TECHNICAL NOTE

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CHOICE OF UPS (BACKUP SUPPLY) & POWER CONSUMPTION OF MIXERS & RACKS

The following notes are to aid selection of suitable UPS (Uninterruptible Power Supply) for use with Soundtracs and Digico mixers systems.

The mixer and racks have separate mains supply that can be fed from a single UPS. The mains to the racks can fed from a cable running along side (but separate from) the madi links from a UPS located near the worksurface. Alternatively each rack and the Worksurface can separate UPS units.

In all cases the key feature required is that the UPS has a high purity sine wave output - typically 1% distortion. Cheaper consumer style PC/computer UPS's do not provide this. Such supplies will cause hum on the analogue audio sections of the mixer. If in doubt a UPS should be "auditioned" before installation to ensure it does not cause audible problems.

The internal supplies of the Soundtracs-Digico systems work over a wide range of inputs (typically 100-250V 50-60Hz) without adjustment. However, control of this is not instant and they will not support the mixer during temporary voltage reductions ("brown outs") and the UPS should be used to provide this function also.

The response to power failure or voltage drop should be within 2 cycles (preferably 1.5) as the mixer supplies will not support the mixer for longer. The very high efficiency (cool running) switchmode supplies used in the mixer and rack have little stored energy and so require a fast external backup.

This requirement typically means the use of a so-called on-line or in-line UPS. The more recent on-line-interactive are better performance for computer systems but unlikely to offer any benefit with a mixer. Inexpensive “off-line” are hard to find now but should be avoided.

For units with dual supplies, either mixer or rack, only ONE supply should be connected via the UPS, the other should be fed direct from the mains. This will prevent problems in the event of an earth (ground) fault/impedance or electrical failure in the UPS.

The typical start power consumptions of the mixer and rack range please see list below. Note how power varies across the range and see how these are significantly less than a comparable analogue mixer.

It can be seen a typical mid size single mixer system with racks requires a 750VA (continuous) UPS to allow a reasonable load margin. If possible use the system at 220V to reduce mains current load (compared to use at 110V) . Dual mixer or mixer/RE mixer systems typically use 1.5KVA units.

Note the 1 cycle inrush to worksurface may over 20A (220V) so allow for this in fusing / MCB arrangements.

Whilst Digico UK do not endorse any particular UPS, our customers have used APC units with success.

IMPORTANT NOTE: A UPS system is NOT a substitute for a suitable good quality earth (ground) system. Low impedance earths with no or very low earth potential is critical for the correct operation of large digital mixer systems. There should be no difference in the earth (ground) potential between mixer and madi connected racks etc.

Digico equipment power consumption. Please contact the factory for items not shown

Note on heat output: There is effectively no difference in power consumption and heating load, there is no significant output except heat.
The low power factor means VA is approximately = Watts Watts x 3.4 = BTU approximately

The heat load is not usually very significant for Air Conditioning cooling calculations for studios or theatres but should be considered. It may be significant in small trucks and other confined spaces or enclosures.

Mixers data

All units listed below are rated for operation 90V-260V 50-60Hz auto sense (unless shown otherwise).
Power to external optional screens should be added, if required.
Power to external Litllite type illumination should be added, if this option is available and in use.

S21 — IEC power x 1 — Single supply
125VA (faders idle & active)
185VA peak at startup

S31 — IEC power x 1 — Single supply
135VA (faders idle & active)
195VA peak at startup

Q225 — IEC power x 2 — Dual redundant supplies.
160VA (faders idle)
175VA (all faders active)
180VA peak at startup

Q338 — IEC power x 2 — Dual redundant supplies.
310VA (faders idle)
345VA (all faders active)
315VA peak at startup

SD5/SD5Q — IEC power x 2 — Dual redundant supplies. (rated 100-120V & 200-240V)
550VA (faders idle)
635VA (all faders active)
795VA peak at startup

SD7/SD7Q — IEC power x 2 — Dual redundant supplies.
550VA (faders idle)
600VA (all faders active)
650VA peak at startup

EX007/EX7Q — IEC power x 1 — Single supply
260VA (faders idle)
300VA (all faders active)
300VA peak at startup

SD8 — IEC power x 2 — Dual redundant supplies.
230VA (faders idle)
295VA (all faders active)
295VA peak at startup
(add Litlite power if used)

SD9 — IEC power x 1 — Single supply only.
155VA (faders idle)
195VA (all faders active)
225VA peak at startup

SD9 Optional — IEC power x 2 — Dual redundant supplies.
195VA (faders idle)
225VA (all faders active)
240VA peak at startup
(add Litlite power if used)

SD10 — IEC power x 2 — Dual redundant supplies.
235VA (faders idle)
300VA (all faders active)
300VA peak at startup
(add Litlite power if used)

SD10-RE — IEC power x 2 — Dual redundant supplies.
SD-RE fader-pod — IEC power x 1 — Single supply only.
100VA (normal) (RE & pod)
115VA (start & all faders active)
(add required screen power)

SD11	IEC power x 1	Single supply only.
	150VA (faders idle)	
	175VA (all faders active)	
	195VA peak at startup	
SD12	IEC power x 2	Dual redundant supplies.
	180VA (faders idle)	
	225VA (all faders active)	
	200VA peak at startup	
D5	IEC power x 2	Dual redundant supplies. (rated 100-120V & 200-240V)
	250VA (faders idle)	
	300VA (all faders active)	
	350VA peak at startup	

Racks and Solutions Boxes data

All units listed below are rated for operation 90V-260V 50-60Hz auto sense (unless shown otherwise)

SD Rack	IEC power x 2	Dual redundant supplies.
	Stage rack (1/2 loaded) 160VA run	
	FOH rack (fully loaded) 200VA run	
	300VA peak at startup	
SD Mini	IEC power x 2	Dual redundant supplies.
	120VA run	
	300VA peak at startup	
SD Nano	IEC power x 2	Dual redundant supplies.
	80VA run	
	300VA peak at startup	
DigiRack/MadiRack	IEC power x 2	Dual redundant supplies.
	FOH rack (fully loaded) 175VA run	
D-Rack	IEC power x 1	
	100VA run	
	280VA peak at startup	
D-Rack Optional	IEC power x 2	Dual redundant supplies
	115VA run	
	350VA peak at startup	
	(both figures with fitted optional output card)	
D2-Rack	IEC power x 2	Dual redundant supplies
	100VA run and start	
	(fitted optional output card)	
DQ-Rack	IEC power x 2	Dual redundant supplies
	60VA run and start	
MQ-Rack	IEC power x 2	Dual redundant supplies
	55VA run and start	
Orange Box	IEC power x 2	Dual redundant supplies
	20VA run and start (maximum, dependent on actual modules fitted)	
	Empty chassis is approx. 6VA	
Purple Box	IEC power x 2	Dual redundant supplies
	15VA run and start	
Little Red Box	5V d.c. 0.5 A (via USB “B” socket)	
Little Blue Box	5V d.c. 0.5 A (via USB “B” socket)	