

Power Consumption

DESCRIPTION



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GENERAL

The MX-ONE™ consists of a number of products: MX-ONE Service Node, MX-ONE Classic, MX-ONE Lite, MX-ONE 1U and Telephones.

A proper powering strategy and a total power calculation for the complete installation must be done before power is connected to the system. The required power is depending on the particular system configuration i.e. number of telephone sets connected, the required battery back-up and so on. This document will give calculation values regarding power consumption of different types of boards, terminals, batteries and other equipment connected to the system.

Power consumption is generally speaking the amount of power that a device is consuming from a power source while power dissipation is the heat consumed by the board. Most equipment have the same values for power consumption and power dissipation but some, like ELU boards, are good examples where the dissipated power is far less than the consumed power.

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POWER CONSUMPTION

The tables in this document give the power consumption for each individual product included in MX-ONE. The calculation value for each product are typical power consumption values at normal operation i.e. not at idle or peak consumption operation.

Long cables between the line card and the terminals increase the power consumption. Add up to 20% extra margin for each terminal having long line cable >500m. More power will be needed when the cable is even longer, or thinner than 0,5mm.

2.1

IP TERMINALS IN MIVOICE MX-ONE

IP terminals are fed either from a PoE (Power Over Ethernet) equipment or from a local AC/DC adapter and is not loading the MX-ONE power supply as such. In order to be able to calculate the overall power consumption of the system the IP terminals must be included. See "Power Consumption" on page 3.

Table 1 Power Class and Maximum Power Consumption for SIP Phones

Device	Class Advertised
MiVoice Video/Conference	4 (See Note 2 and 3)
6863i	1
6865i	2
6865i with 1 (Phone Key Module) PKM	3
6865i with 2 PKMs	3
6865i with 3 PKMs	3
6867i	2
6867i with 1 PKM	3
6867i with 2 PKMs	3
6867i with 3 PKMs	3
6869i	3
6869i with 1 PKM	3
6869i with 2 PKMs	3
6869i with 3 PKMs	3
6873i	3
6873i with 1 PKM	4 (See Note 3)
6873i with 2 PKMs	4 (See Note 3)
6873i with 3 PKMs	4 (See Note 3)
6920	1
6920 with 1 M695 PKM	3 (See Note 6)
6920 with 2 M695 PKMs	3
6920 with 3 M695 PKMs	3
6930	3
6930 with DECT Headset	3
6930 with 1 M695 PKM	4 (See Notes 3 and 6)
6930 with 2 M695 PKMs	4 (See Notes 3 and 6)
6930 with 3 M695 PKMs + DECT Headset	4 (See Note 3)
6940	3
6940 with DECT Headset	3
6940 with 1 M695 PKM	4 (See Notes 3 and 6)
6940 with 2 M695 PKMs	4 (See Note 3)
6940 with 3 M695 PKMs	4 (See Note 3)
6940 with 3 M695 PKMs + DECT Headset	4 (See Note 3)
6970	3

Note 1: The MiVoice Video/Conference is an IEEE 802.3at (Type 2) Class 4 device. IEEE 802.3at (Type 2) Class 4 devices draw from 12.95 Watts to 25.5 Watts.

Note 2: Attention - Devices that require more than 12.95 watts are designated as IEEE 802.3at Class 4 devices. To operate correctly, all IEEE 802.3at Class 4 devices must be connected to a L2 PoE switch that is IEEE 802.3at compliant.

Some IEEE 802.3at L2 PoE switches require connected devices to send power allocation requests in excess of 12.95 W (Class 4 devices) using LLDP-MED. Therefore, Administrators must ensure that LLDP-MED is enabled on the L2 switch.

Alternatively, IEEE 802.3at Class 4 devices may be powered with an in-line IEEE 802.3at power injector, or if supported, an AC to DC adapter.

Note 3: The 6731i does not support PKMs under any powering scenarios.

Note 4: The following combinations cannot be powered via PoE; however, these sets can support a full complement PKMs when powered via an AC power adapter, for details refer to the 67xx product documentation.

- 6735i with more than one PKM - Must use an AC Power Adapter
- 6737i with more than one PKM - Must use an AC Power Adapter
- 6739i with PKMs - Must use an AC Power Adapter.

