

# Synchrony™ MNA

## ATSC Distributed Transmission and Mobile Network Adapter



The Harris® Synchrony™ MNA provides a variety of functions to enable ATSC broadcasters an efficient means of expanding their main channel and mobile digital broadcast services. It enables the creation of distributed transmission systems (DTS) in which multiple transmitters operate on the same frequency to improve coverage. Additionally, as a key component of the Harris MPH™ ATSC Mobile DTV solution, Synchrony MNA seamlessly brings together main channel HD and SD, mobile audio/video streams and supporting content data, into a complete service multiplex.

A single unit can be configured as a DTS adapter, mobile multiplexer or both. The broadcast studio requires only one Synchrony MNA to address several vital concerns for broadcasters—expanding digital coverage to reach new markets, filling coverage gaps created by digital coverage patterns and taking advantage of the opportunities afforded by mobile video and datacasting.

### PRODUCT DETAILS

#### Distributed transmission systems (DTS)

Distributed transmission systems (DTS) are one of the solutions recommended to ATSC broadcasters to address the coverage gaps and variations resulting from their digital conversion.

#### Timing and Synchronization

Serving as the core of DTS implementation, Synchrony MNA precisely manages the timing and synchronization of the modulated signal in each transmitter to minimize interference zones where coverage overlaps. It inserts GPS timing information into the data stream delivered to the transmitters from the studio and centralizes control of the transmitters DTS functions.

#### DTV, Mobile and DTS Standards

Synchrony MNA operates with full compliance in DTV (ATSC standard A/53), mobile (ATSC standard A/153), and DTS (ATSC standard A/110b). Approval of the A/153 ATSC Mobile DTV Standard is a key development providing broadcasters with new broadcast and broadband revenue streams. The Synchrony MNA pre-processes mobile video for generation of the mobile signal and multiplexes mobile data into the ATSC transport stream.

#### Flexibility and Upgradeability

Flexibility and upgradeability are key considerations for broadcasters as they evaluate solutions for expanding into new digital broadcast and service models.

#### Quality and Reliability

Harris quality ensures the highest level of reliability to keep all services on the air.

### FEATURES

- Operates as a distributed transmission systems (DTS) adapter, mobile network adapter or both
- For mobile systems, serves as the ingest and control point for encoded main video, encoded mobile video, datacast services, electronic service guide and GPS timing
- For DTS, provides centralized control of DTS functionality, including generation of network timing and synchronization/delay adjustment of the networked transmitters
- Dedicated FPGA-based hardware that can be readily updated for standards changes and enhanced features. Avoids having a PC in a stations is mission-critical transmission path
- Redundancy features for high availability on-air performance
- SMPTE 310M and ASI (selectable) for ATSC transport input and output
- Generates basic signaling tables, including fast information channel (FIC) and transmission parameters channel (TPC)
- Smooth transmission of ATSC A/153 signaling and announcement tables is aided by seamless integration with the Roundbox mobile data server
- Signaling/ESG data carousel retains the most recent set of generated data tables. Should the signaling generator fail, the carousel uses the stored data to assure uninterrupted operation

### SPECIFICATIONS

Specifications are subject to change without notice.

#### Inputs

Transport Stream . . . . .	2 BNC, 75 ohms, configurable as DVB-ASI (DVB-ASI standard EN 50083-9:2002) or SMPTE 310M (SMPTE 310M-2004) for ATSC transport input
Ethernet . . . . .	2x8-pin modular RJ-45 10/100 management network interface 1x 8-pin modular RJ-45 10/100/1000 MH stream/data interface
1 PPS Reference Input . . . . .	1 BNC, 50 ohms
10 Mhz Reference Input . . . . .	1 BNC, 50 ohms
GPS Antenna Input . . . . .	1 SMA, 50 ohms
Craft Port . . . . .	1 RS-232, DB-9F
Alarms . . . . .	4 relay contacts via DB-9F
AC Power Input . . . . .	1x90 to 265 V AC, 47 to 63 Hz auto-ranging

#### Outputs

Transport Stream . . . . .	2 BNC, 75 ohms, configurable as DVB-ASI (DVB-ASI standard EN 50083-9:2002) or SMPTE 310M (SMPTE 310M-2004)
Monitor . . . . .	1x 75 ohms, BNC, configurable as DVB-ASI (DVB-ASI standard EN 50083-9:2002) or SMPTE 310M (SMPTE 310M-2004)
1 PPS Reference Output . . . . .	1 BNC, 50 ohms

<b>Environmental</b> . . . . .	32° to 122° F (0° to 50° C), 10 to 90% humidity, non-condensing
<b>Altitude</b> . . . . .	0 to 9,842 ft (3000 m) RoHS
<b>Physical</b> . . . . .	19 in. EIA rack standard, 1RU high, 11 in. (28 cm) depth
<b>Acoustic noise</b> . . . . .	- <60 dBA
<b>Monitoring and Control</b> . . . . .	Browser-based user GUI Front-panel controls Alarm-driven contacts

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### Redundancy

- Dual A/153 output streams
- Power or equipment failure bypasses MH systems, and the A/53 stream is directed to the output
- User bypass of MH system

### ATSC MH Signaling Parameters

- Signaling tables and component descriptors supported internally via Synchrony MNA or externally third-party device
- Transmission parameter channel supported internally via Synchrony MNA
- All other signaling supported externally from third-party device

### DTS Mode

- Operations and maintenance packet structure per A/110b including
  - Synchronization time stamp (STS)
  - Maximum delay (MD)
  - Offset delay (OD)
- Pilot frequency stability of  $\pm 0.5$  Hz of nominal
- Operational support for 2 groups each, with up to 32 transmitters per group

## IMAGES/DIAGRAMS

### Back Module

