Mitel SUPERSET™ 630

OEM Fully Featured Digital Display Speakerphone

Features

- Digital 2B+D telephone Set
- Programmable µ-law/A-law
- Programmable Transmit and Receive Gains.
- Can comply with European or North American Handset requirements
- Digital Handset volume control.
- Speakerphone with digital receive volume control
- DTMF tone generation complies with both North American and European Standards
- Two Tone warbler with Digital Frequency and Level adjustment
- 240x64 dot graphics LCD with 6 associated keys
- Hearing aid compatible handset

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Ordering Information

9118-000-630-NA	SS630 (Arctic Grey)
9118-502-630-NA	SS630 (Charcoal Grey)

SS630 Functionality

The SS630 digital telephone operates in a stimulus fashion, which means that it must be instructed by the PBX system to invoke most of its functionality. To control the telephone, the system must establish link (MiLAP™) and network layer (MiNET™) communication via the D-channel. Once this communication is established, the system has control of the audio paths, tone generation and display functions in the telephone. The telephone in turn reports key depressions and certain other messages related to volume control and display states. The MiLAP and MiNET specifications, MTS21 and MTS22, describe this functinality in detail.

Certain functions are handled directly in the SS630, once communication has been established. These are DTMF tone generation, when dial pad keys are used, and volume control operation. The volume control keys affect the display contrast when no audio paths are enabled (7 levels), affect the handset receive level when thehandset audio is enabled (+/-9dB in 3dB steps), affect the speakerphone receive level when the speakerphone in enabled (+/-18dB in 3dB setps) and affect the ringer level when th ringer is enabled (+/-18dB in 3dB steps). In the case of the handset volume control, the level normally returns to nominal after the handset audio path is disabled, however, this function can be disabled via a MiNET command. For the other control functions, the resulting setting is maintained and reported to the sytem via MiNET commands.

Note: The SS630 incorporates OEM command codes and will not function with Mitel PBX's. This product, its specifications, and the information appearing in this document are subject to change without notice.

The SS630 meets the Electromagnetic Compatibility (Emissions) requirements of FCC Part 15 for Class B devices. The SS630 also meets the emissions and Immunity requirements of the European Community Directive 89/336/EEC for class B and Severity level 2. The SS630 is designed only for use with on-premise wiring.

Environmental Specifications

Specification	Min	Max	Units
Storage Temperature Range	-25	+70	C
Operating Temperature	0	+50	C
Storage/Operating Humidity (non-condensing)	0	90	%

Power

Specification	Min	Typ	Max	Units	Notes
Input Voltage range (power up)	24		56.5	Vdc	1
Input Voltage Range (operational)	17		56.5	Vdc	2
Idle Set Power		500	630	mW	3
Maximum Set Power		800	1000	mW	4

Notes:
1. Open circuit voltage required to start up the set's power supply, 150uf of capacitance must be charged to the minimum voltage.
2. Voltage required at the telephone set to maintain operation
3. Telephone set operational, but no call active
4. Call Ringing with Ringer Volume control adjusted to Maximum

AC Line Transmission

Specification	Min	Typ	Max	Units	Notes
Input Voltage	0.3		1.25	Vpp	5,6
Output Voltage	0.8	1.1	1.2	Vpp	5
Transmission Loop Length	0		1	Km	6,7

Notes:
5. Measured at the telephone set using termination circuit from MTS23 (Mitel DNIC Interface Spec.)
6. 26 AWG twisted pair wire, Attenuation = -11.5dB/Km
7. Loop length can also be limited by the power feed arrangement, see Power Feed information in MTS23

Handset Transmission (Acoustic to Digital, Digital to Acoustic)

Specification	Min	Typ	Max	Units	Notes
Transmit Loudness, TOLR (µlaw)	-38	-41	-44	dB	8,10
Transmit Sensitivity (µlaw) @1Khz	-31	-26	-21	dBv	8,10
Transmit Loudness, SLR (Alaw)	9	6	3	dB	9,10
Transmit Sensitivity (Alaw) @1Khz	-22	-17	-12	dBv	9,10
Receive Loudness, ROLR (µlaw)	50	47	44	dB	8,11
Receive Efficiency (µlaw) @1Khz	-8	-3	2	dBpa	8,11
Receive Loudness, RLR (Alaw)	1	-2	-5	dB	9,11
Receive Efficiency (Alaw) @1Khz	-9	-4	1	dBpa	9,11
Local Sidetone Loudness, SOLR (µlaw)	18	14	8	dB	8,10
Local Sidetone Loudness, STMR (Alaw)	23.5	17.5	11.5	dB	9,10

