



Master Control

TX500 Series and Masterpiece

FEATURES

- SDV and HDTV Systems
- Flexible keying and DVE options
- Advanced audio processing
- Choice of control surface
- Multi-channel operation from one panel
- Automation ready with TCP/IP control
- Up to three systems per frame with Master Builder flexibility

SCALEABLE, FLEXIBLE MASTER CONTROL SOLUTIONS



Evolution or revolution, whichever way you look at it today's broadcast arena is changing. The move to DTV, encompassing SDV and HDTV technologies, and the growth of multi-channel automated systems are just some of the most recent challenges faced by broadcasters. At Pro-Bel we are fully aware that looking for the right master control switcher can be a real headache, now you can have the best of both automated control and manual operations at your fingertips with the TX 500 Series and Masterpiece.

Providing every feature you need from a master control switcher, the TX 500 Series includes SDV and HDTV video processors with comprehensive keying facilities plus DVE control of squeeze effects. Audio supports up to four AES levels for multi-level/multi-language operation and caters for balanced or unbalanced AES, with options for embedded or analogue audio. In addition, the ability to modify level, phase and channel routing between audio layers, further demonstrates the flexibility of the TX 500 Series.

Master Builder

TX 500 is based on the Master Builder concept which enables as much or as little functionality as appropriate to be specified for each application. The starting point is a 3RU rack frame with the choice of one or two power supplies. Air channels simply and economically with a simple mixer/keyer unit for basic transitions and logo insertion under GPI/automation control. Add more mixer/keyer cards in the frame as you add channels.

HD Mixers in 1RU or 2RU Frames

The Masterpiece HD mixer is housed in a 1RU Rackmount frame with dual (hot swappable) PSU. This contains a mixer and 2 keyers, capable of operation at many of the HD standards in use today. Mixer functions include:

- Independent key preview path
- Program/Preset mixer with selectable wipe patterns and rates
- Key & fill inputs with caption or effects modes.

The 2RU mixer is a full system including control, embedded audio processing with IVO per stereo pair, DVE, logo store, 4 keyers and Dolby decoding/encoding for 1 Dolby channel.

Automation Ready

The open architecture ensures easy integration with any automation system. Consider, however, that only Pro-Bel has designed *both* our own master control switchers and automation systems, so you know integration between them means seamless performance and reliability unrivalled by any other mix of master control switcher and automation system on the market. Full system control is available via TCP/IP Ethernet interface, time stamped commands ensure 100% frame accuracy.

The Freedom to Choose

A choice of control panel gives you the freedom to choose without compromising functionality. The ability to mix panels within a system permits TX 520, TX 510, TX 502 and Morpheus Control & Monitoring panels to be shared between channels.

Single-button operation of on-air functions ensures highly accurate operation, especially important when manual control is infrequent, while the integral display on each panel gives access to less frequently used functions via 'soft keys'.

Router Integration

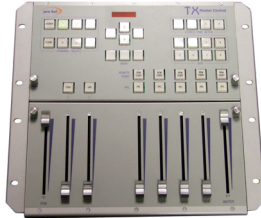
All Pro-Bel master control solutions use an external router, typically from the Sirius range which provides in-router conversion of analogue inputs in both video and audio if required. The TX Series or Masterpiece can control the router directly, holding its own database of input names for the four character alphanumeric displays associated with each input. Alternatively it can control the router via the Pro-Bel Aurora control system which will give greater flexibility and control of multiple routers with tie line management.

Video Effects Where You Want Them

The DVE can be positioned before or after any of the four DSKs in the video chain, providing the exact interaction you desire between squeeze effects and keyed bugs. Both SD and HD DVEs are dual channel, and allow up to twenty four DVE moves to be configured for instant recall from the panel display, while for added confidence, a DVE preview facility permits moves to be viewed in full before use.

Advanced Audio

Each audio level provides mixing of PGM, PST and Aux busses together with four 'over' inputs. Multi-level audio capabilities can be further enhanced by the addition of an optional manual fader panel which gives full manual control of PGM/PST and audio overs. Faders are motorised allowing manual control to work in harmony with automation.



Peace of Mind

Fully redundant power supplies in both the control panels and associated frames, plus the ability to hot swap any system module provides the on-air reliability and ease of maintenance demanded in any master control environment. With the Pro-Bel master control in your facility, you can relax, safe in the knowledge that your station output is in good hands.

TX Series

The TX500 rack frame is equipped with a choice of backplanes for specific functions. These provide both interconnection between modules and interface connectors to the outside world and to other functional blocks within the system.

The functional blocks include: -

- Controller with SDV and AES mixers, no DSKs, balanced or unbalanced audio
- Controller with SDV and AES mixers, 2 DSKs, balanced or unbalanced audio
- Controller with SDV and AES mixers, 4 DSKs, balanced or unbalanced audio
- Additional audio levels, up to three on one backplane,
- Embedded audio package for SD, embedder plus two de-embedders



Any space remaining in the rack frame can be filled with modules from the Icon range including audio D to A and A to D converters and further audio de-embedders. Up to three of the basic mixer systems can be fitted into the same 3RU rack frame.

The high definition system uses an external video mixer and DVE, controlled from a basic mixer backplane which also supports the AES audio mixer.

Masterpiece

Designed from the outset for HD, Masterpiece incorporates many of the requirements inherent in HD production, while still providing a cost effective solution for multi-channel play-out. A true, simple 'plug and work' approach for automated and multi-channel environments. It benefits from an HD DVE, audio mixing, Dolby E encoders and four DSKs to satisfy the needs of many broadcast operations.