Note 5: Upon initial power up, these sets (with associated accessories) will advertise their power Class via IEEE 802.3at. Once these sets have completed power up, they will advertise modified power requirements via LLDP-MED that are less than what was reported by the IEEE 802.3at Class advertisements. However, the L2 switch must have LLDP-MED enabled to take advantage of the lower power advertisement.

Note: Some MiVoice IP phones do not support the optional classification feature, and the PSE connection defaults to Class 0 (15.4 Watts for the IP phones, which is more than they require). Some Ethernet switches can run into problems as they cannot supply 15.4 Watts to all ports simultaneously, so the Ethernet switch specifications should be considered prior to deploying phones.

Table 2 IP Phone Power Consumption - Listed by Phone Model Number

Device	Power consumption (W) (Worst Case Maximum)
MiVoice Video/Conference	The MiVoice Video/Conference unit can consume up to 25.5 Watts, however typical power consumption is less. For details refer to the MiVoice Video/Conference Engineering Guidelines.
6863i	2.2f
6865i	2.64
6865i with 1 PKM	4.74
6865i with 2 PKMs	7.08
6865i with 3 PKMs	9.42
6867i	3.8
6867i with 1 PKM	6.14
6867i with 2 PKMs	8.48
6867i with 3 PKMs	10.82
6869i	5.2
6869i with 1 PKM	7.54
6869i with 2 PKMs	9.88

Device	Power consumption (W) (Worst Case Maximum)
6869i with 3 PKMs	12.22
6873i	9.9
6873i with 1 PKM	12.24
6873i with 2 PKMs	14.58
6873i with 3 PKMs	16.92
6920	3.7
6920 with 1 M695 PKM	6.04
6920 with 2 M695 PKMs	8.38
6920 with 3 M695 PKMs	10.72
6930	7.9
6930 with DECT Headset	9.99
6930 with 1 M695 PKM	10.24
6930 with 2 M695 PKMs	12.58
6930 with 3 M695 PKMs	14.92
6930 with 3 M695 PKMs + DECT Headset	17.01
6940	9.9
6940 with DECT Headset	11.99
6940 with 1 M695 PKM	12.24
6940 with 2 M695 PKMs	14.58
6940 with 3 M695 PKMs	16.92
6940 with 3 M695 PKMs + DECT Headset	19.01
6970	9.9

Table 3 Typical Power Consumption for IP Terminals

Product Name	Product Number	Power Consumption
Mitel 6920	50006767	xW (See Table 2)
Mitel 6930	50006769	xW (See Table 2)
Mitel 6940	50006770	xW (See Table 2)
Mitel 6970	50008271	xW (See Table 2)
Mitel 6873	50006790	5W
Mitel 6869	80C00003AAA	5W
Mitel 6867	80C00002AAA	3W
Mitel 6865	80C00001AAA	2W
Mitel 6863	80C00005AAA	2W
Mitel 6739	A6739-0131	5W
Mitel 6737	A6737-0131	3W
Mitel 6735	A6735-0131	3W
Mitel 6731	A6731-0131	3W
Mitel 6730	A6730-0131	3W
Mitel 6757	A1757-0131	4W

Product Name	Product Number	Power Consumption
Mitel 6755	A1755-0131	4W
Mitel 6753	A1753-0131	4W
K680 Detachable keyboard	80C00008AAA-A	xW
WLAN Adapter	51305106 & 51304977	xW
M695 Expansion module, keys and display	50006874	xW
M680 Expansion module keys	80C00007AAA	0.3W
M685 Expansion module, keys and display	80C00010AAA	2W
M670 KPU, 36 extra keys	A1736-0000	0.3W
M675 DKPU, 3x20 with LCD	A1760-0000	2W
Mitel 5446 Premium, 7446	DBC 446 01	3W
Mitel 7444	DBC 444 01	3W
Mitel 7434	DBC 434 01	2W
Mitel 7433	DBC 433 01	2W
MiVoice 4425	DBC 425 02	3W
MiVoice 4422	DBC 422 02	3W
MiVoice 4420	DBC 420 02	3W
Key Panel Unit (KPU), 2x12	DBY 412 11	0.1W
Display Panel Unit (DPU), 2x12	DBY 412 21	0.3W
Option Unit (OPU 433,434,443)	DBY 412 02	2W
Option Unit (OPU 422,425)	DBY 420 01	0.1W

2.2

ANALOGUE TERMINALS IN MIVOICE MX-ONE

Table 4 shows the typical power consumption value for analogue terminals. The figures are only for the terminals themselves, the additional power required to compensate for long line cables are not included. See "Power Consumption" on page 3.

