

T3 Elite Max

Intelligent Dynamic Digital Recorder

Bid Specification

KTR5-ELT-40M-PK

The contents or specifications of this product may be changed without prior notice.

Product Name

T3 Elite Max (Intelligent Dynamic Digital Recorder)

Commercial Reference

KTR5-ELT-40M-PK

Key Features

- **Recorder/Player**
 - 4K (2160p) video recording support (4K: 2 in 0 out mode)
 - 4K (2160p) video playback support (4K: 0 in 2 out mode)
 - 4K (2160p) video recording and playback support (4K: 1 in 1 out mode)
 - HD (1080p) video recording support (HD: 3 in 0 out mode)
 - HD (1080p) video recording and playback support (HD: 1 in 2 out mode, HD: 2 in 1 out mode)
 - HD (1080p) video playback support (HD: 0 in 3 out mode)
 - Key/Fill (Alpha) video playback support
 - Synchronized playback across 2 channels for key/fill rolls, edge blending, multi-screen displays, and 3D applications
 - Chasing playback while recording
 - Real-time cross conversion support among 720p, 1080p/i and 4K
 - Direct recording to an external media/storage device
 - Scheduled recording
 - Ancillary data recording and playback
 - E-to-E mode
 - Video monitor output and on-screen display
 - Next Preview for monitoring the next clip event in a playlist
 - NDI IP input/output support
- **Import/Export**
 - Native import/playback for most standard formats
 - Supports multiple codec formats (transcoding to Grass Valley HQX AVI) for most standard and broadcast formats
 - FTP transfer rate limited to maintain playback performance
 - Watch folder transfers
 - Export to Sony XDCAM drive (PDW-U1/PDW-U2)
- **Editing**
 - Direct access to an internal media folder with EDIUS and the ability to edit a growing file — AVI (Grass Valley HQX) and MXF (Grass Valley HQX/Apple ProRes/Avid DNxHR/Avid DNxHD/XDCAM)
 - Export a growing AVI (Grass Valley HQX) file via CIFS
 - Export a growing MXF (Grass Valley HQX/Apple ProRes/Avid DNxHR/Avid DNxHD/XDCAM) file via FTP/CIFS
 - Import from Final Cut Pro in QuickTime format using the free Grass Valley HQ codec for Mac onto an exFAT storage device
 - Convert and CIFS export from AVI (Grass Valley HQX) to MXF (Grass Valley HQX/Apple ProRes/Avid DNxHR/Avid DNxHD/XDCAM) or MOV (Apple ProRes/Avid DNxHR/Avid DNxHD)

- **Front Panel**
 - Easy-to-use front panel interface and jog/shuttle
- **Workstation**
 - Workstation mode included as standard
 - Immediate playback of clip events from a playlist (on-the-fly playback) and playback speed control
 - Simple on-the-fly editing, including trimming, mark in/out, markers with comments, basic transition effects and insertion of placeholders for playlists
 - Transition effect (cross dissolve) when manually switching to another clip event in a playlist
 - Keyboard shortcuts and mouse customization on workstation
- **Remote**
 - Synchronized playback using LTC input (Timecode chasing)
 - Synchronized playback for multiple T3s using GPI input/RS-422 (BVW)
 - Integration support for third-party control (BVW, VDCP, GPIO and AMP)
- **Device**
 - SDI embedded audio (8 channels)
 - Robust design — engineered to withstand demanding live event and mobile production environments
 - ASIO audio input/output support
 - Redundant power supply
 - Media slots — SD card x 2, 2.5-inch SSD x 2
- **Maintenance**
 - Full data backup and restore feature
 - Monitoring using watchdog timer (Hardware/Software)
- **Max License**
 - Uncompressed video recording/playback
 - XAVC recording/transcoding
 - H.264 codec board acceleration (optional)