Notes:
8. µ-law half-channel parameters are measured and calculated according to the methods in IEEE Std.269 and 661, receive electrical input is -10dBv.
9. Alaw half-channel parameters are measured and calculated according to the methods in ITU rec. P.64, P.79, receive electrical input is -12dBv.
10. The Transmit levels can be made louder in 1dB increments up to 7dB, via the MiNET command Set Codec Gain, see MTS22.
11. The Receive loudness can be made quieter in 1dB increments up to 7dB, via the MiNET command Set Codec Gain, see MTS22. The receive loudness can also be adjusted +/- 6dB, in 3dB steps via the volume control keybuttons.

The SS630 handset is designed to meet the Peak acoustic pressure requirements of EIA/TIA-470-A and the Hearing Aid compatibility requirements of EIA/TIA-504.

DTMF Transmission

Specification	Min	Typ	Max	Units	Notes
Total Output Level (µlaw)	-4.5	-4	-3.5	dBm0	12
Total Output Level (Alaw)	-10.5	-10	-9.5	dBm0	12
Pre-twist	1.5	2	2.5	dB	12
Frequencies	-1.5	standard	+1.5	%	12

Notes:
12. Measured on a B-channel, applicable to all 12 of the standard tone pairs.

Speakerphone Transmission (Acoustic to Digital, Digital to Acoustic)

Specification	Min	Typ	Max	Units	Notes
Transmit Sensitivity (µlaw) @1Khz	-21	-16	-11	dBv	13,15
Transmit Sensitivity (Alaw) @1Khz	-12	-7	-2	dBv	14,15
Receive Sensitivity (µlaw) @1Khz	-19	-14	-9	dBV	13,16
Receive Sensitivity (Alaw) @1Khz	-20	-15	-10	dBV	14,16

Notes:
13. Measured according to the methods described in EIA/TIA-470-A, at all frequency combinations.
14. The ringer level can be adjusted down 36dB, in 3dB steps via the volume control keybuttons.
15. The transmit sensitivity can be increased in 1dB increments up to 7dB, via the MiNET command Set Codec Gain, see MTS22.
16. The Receive efficiency is measured at maximum volume. It can be reduced in 1dB increments up to 7dB, via the MiNET command Set Codec Gain, see MTS22. The receive level can also be adjusted down at least 30dB, in 3dB steps via the volume control key buttons.

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Ringer Level

Specification	Min	Typ	Units	Notes
Maximum Ringer Sound Power	80	86	dBA	17,18

Notes:
17. Measured according to the methods described in EIA/TIA-470-A, at all frequency combinations.
18. The ringer level can be adjusted down 36dB, in 3dB steps via the volume control keybuttons.

The ringer frequencies can be adjusted via the volume control keys when the set has been put into the ringer demo mode via the MiNET command Define Audio Mode, see MTS 22. In the SS630 the following ringer frequency combinations are available.

Ringer Frequency Pairs

High Tone	Low Tone	Warble Rate	Units
364	444	5 or 10	Hz
400	615	5 or 10	Hz
444	666	5 or 10	Hz
471	727	5 or 10	Hz
800	1143	5 or 10	Hz
1143	1600	5 or 10	Hz
1333	1600	5 or 10	Hz
1333	2000	5 or 10	Hz

