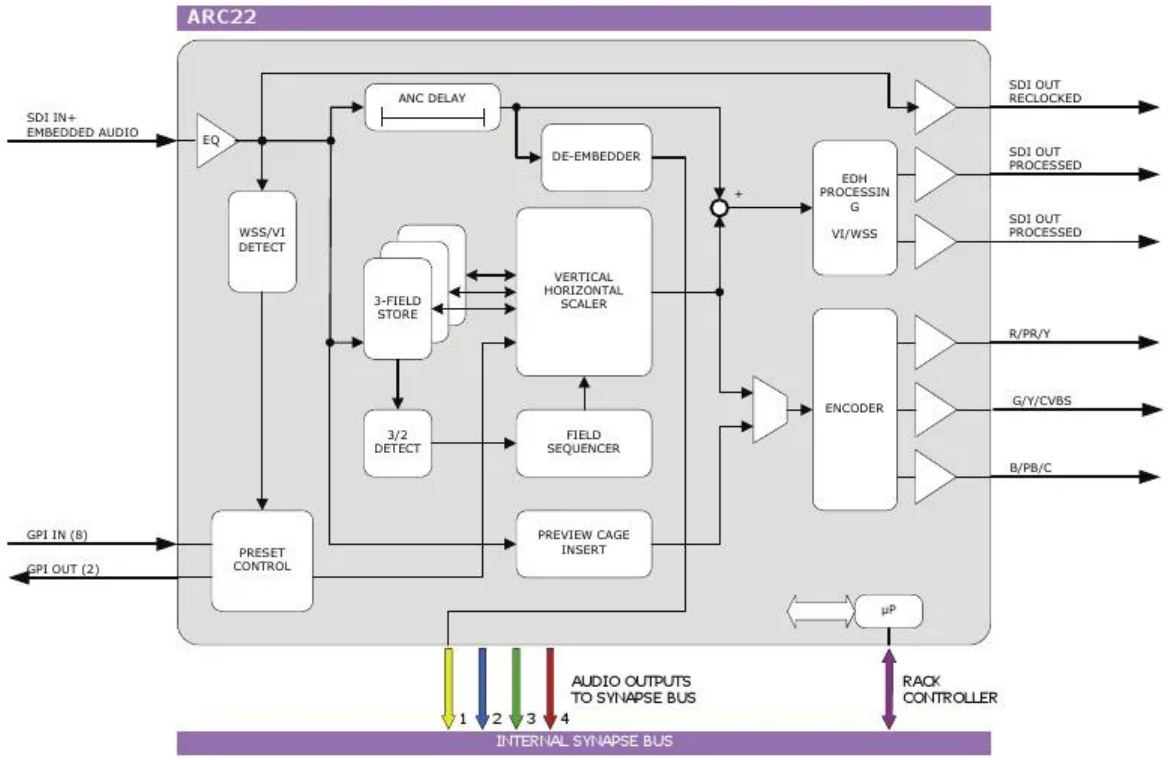
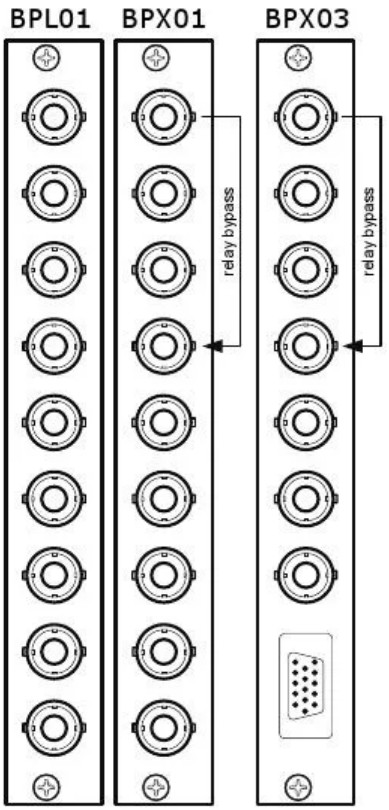
# ARC22

**High-end bi-directional aspect ratio converter, digital and analog outputs, with de-embedder**

**A Synapse® product**

## Block schematic & I/O panel




SDI INPUT (OPTIONAL FIBER INPUT)

SDI RECLOCKED OUTPUT

SDI PROCESSED OUTPUT 1

SDI PROCESSED OUTPUT 2 (OPTIONAL FIBER OUTPUT)

G/Y/CVBS OUTPUT

B/Pb/C OUTPUT

R/Pr/Y OUTPUT

GPI INPUT/OUTPUT (BPX03 only)