Specification

Storage	System	240 GB (2.5" SATA3 SSD)
	Data	1.92 TB (M.2 NVMe SSD)
Total Recording Duration*1		<p>Approx.3.5 hours: 4K DCI (4096x2160) 59.94p @ Grass Valley HQX (1.2 Gb/s)</p> <p>Approx.7.5 hours: 4K DCI (4096x2160) 29.97p @ Grass Valley HQX (600 Mb/s)</p> <p>Approx.3.5 hours: 4K UHD (3840x2160) 59.94p @ Grass Valley HQX (1.2 Gb/s)</p> <p>Approx.7.5 hours: 4K UHD (3840x2160) 29.97p @ Grass Valley HQX (600 Mb/s)</p> <p>Approx.14 hours: HD (1920x1080) 59.94p @ Grass Valley HQX (300 Mb/s)</p> <p>Approx.28 hours: HD (1920x1080) 59.94i @ Grass Valley HQX (150 Mb/s)</p> <p>Approx.72 hours: HD (1920x1080) 59.94i @ XDCAM HD422 (50 Mb/s)</p> <p>Approx.150 hours: HD (1440x1080) 59.94i @ XDCAM HD (35 Mb/s)</p>
Power supply unit		800W Redundant PSU
Connector	Remote	RS-422A (D-Sub 9-pin) x 4
	Network	RJ-45 (2.5GBASE-T / 1000BASE-T / 100BASE-TX / 10BASE-T) x 2
	USB (Front)	USB 3.2 Gen 1 (5Gbps) Type-A x 2
	USB (Rear)	USB 3.2 Gen 2 (10Gbps) Type-A x 5 USB 3.2 Gen 2x2 (20Gbps) Type-C x 1
	PC display monitor output*2	HDMI 2.0b x 1, DisplayPort 1.4a x 1
	Media Slots	2.5" SSD (Up to 9.5mm thickness, SATA) x 1, 2.5" SSD (7mm thickness, SATA) x 1, SD card (SDXC, UHS-II, microP2) x 2
Video Input	SDI	BNC x 4 (12G-SDI: SMPTE 2082 / 2081 / 424M / 292M / 259M-C)
Video Output		
Audio Input	SDI	SDI embedded audio 8ch (SMPTE 299M / 272M-A, 20 / 24-bit, 48kHz, locked)
Audio Output		
		Headphone
Timecode	LTC Input	BNC x 1
	LTC Output*4	BNC x 2 (2.0Vp-p, low impedance)
	VITC Input	Embedded SDI Input
	VITC Output	Embedded SDI Output
Reference	Input	BNC x 1 (HD Tri-level/SD BB auto-detect)
Remote Protocol		BVW (RS-422A), VDCP (RS-422A, Network), AMP (Network)
GPI	Input	TTL Input x 8, Low 0V - 0.8V / High 2.0V - 5.0V, External Current Sink : 1mA
	Output	Open Drain Output x 8, Max Sink Current : 100mA, Max Voltage : 30V
Max License		Included
Power (rated input voltage, frequency)		AC 100 - 240V, 50/60Hz
Electric power consumption		Up to 300W
Operating temperature range		5°C to 35°C (41°F to 95°F)
Operating relative humidity		Max. 80% (non-condensing)
Dimensions (W x D x H)		430 x 450 x 140 mm (16.9 x 17.7 x 5.5 in.) (rubber feet and protrusions excluded)
Weight		Approx. 14.3 kg (31.4 lbs.)

*1 The consecutive recording time is up to 24 hours at one time.

*2 HDMI and DisplayPort cannot be used at the same time.

*3 Shared with Timecode LTC Output.

*4 Shared with Audio Monitor Output.

Package Contents

KTR5-ELT-40M-PK

- T3 Elite Max Unit (KTR5-ELT-40C4)
- AC Power supply cable x 6 (NA x 2, UK x 2, EMEA x 2)
- T3 Readme First
- Grass Valley Support Guide

Option

Name	Commercial Reference	Details
T3 H.264 Codec Board S2	KTR5-HW-H264-S2	H.264 Codec Board S2 for T3 Series *1
T3 Sliding Rack Mount Kit	iDDR2-RACK-W	Rack mount kit for T3 / T2 Series *2

*1 To use this hardware option, it must be installed in the T3 unit with a Max License. If the T3 unit does not have a Max License, the hardware option will not work.

*2 Slide rails and metal fittings for mounting are included, but the slide rail brackets are excluded. Please purchase separately according to your rack dimensions.

IO Mode

4K DCI / 4K UHD	2 in 0 out 1 in 1 out 0 in 2 out
HD / SD	3 in 0 out 2 in 1 out 1 in 2 out 0 in 3 out

Note: The number of streams for each input and output in IO Mode represents the maximum value, and there may be limitations depending on combinations of resolution, codec, and other factors.

