

2017: A Year in Review

Part of the globally active Dan Technologies, Hiltron Communications is one of Europe's leading satellite equipment manufacturers and system integrators. We operate from modern purpose-built headquarters at Backnang near Stuttgart. On-site facilities include a large technical operations area with high access doors and ceiling, capable of accommodating satellite link vehicles and their roof-mounted antennas. Our speciality is new product development, product sales and turnkey systems design for worldwide broadcast, telecommunication and defence markets.

The past year has seen continuing rapid advances across all aspects of satellite communication. Business expansion has been driven mainly by large international projects in France, Qatar, Norway and Uzbekistan. Demand for our services in Ka band projects is increasing especially quickly and here we have to be prepared for our customers' future requirements. Our development department is working hard always to deliver state-of-the-art hardware and software solutions.

We recently completed a major teleport relocation project for TV 2, Norway's largest commercial television broadcaster. Situated on the roof of the new MediaCity Bergen complex, the teleport is providing wide-ranging satellite connectivity for content ingest, forwarding and transmission as well as communication with digital newsgathering vehicles and mobile production trucks. Our

role was to integrate a large communication system including seven satellite antennas as well as control processors, signal distribution and optical fibre cabling. Pre-assembly took place at our factory during June and July followed by two stages of installation. Bergen has an exceptionally wet climate so as much as possible of the equipment was configured under cover before onsite completion. The TV 2 teleport contract was secured in partnership with Danmon Group Norway. It was quite a large project including three motorised antennas, one relocated 3.7 metre manual antenna and three fixed downlink 3.8 metre antennas. We also provided and integrated transmission and receive matrices plus a fibre-optic system for RF transmission signals as well as GPS and UHF reception signals.

For the Republic of Uzbekistan, we are progressing a major satellite-based broadcast distribution project. The new system will be used for the distribution of television and radio programmes to regional DVB-T2 terrestrial digital broadcast stations across the country. Included in the system will be RF transmission equipment, monitoring and control for a 6.3 metre satellite uplink antenna and 120 downlink antennas with accessories for regional reception stations. The RF transmission configuration consists of a 1:1 redundant DVB-T2 modulator and a waveguide system with 1:1 redundant 100 watt compact outdoor Ku-Band (13.75 to 14.5 GHz) solid-state

power amplifiers with integrated block upconverters. Two integrated receivers, one stream analysers and an optional spectrum analyzer are provided for feedback transmission control. Transmission control is via a Hiltron Monitoring and Control System (HMCS). In addition, 120 satellite TVRO systems have been delivered. Each consists of a 1.8m antenna dish and offset feed horn with an azimuth/elevation and polarisation mount, fully equipped with Ku band low-noise block downconverters and L band cabling.

DSNG vehicle projects for three major German broadcast networks were completed during 2017. The largest of these included a complete satcom system and a 1.8 metre Ku band high precision carbon-fibre roof antenna. The electronics comprise two solid state power amplifiers, Hiltron HSC4 communications control, a Hiltron HACU antenna controller, Hiltron HMCS monitoring system and a 16 x 16 ETL switching matrix.

Last but not least, on the personnel front, we expanded our management team with the appointment of Thorsten Peters to manage the systems and projects departments. Thorsten graduated from the Ruhr University with a degree in high frequency systems and antennas. He joined us from Media Broadcast GmbH where he was engaged in technical and financial management roles.

Jan Molter, Managing Director

► Hiltron Super-HMAM Excels in First Factory Acceptance Tests

First pre-delivery acceptance testing of the new Hiltron Super-HMAM large-capacity motorised antenna mount proved highly successful. Designed for two-way VSAT communication or receive-only downlink applications, Super-HMAM accommodates satellite transmission antennas of up to 4.9 metres diameter compared with the 2.7 metre maximum antenna capacity of the standard HMAM. The first Super-HMAM was produced for a German government civil agency and is equipped with a 4.9 metre antenna. The actual performance achieved during factory acceptance tests in September exceeds the theoretical performance which is very gratifying for everyone involved. Needless to say, the complete structure is very large and was dismantled before being delivered for onsite installation.