**For fiber connectivity see www.axon.tv**

## Features

The ARC22 is a preset based broadcast quality aspect ratio converter. It features optimized conversion between different aspect ratios such as 4:3, 13:9,14:9, 15:9, 16:9 and 21:9 with full 10-bit resolution (20-bit internal). High quality vertical filtering is reached by using a temporal (3 fields), 12-taps FIR filter. The aspect ratios can be switched using WSS, VI, GPI or manual control. Input and outputs are SDI, 10-bit serial digital video (270 Mb). No genlock reference is needed because the total delay of the ARC22 is fixed. An analog preview monitoring output is provided with several comprehensive functions, including a scaling cage. This is the ultimate transmission environment aspect ratio converter, with an extensive record of key-place usage. With respect to the ARC20, the ARC22 has a built in de-embedder that outputs on the Synapse bus.

- Master card de-embedding function. Requires a Synapse ADD-ON audio output card such as the DAC20
- Any format between 4:3 and 21:9 in both directions
- Fixed scaling 4:3, 13:9, 14:9, 15:9, 16:9 and 21:9
- Transparent ANC handling
- Analog preview output configurable for CVBS + YC, RGB or YPrPb
- Preview marker on analog output when input is selected
- Preview output selectable on input or processed output
- Propagation delay 1 frame +0/-7 lines
- Video and film filtering with 3/2 pulldown detection
- H and V blanking (black wipe)
- H and V ANC blanking
- CC handling for Line 21/22
- 16 user configurable presets
- Preset control:
  - Manual (Synapse setup –Front panel)
  - By Video Index
  - By WSS standard
  - By WSS extended (AFD)
  - By single GPI (max 8 presets on BPX03)
  - By 4 GPI's in binary form)
  - By GPI16 as ADD-ON card
- VI, WSS and WSS_ext insertion WSS_ext GPI insertion individually for each preset
- Pan and tilt adjustment per preset
- If VI or WSS lost on input the card jumps to any preset or holds current preset
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 1 fiber input (replacing 1 SDI input) or 1 fiber output (replacing 1 SDI output) on I/O panel

## Applications

- Station output aspect ratio conversion (ideally with BPX03 passive back-up connector panel)
- Ingest aspect ratio conversion
- Post production aspect ratio conversion
- Studio floor monitor aspect ratio conversion

## Ordering information

Module:

- **ARC22:** High-end bi-directional aspect ratio converter, digital and analog outputs, with de-embedder

Standard I/O:

- **BPL01_ARC22**: I/O panel for ARC22
- **BPX01_ARC22:** I/O panel for ARC22 with relay bypass
- **BPX03_ARC22:** I/O panel for ARC22 with relay bypass with GPI I/O on female sub-D

Fiber outputs:

- **BPL01T_FC/PC_ARC22:** I/O panel for ARC22 with fiber transmitter on FC/PC
- **BPL01T_SC_ARC22:** I/O panel for ARC22 with fiber transmitter on SC

Fiber inputs:

- **BPL01R_FC/PC_ARC22:** I/O panel for ARC22 with fiber receiver on FC/PC
- **BPL01R_SC_ARC22:** I/O panel for ARC22 with fiber receiver on SC

# Specifications

## Serial Video Input

| | |
|---|---|
| Standard | 625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio |
| Number of Inputs | 1 |
| Equalization | Automatic to 300m @ 270Mb/s with Belden 1694A or equivalent cable<br>150m with BPX03 |
| Return Loss | > 20dB up to 270MHz |

## SD Serial Video Output

| | |
|---|---|
| Standard | 625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio |
| Number of Outputs | 3 (2 processed and 1 reclocked) |
| Signal Level | 800mV nominal |
| DC Offset | 0V ±0.5V |
| Rise/Fall Time | 520ps nominal |
| Overshoot | < 10% of amplitude |
| Return Loss | > 18dB up to 270MHz |
| Jitter | < 600ps 10Hz HPF |

## Analog Video Output

| | |
|---|---|
| Standard | PAL (ITU624-4) or NTSC (SMPTE 170M), Component and RGB |
| Number of Outputs | 3 |
| Connector | BNC |
| Signal Level | 1V nominal |
| Impedance | 75 Ohms |
| Return Loss | > 35dB to 10MHz |
| Frequency Response | 0.5dB to 4.5 MHz |
| Differential Gain | < 0.6% |
| Differential Phase | < 0.7° |
| SNR | > 75dB |

## Miscellaneous

| | |
|---|---|
| Weight | Approx. 250g |
| Operating Temperature | 0 °C to 50 °C |
| Dimensions | 137 x 296 x 20 mm (HxWxD) |

## Electrical

| | |
|---|---|
| Voltage | +24V to +30V |
| Power | <11 Watts |