Video Input Formats

Resolution / Frame-rate

4K DCI	4096 x 2160 (60p/59.94p/50p)
	4096 x 2160 (30p/29.97p/25p/24p/23.98p)
4K UHD	3840 x 2160 (60p/59.94p/50p)
	3840 x 2160 (30p/29.97p/25p/24p/23.98p)
HD (1920 x 1080)	1920 x 1080 (60p/59.94p/50p)
	1920 x 1080 (30p/29.97p/25p/24p/23.98p)
	1920 x 1080 (59.94i/50i/24PsF/23.98PsF)
HD (1440 x 1080)	1440 x 1080 (29.97p/25p/24p/23.98p)
	1440 x 1080 (59.94i/50i/24PsF/23.98PsF)
HD (1280 x 720)	1280 x 720 (60p/59.94p/50p)
SD	720 x 486 59.94i, 720 x 576 50i

Video Output Formats

Resolution / Frame-rate

4K DCI	4096 x 2160 (60p/59.94p/50p)
	4096 x 2160 (30p/29.97p/25p/24p/23.98p)
4K UHD	3840 x 2160 (60p/59.94p/50p)
	3840 x 2160 (30p/29.97p/25p/24p/23.98p)
HD (1920 x 1080)	1920 x 1080 (60p/59.94p/50p)
	1920 x 1080 (30p/29.97p/25p/24p/23.98p)
	1920 x 1080 (59.94i/50i/24PsF/23.98PsF)
HD (1280 x 720)	1280 x 720 (60p/59.94p/50p)
SD	720 x 486 59.94i, 720 x 576 50i

Recording Formats

4K DCI / 4K UHD		Up to		Up to	
		T3 Elite Max		T3 Elite Max + HW Option	
AVI	Grass Valley HQX	✓	2 in	✓	2 in
	Uncompressed (YUV/10bit YUV)	✓	1 in	✓	1 in
MXF	Grass Valley HQX	✓	2 in	✓	2 in
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	1 in	✓	1 in
	Avid DNxHR (HQ/SQ/LB)	✓	1 in	✓	1 in
	XAVC 4K Intra (Class480/Class300)	✓	1 in	✓	1 in
	XAVC QFHD Intra (Class480/Class300)	✓	1 in	✓	2 in
	XAVC QFHD Long422 (200/140/100)	✗	-	✓	2 in
	XAVC QFHD Long (150/100/60)	✓	1 in	✓	2 in

HD / SD		Up to		Up to	
		T3 Elite Max		T3 Elite Max + HW Option	
AVI	Grass Valley HQX	✓	3 in	✓	3 in
	Uncompressed (YUV/10bit YUV)	✓	3 in	✓	3 in
MXF	Grass Valley HQX	✓	3 in	✓	3 in
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	3 in	✓	3 in
	Avid DNxHD 220x	✓	3 in	✓	3 in
	Avid DNxHD (220/145/100/36)	✓	3 in	✓	3 in
	XDCAM (HD422/HD/IMX/DV)	✓	3 in	✓	3 in
	XAVC HD Intra (Class100/Class50)	✓	3 in	✓	3 in
	XAVC HD Long422 (50/35/25)	✓	3 in	✓	3 in

Note: The maximum number of streams that can be recorded simultaneously may be limited depending on combinations of IO Mode, resolution, codec, and other factors.

Note: The 'HW Option' requires the installation of the optional H.264 codec board 'KTR5-HW-H264-S2'.