Integral to Super-HMAM is a newly developed support structure which can survive the storm



conditions experienced at high-altitude relay and transmission locations where wind speeds can exceed 200 kilometres per hour. All models in the HMAM range provide full motorised control of x and y axes as well as transmission beam polarity. Like the standard HMAM, Super-HMAM can be controlled remotely via an IP link from a PC running a graphic user interface.

The Super-HMAM antenna control unit and associated motor-control electronics are contained in an IP65-rated weatherproof outdoor housing with a hinged front-access port secured by dual key screws. An emergency cut-off switch is easily accessible. Above the housing is a resolver which is used to measure the azimuth angle of the antenna. An identical second resolver allows constant monitoring of antenna elevation. Azimuth and elevation drive motors each operate through a reduction gear.

Super-HMAM was promoted strongly during the mid September International Broadcasting Convention in Amsterdam as a new addition to the Hiltron product catalogue. Hiltron invited existing and potential customers to an inaugural Septemberfest at its stand on the Saturday evening of the show. This received good support and looks set to become an annual event.

► Strong Demand for HCS-4 Universal Satcom Controller

Hiltron is experiencing strong demand for its latest-generation HCS-4 satellite communications controller. More than 70 units have been sold for antenna control applications since the HCS-4 was introduced in September 2015. An additional 10 customised systems incorporating the HCS-4 have been delivered since July 2017.

The HCS-4 was developed from its HCS3 predecessor which reached four-figure sales following its introduction to the satellite broadcast and communications market in 1997. Maintaining the reliability and functionality of the HCS-3, the HCS-4 forms the central control element for a wide range of satcom applications. These include easy switchover between devices such as downconverters, high power amplifiers, waveguides, MPEG digital video broadcast encoders and integrated receiver/decoders. The HCS-4 can also be used to control and monitor optical-fibre transceivers and antenna heaters. Other features include an N-1 redundancy switch and BUC/HPA controller, LNB supply, 2-1 LNB redundancy switch controller, a fully redundant low-noise 10 MHz reference generator, GPS synchronisation and automatic switchover.

The HCS-4 is available as a 2U high 19 inch rack mount unit with main and backup power supplies plus 13 slots for active modules. Also available are two chassis mountable frames accommodating up to 6 or up to 14 active modules respectively. All three versions can be powered from 24 volts DC and are operated via an intuitive HTML-based graphic interface. Modules are hot-pluggable to allow easy exchange. Any new or replaced module is automatically sensed and its address registered.



Front and rear of the 2U high 19 inch rack-mounting Hiltron HCS-4 satellite communications controller.

All units in the family have SNMP remote control, hot-swappable dual redundant power supply and an internal data bus.

When configured as an antenna controller, the HCS-4 accommodates a freely selectable combination of axis controller cards for SSI-encoders, resolvers or potentiometer-angle readers as well as an optional integrated antenna de-icing controller card.

The range of modules currently available for standard and customised solutions comprises:

- HCS4-10M 10 MHz reference source. This allows signal distribution to a switchable internal bus and three external outputs individually switchable between off/0/9 dB. It has a very low noise and highly stable internal VCXO plus an internal GPS receiver and can be synchronised with GPS or station clock.
- HCS4-DBT Dual Base T for LNBS and BUCs with variable supply voltage for LNB/BUC,

individually switchable 10 MHz insertion (0/9 dBm), RF level detection.

- L-Band switch units (HCS4-SW), a transfer switch version (HCS4-LST) and a 2:1 redundant-switch version (HCS4-L21).
- HCS4-EXT controller module for equipment monitoring and control.
- De-icing controller with two main heater circuits up to 20 A each and an independent feed heater circuit (24 or 230 V) plus current, voltage and temperature monitoring.

Also available are external modules that integrate seamlessly with HCS-4:

- HCS4-PD2 compact dual channel power detector, up to 18 GHz.
- HACUX-ANE wind speed sensor.
- HSACUX-DIM2 ultra-compact combination of GPS receiver, flux gate compass and dual-plane high-precision inclinometer (58 x 64 x 36 mm), fully weatherproof.