Table 4 Typical power consumption values for analogue terminals at off hook.

Product Name	Product Number	Power Consumption
7187a	DBC 187 21	0.5W
7147a	DBC 147 21	0.5W
7106a	DBC 106 21	0.3W

2.3

DIGITAL TERMINALS IN MIVOICE MX-ONE

Table 5 shows the typical power consumption for digital terminals. The figures are only for the terminals themselves, additional power required to compensate for long line cables are not included. See "Power Consumption" on page 3.

Table 5 Typical power consumption values for Digital terminals and accessories.

Product Name	Product Number	Power Consumption
MiVoice4225 Vision	DBC 225 02	1.0W
MiVoice 4223 Professional	DBC 223 01	0.7W
MiVoice 4222 Office	DBC 222 01	0.5W
MiVoice 4220 Lite	DBC 220 01	0.4W
MiVoice 4224 Operator	DBC 224 02	1.0W
Key panel unit	DBY 419 01	0.2W
Option unit	DBY 420 01	0.1W

2.4

DECT IN MIVOICE MX-ONE

The following table gives the power consumption for Integrated DECT base stations. Remember to add a margin for long cables. See “Power Consumption” on page 3.

For power consumption details, see chapter 6 “Powering” in the document “Installation Instruction”, doc. no. 6/1531-ANF90114.

Product Name	Power Consumption
BS33x from R4H	1.3W
BS34x from R4H	1.3W
BS330 prior R4H	3W
BS340 prior R4H	3W

2.5

BOARDS IN MIVOICE MX-ONE

Product Name	Product number	Typical Power Consumption	Max Power Consumption
ALU2	ROF1375373	20 W	40 W
ASU Lite	ROF1376307/31	20 W	40 W
ASU-II	ROF1376307/4	60 W	90 W
DC/DC	ROF1376303	12 W	25 W
ELU26	ROF1375321	13.5W	20 W
ELU31/4	ROF1375412	16 W *)	20 W *)
ELU33	ROF1375062	20 W **)	32 W **)
ELU34	ROF1375064	8.5 W	13 W ***)
MGU/MGU2	ROF1376304	10 W	15 W
MFU	ROF1375348	1.5 W	2 W
TLU76	ROF1375338	2.5 W	5 W
TLU77	ROF1375387	2.5 W	3 W
TLU79	ROF1375349	1.0 W	5 W
TLU80	ROF1375306	2.0 W	5 W
TLU83	ROF1376305	3.2 W	5 W
TMU	ROF1375335	1.5 W	3 W

*) For details on DECT power consumptions see chapter 6 “Powering” in the document “Installation Instruction”, doc. no. 6/1531-ANF90114

**) Average 1W/terminal is used.

***) At 0.4 Erlang

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POWER SOURCES

The 48V AC/DC power unit can deliver 800 to 1600W depending on configuration. The unit is adapted and mountable in 19" building practice. The unit supports up to 2 rectifiers each delivering 800W. The controller (PCC) and cables for battery are optional but recommended if battery back up are required.

The Mains power 110/240VAC can in some chassis (see below) be used.

3.1

MAXIMUM POWER CONSUMPTION IN MIVOICE MX-ONE CHASSIS

Note that approximately 10W is consumed internally for fans and backplane board for 1U and 3U units.

Product Name	Max. available Power
MX-ONE Classic (7U),	350-720W Only -48V *)
MX-ONE Lite (3U), 87L00039BAA-A	370W with -48V system power **) or 240W with internal AC/DC
MX-ONE 1U, 87L00032BAA-A	140W with -48V system power and 115 with internal AC/DC

*) The maximum available power is depending on revisions of the DC/DC board, ROF1376303, 350W for revisions up to R4A and 720W for R4B and later.

**) The maximum available power is limited by an internal fuse of 8A.