Playback Formats

4K DCI / 4K UHD		Up to		Up to	
		T3 Elite Max		T3 Elite Max + HW Option	
AVI	Grass Valley HQX	✓	2 out	✓	2 out
	Grass Valley Lossless	✓	1 out	✓	1 out
	Uncompressed (YUV/10bit YUV)	✓	1 out	✓	1 out
MXF	Grass Valley HQX	✓	2 out	✓	2 out
	Apple ProRes 4444	(Transcode)	-	(Transcode)	-
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	1 out	✓	1 out
	Avid DNxHR 444	(Transcode)	-	(Transcode)	-
	Avid DNxHR HQX	✓	1 out	✓	1 out
	Avid DNxHR (HQ/SQ/LB)	✓	1 out	✓	1 out
	H.264/AVC	✓	1 out	✓	1 out
QuickTime	Grass Valley HQX	✓	2 out	✓	2 out
	Apple ProRes 4444	(Transcode)	-	(Transcode)	-
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	1 out	✓	1 out
	Avid DNxHR 444	(Transcode)	-	(Transcode)	-
	Avid DNxHR HQX	✓	1 out	✓	1 out
	Avid DNxHR (HQ/SQ/LB)	✓	1 out	✓	1 out
MP4	H.264/AVC	✓	1 out	✓	1 out
XAVC	XAVC 4K Intra (Class480/Class300)	✓	1 out	✓	1 out
	XAVC QFHD Intra (Class480/Class300)	✓	1 out	✓	2 out
	XAVC QFHD Long422 (200/140/100)	✓	1 out	✓	2 out
	XAVC QFHD Long (150/100/60)	✓	1 out	✓	2 out
XAVC S	H.264/AVC	✓	1 out	✓	1 out
P2	AVC-Intra 4K 422	✓	1 out	✓	1 out
Windows Media	Windows Media Video	(Transcode)	-	(Transcode)	-
Still Image	Targa, Windows Bitmap, JPEG, TIFF, PNG, GIF, DPX	(Transcode)	-	(Transcode)	-

HD / SD		Up to		Up to	
		T3 Elite Max		T3 Elite Max + HW Option	
AVI	Grass Valley HQX, Grass Valley HQ	✓	3 out	✓	3 out
	DVCPRO HD, DVCPRO50, DVCPRO25, DV	✓	3 out	✓	3 out
	Grass Valley Lossless	✓	3 out	✓	3 out
	Uncompressed (YUV/10bit YUV)	✓	3 out	✓	3 out
MXF	Grass Valley HQX, Grass Valley HQ	✓	3 out	✓	3 out
	Apple ProRes 4444	✓	3 out	✓	3 out
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	3 out	✓	3 out
	Avid DNxHD 220x	✓	3 out	✓	3 out
	Avid DNxHD (220/145/100/36)	✓	3 out	✓	3 out
	DVCPRO HD, DVCPRO50, DVCPRO25, DV, D10/IMX	✓	3 out	✓	3 out
	H.264/AVC	✓	3 out	✓	3 out
	MPEG-2	✓	3 out	✓	3 out
	JPEG2000	(Transcode)	-	(Transcode)	-
QuickTime	Grass Valley HQX, Grass Valley HQ	✓	3 out	✓	3 out
	Apple ProRes 4444	✓	3 out	✓	3 out
	Apple ProRes (422 HQ/422/422 LT/422 Proxy)	✓	3 out	✓	3 out
	Avid DNxHD 220x	✓	3 out	✓	3 out
	Avid DNxHD (220/145/100/36)	✓	3 out	✓	3 out
	XDCAM (HD422/HD)	✓	3 out	✓	3 out
	XDCAM EX	✓	3 out	✓	3 out
	DVCPRO HD, DVCPRO50, DVCPRO25, DV	(Transcode)	-	(Transcode)	-
	H.264/AVC, MPEG-4	(Transcode)	-	(Transcode)	-
	Motion JPEG	(Transcode)	-	(Transcode)	-
	Uncompressed	(Transcode)	-	(Transcode)	-
MP4	H.264/AVC	✓	3 out	✓	3 out
XDCAM	XDCAM (HD422/HD/IMX/DV)	✓	3 out	✓	3 out
	XDCAM EX	✓	3 out	✓	3 out
XAVC	HD Intra (200/100/50)	✓	3 out	✓	3 out
	HD Long422 (50/35/25)	✓	3 out	✓	3 out
XAVC S	H.264/AVC	✓	3 out	✓	3 out
P2	AVC-LongG (50/25/12)	✓	3 out	✓	3 out
	AVC-Intra (200/100/50)	✓	3 out	✓	3 out
	DVCPRO HD, DVCPRO50, DVCPRO, DV	✓	3 out	✓	3 out
AVCHD	H.264/AVC	✓	3 out	✓	3 out
MPEG-2	PS, TS	(Transcode)	-	(Transcode)	-
Windows Media	Windows Media Video	(Transcode)	-	(Transcode)	-
GXF	Grass Valley HQ, MPEG-2 (Intra Frame), H.264/AVC (Intra Frame), DVCPRO HD, DVCPRO50, DVCPRO, DV	(Rewap to MXF)	-	(Rewap to MXF)	-
Still Image	Targa, Windows Bitmap, JPEG, TIFF, PNG, GIF, DPX	(Transcode)	-	(Transcode)	-

Note: Media files marked with ✓ can be imported in their native format or converted to Grass Valley HQX (AVI) during the import process.

