
- Output of AHRPT data to EPS level 0 format.
- Reprojected output of HRPT, AHRPT and DMSP image data to PCI Geomatica, ERDAS IMAGINE, ENVI/IDL and GeoTIFF.
- Output of Terra, Aqua, Suomi NPP and JPSS data to NASA RT-SPS and IPOPP processing software, and FY-3 data to CMA FY3L0pp processing software.

Diagnostics and maintenance
- Access control and password locking to prevent tampering.
- Event logging with storage monitoring and on-screen and email alarms for serious events.
- Temperature monitoring with automatic tracking lockout if limits exceeded (requires optional temperature sensor unit).
- Manual rotator control with detailed diagnostics displays, sun track mode, exercise mode and calibration facilities.