The embedded audio is extracted from incoming program and preset channels, fed to a mixer with one external voiceover per audio channel (up to 16 audio levels are supported). This is routed via the Dolby decoders if required to generate separate audio channels for mixing as, of course, Dolby E can't be mixed in its encoded form. The resulting audio is then re-embedded into the outgoing video, after re-encoding into Dolby E if required.

In the video path, the DVE is 3D and offers full frame-based processing and two planes of DVE plus background. The DSKs offer external key and fill signals, or the option of internally stored logos being fed into one of the keyers.

Masterpiece can also be used with Pro-Bel's external audio mixers if more complex audio transitions are required and can also be used with the TX range of panels – TX502, TX510, TX520, PC based Morpheus Control panels and Pro-Bel's audio fader panel, for manual control of audio transitions and voiceovers.



Control Panels

TX 520

The fully featured TX 520 panel provides access to all system functions, from basic transitions to multi-channel operation making it ideal for broadcast operations that demand the most from equipment and people. Single-button control of all system functions ensures highly accurate on-air operation. Control of up to four downstream keyers (DSKs) and an optional DVE is supported.

- Full size control surface
- 20 prime inputs
- Two Aux busses
- Plasma display for metering and system configuration
- Multi channel operation
- Integrated machine control



TX 510

Compact panel

- 12 Prime inputs
- Single Aux bus
- LCD touch screen for metering and configuration
- Multi-channel operation
- Integrated machine control



TX 502

This compact control panel is ideal for systems that are primarily automated yet require occasional manual control during peak transmission activity. However, looks can be deceptive – while the panel is reduced in size, it's still big on facilities.

- Ultra-compact 2U panel
- LCD re-legendable buttons
- 10 prime inputs
- Single Aux bus
- Multi-channel operation



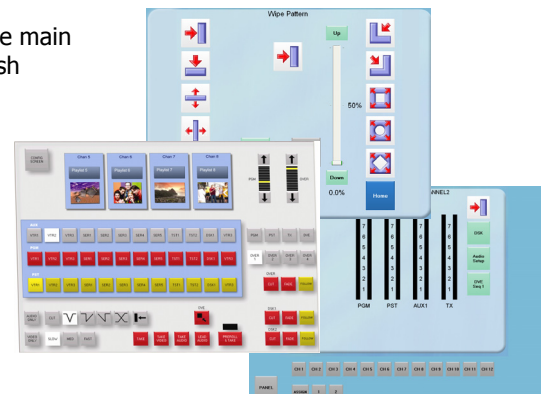
Perfectly suited for applications where space is limited, the re-legendable buttons on the TX 502 provide a highly flexible master control environment.

Morpheus Control & Monitoring - Master Control Panel

A fully functional touchscreen for control and configuration providing a totally flexible control surface. Control functionality can be made available as required for each operation, video capture windows allow on screen previews and full on-screen configuration is available.

Ethernet connection allows the panel to configure and control a virtually unlimited number of channels. For headless operation, it is possible to configure each channel from a PC, thus reducing cost while maintaining the flexibility of the system.

The user can plug a TX 502 panel into the PC serial port and switch it with the main Morpheus Control & Monitoring screen to multiple mixers giving a manual push button control option with maximum flexibility.



Master Control

TX500 Series and Masterpiece

Technical Specification

Video

Standard:

TX 500 SDV system

Serial component digital 270Mbit/s, SMPTE259M-C

Masterpiece HDTV system

HDTV to SMPTE 292M

Inputs:

Primary:

20 PGM/ PST**, 20 + 4 Aux busses**

20 PGM/PST**, + 4 Aux busses**

Keyers:

4 key and 4 fill

Up to 4 key and 4 fill

DVE:

Background

Background

Reference

Analogue video (looping) colour black

Analogue colour black or Tri Level Sync

Outputs:

Main:

2 PGM, 2 Clean feed

2 PGM, 1 Clean feed

Preview:

1 PST

1 PST + look ahead PVW over AUX/PST

Audio (SD and HDTV systems)

48kHz AES 3, Balanced or Unbalanced operation. Optional interfaces for Analogue & Embedded audio

Inputs

Primary:

20, PGM/PST - 20+4 Aux busses

20, PGM/PST - 20+4 Aux busses

Overs:

4, with independent control of Over/Program level

4, with independent control of Over/
Program level

Reference:

AES 3 (Balanced or unbalanced)

AES 3 (Balanced or unbalanced)

Outputs:

Main:

PGM (1), PST (1)

PGM (1), PST (1)

Monitoring:

Monitor output 1, Monitor output 2*, Aux 1 and
Aux 2*

Monitor output 1, Monitor output 2*,
Aux 1 and Aux 2*

*Aux 2 and Monitor 2 are available but
cannot be controlled by the TX 510 panel
**For systems using the TX 510 panel, only 12
primary inputs are available for PGM/PST. The Aux
bus has 16 sources available.

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General

Cue outputs

32 open controller outputs individually programmable for operation as either;

Channel cue (Input 1, Input 2 etc.), Row cue (PGM bus on air, PST bus on air), Over cue (Over on air) or Pre-roll

Dimensions

TX 520 panel

655mm (25.8") width, 522mm (20.6") depth, 216mm (8.5") height

TX Series Electronics - Dependant upon configuration

A typical system with single level AES audio (not including routers):

3RU x 19"

3RU x 19"

8RU x 19"

8RU x 19"

Weight

TX 510 panel

15kg (33lb)

15kg (33lb)

TX 520 panel

20kg (44lb)

20kg (44lb)

TX Series Electronics

14kg (30lb) Typical system

35kg (77lb) Typical system

Power Requirements

TX 510 panel

40W

40W

TX 520 panel

50W

50W

Mixer Electronics

100W Typical system (3RU)

100W each additional 3RU

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