Note: Media files labeled with (Transcode) will be automatically converted to Grass Valley HQX (AVI) during the import process.

Note: Media files labeled with (Rewrap to MXF) will be rewrapped into an MXF container during the import process.

Note: The maximum number of streams that can be played simultaneously may be limited depending on combinations of IO Mode, resolution, codec, and other factors.

Note: The 'HW Option' requires the installation of the optional H.264 codec board 'KTR5-HW-H264-S2'.

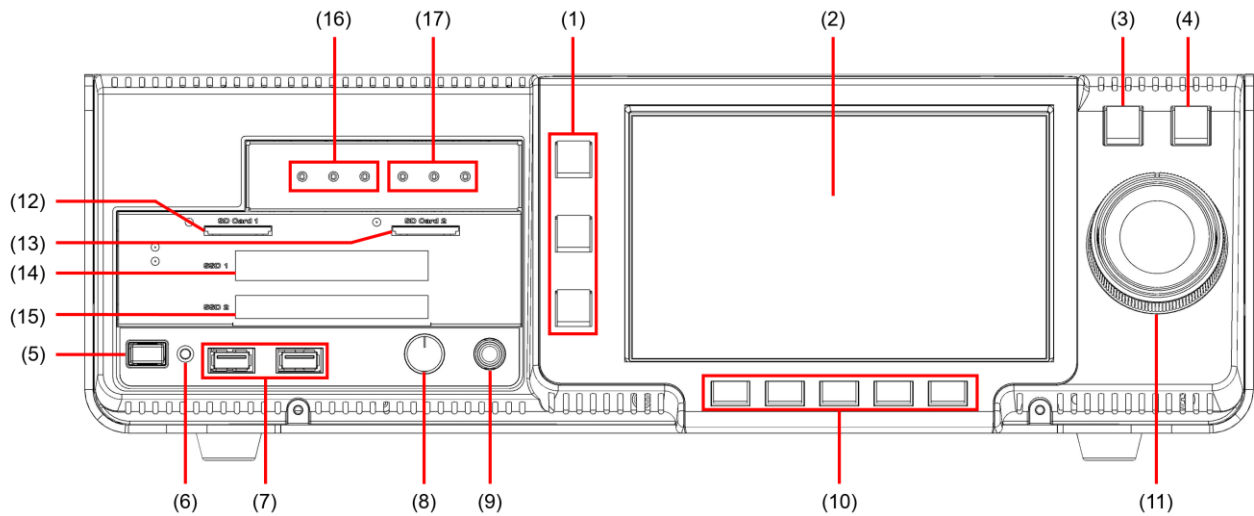
Transcoding Export Formats

		T3 Elite Max	T3 Elite Max + HW Option
MXF	Grass Valley HQX	✓	✓
	Apple ProRes (422 HQ/422/422 LT/Proxy)	✓	✓
	Avid DNxHR (HQ/SQ/LB)	✓	✓
	Avid DNxHD (220x/220/145/100/36)	✓	✓
	XDCAM HD422 (50Mbps)	✓	✓
	XDCAM HD (35Mbps/25Mbps/18Mbps)	✓	✓
	XDCAM IMX, DVCAM	✓	✓
	XAVC 4K Intra (Class480/Class300)	✓	✓
	XAVC QFHD Intra (Class480/Class300)	✓	✓
	XAVC QFHD Long422 (200/140/100)	✓	✓
	XAVC QFHD Long (150/100/60)	✓	✓
	XAVC HD Intra (Class100/Class50)	✓	✓
	XAVC HD Long422 (50/35/25)	✓	✓
QuickTime	Apple ProRes (422 HQ/422/422 LT/Proxy)	✓	✓
	Avid DNxHR (HQ/SQ/LB)	✓	✓
	Avid DNxHD (220x/220/145/100/36)	✓	✓

Note: Only "AVI (Grass Valley HQX)" files or "Playlist" can be transcoded or exported in the specified formats.

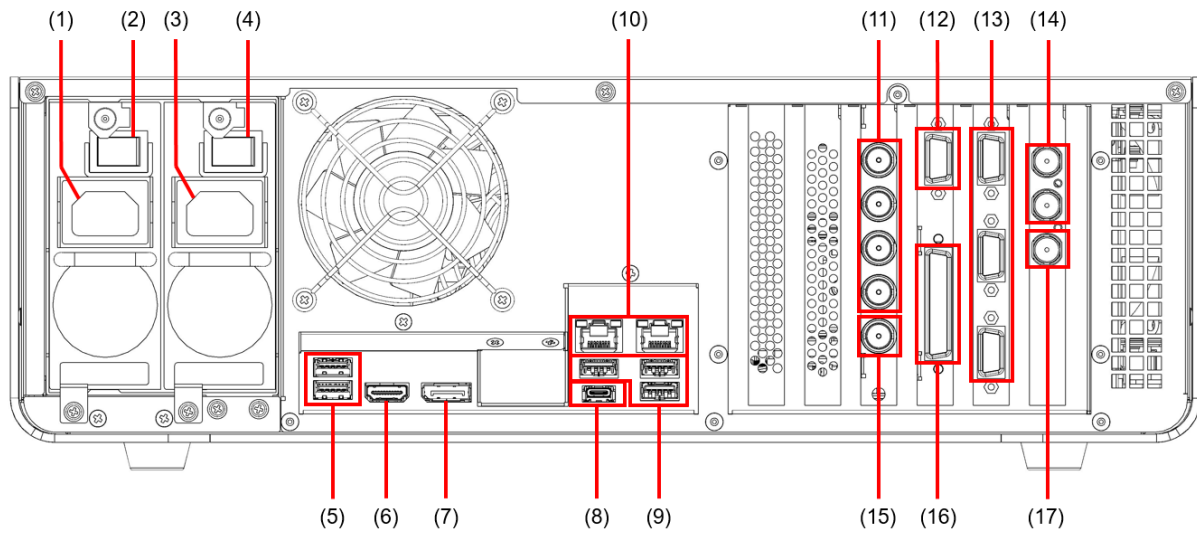
Note: The 'HW Option' requires the installation of the optional H.264 codec board 'KTR5-HW-H264-S2'.

Front Panel



1. C1/C2/C3 switching buttons
2. 7" touchscreen LCD
3. Jog/Shuttle mode switching button
4. VAR mode switching button
5. Power switch
6. Power LED
7. USB 3.2 Gen 1 (5Gbps) Type-A x 2
8. Headphone volume control
9. Headphone jack
10. Control buttons
11. Jog/Shuttle
12. SD Card Slot 1 (SDXC, UHS-II, microP2)
13. SD Card Slot 2 (SDXC, UHS-II, microP2)
14. 2.5-inch SSD bay 1 (Up to 9.5mm thickness, SATA)
15. 2.5-inch SSD bay 2 (7mm thickness, SATA)
16. POWER1 indicator (power outage detection, power supply failure, FAN fault detection)
17. POWER2 indicator (power outage detection, power supply failure, FAN fault detection)

Rear Panel



1. POWER2 : AC power input (3-pin)
2. POWER2 : Main power switch
3. POWER1 : AC power input (3-pin)
4. POWER1 : Main power switch
5. USB 3.2 Gen 2 (10Gbps) Type-A port x 2
6. HDMI (for external OS monitor)
7. DisplayPort (for external OS monitor)
8. USB 3.2 Gen 2x2 (20Gbps) Type-C port x 1
9. USB 3.2 Gen 2 (10Gbps) Type-A port x 3
10. LAN port x 2
11. 12G-SDI input/output x 4
12. Remote out (RS-422A)
13. Remote input (RS-422A) x 3
14. LTC output x 2 / Audio monitor output x 2 (CH1 / CH 2)
15. Reference input
16. GPI I/O
17. LTC input

Dimensions (mm)