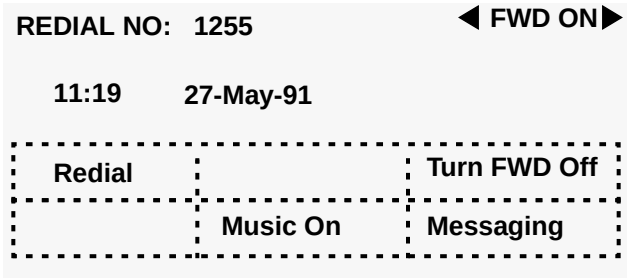
SS630 Functional Parameters

	Parameter	Value	Remarks
Physical Layer	Sync Debounce time	200 ms	Time to detect or lose sync once DNIC programmed.
	GoAhead Protocol Support	YES	GoAhead and NonGoAhead modes supported - see MTS20.
Link Layer	Link Address Used	$00	As specified in MTS21.
	T200	600 ms	Re-transmission time - refer to MTS21
	N200	7	Number of re-transmissions before link reset - refer to MTS21
	Transmit Window Size	3	Maximum number of outstanding I frames (k) at any time for each particular direction - refer to MTS21.
	Receive Window Size	3	
Network Layer	Set ID Used	$95	The octet reported in the Report SetID MT - refer to MTS22.
	Max. Transmit Iframe Size	8	excluding address & controlbytes
	Max. Receive Iframe Size	253	excluding address & control bytes
	Bundling Support	YES	Minet frames can be bundled together to the SS630 in one packet.

LCD Display

The SS430 has a 4 line x 40 character Dot Matrix LCD. Figure 1 shows a typically configured SS430 display. The information displayed on the LCD is contained by a specific display buffer within the Set. Various MiNET messages are used to configure the display buffers. The following shows a display that has 2 lines of ASCII text followed by 6 prompt boxes. The prompt box lines are displayed by the Set when prompt boxes are enabled by the host system, and conversely removed by the Set when disabled by the host system. The prompt boxes are usually associated with the 6 corresponding Soft Keys positioned below the LCD.

The LCD contrast adjustment is made by the VOLUME UP/DOWN keys when the Set is idle (i.e. handset, handsfree, music, or ringer is not enabled).



Display Buffers

The SS430 will support 5 display buffers. Each buffer will support:

- 4 line x 40 characters
- 1 display cursor indicator (Block or Underline)
- 3 general purpose cursors
- 6 x 12 chars. prompt fields
- up to 40 Delayed Update characters

Prompt Table

The SS430 can store up to 128 prompt names in its Prompt Table. Each prompt name can have a maximum of 12 characters.

Extended ASCII Character Set

The SS430 will support the Extended ASCII Character Set as defined in MTS22. The SS430 will also support the following pre-defined character set.

Pre-Defined Character Set

The SS630 will support the downloading of special characters, but the Set requires the reservation of several Extended ASCII character values for its own local use. Therefore, only the character values in the range of $A2 to $B4 inclusive will be supported.

Downloading of special characters can only be accomplished with the use of the *Define Character Pattern* (MT=$30) MiNET message. Only a character pattern of DX = 8 and DY = 6 will be supported by the Set for the *Define Character Pattern* message.

Pre-Defined Character Set

$80	solid block	$81	right solid arrow
$82	left solid arrow	$83	small block
$84	Ñ	$85	not used
$86	not used	$87	not used
$88	ù (fr. u acc. grave)	$89	î (fr. i acc. circonflexe)
$8A	ô (fr. o acc. circonflexe)	$8B	ë (fr. e trema)
$8C	prompt delimiter	$8D	thick dash
$8E	÷	$8F	£ (English pound)
$90	x (multiply)	$91	decimal point
$92	ï (fr. i trema)	$93	ü (sp fr & gr u trema)
$94	happy face	$95	telephone icon
$96	checkerboard	$97	*
$98	unused	$99	° (degree sign)
$9A	à (fr. a acc. grave	$9B	é (sp & fr e eacute)
$9C	(fr e acc grave)	$9D	ê (fr e acc circon)
$9E	û (fr u acc circon)	$9F	ç (fr c cedille)
$A0	ö (umlaut 'o')	$A1	ä (umlaut 'a')

SS600 Family Feature Summary

	SS601+	SS610	SS620	SS622	SS630
Keybuttons	23	28	37	30	38
LCD Indicators	-	6	12	30	12
LED Indicators	2	2	2	-	2
Alphanumeric Display	-	-	2x16	-	4x40
Soft-keys	-	-	3	-	6
Speakerphone	-	Yes	Yes	-	Yes
MiNET ID Code	92*	93*	94*	96*	95*
PKM Expansion Jack	-	Yes	Yes	-	Yes

* Hexadecimal

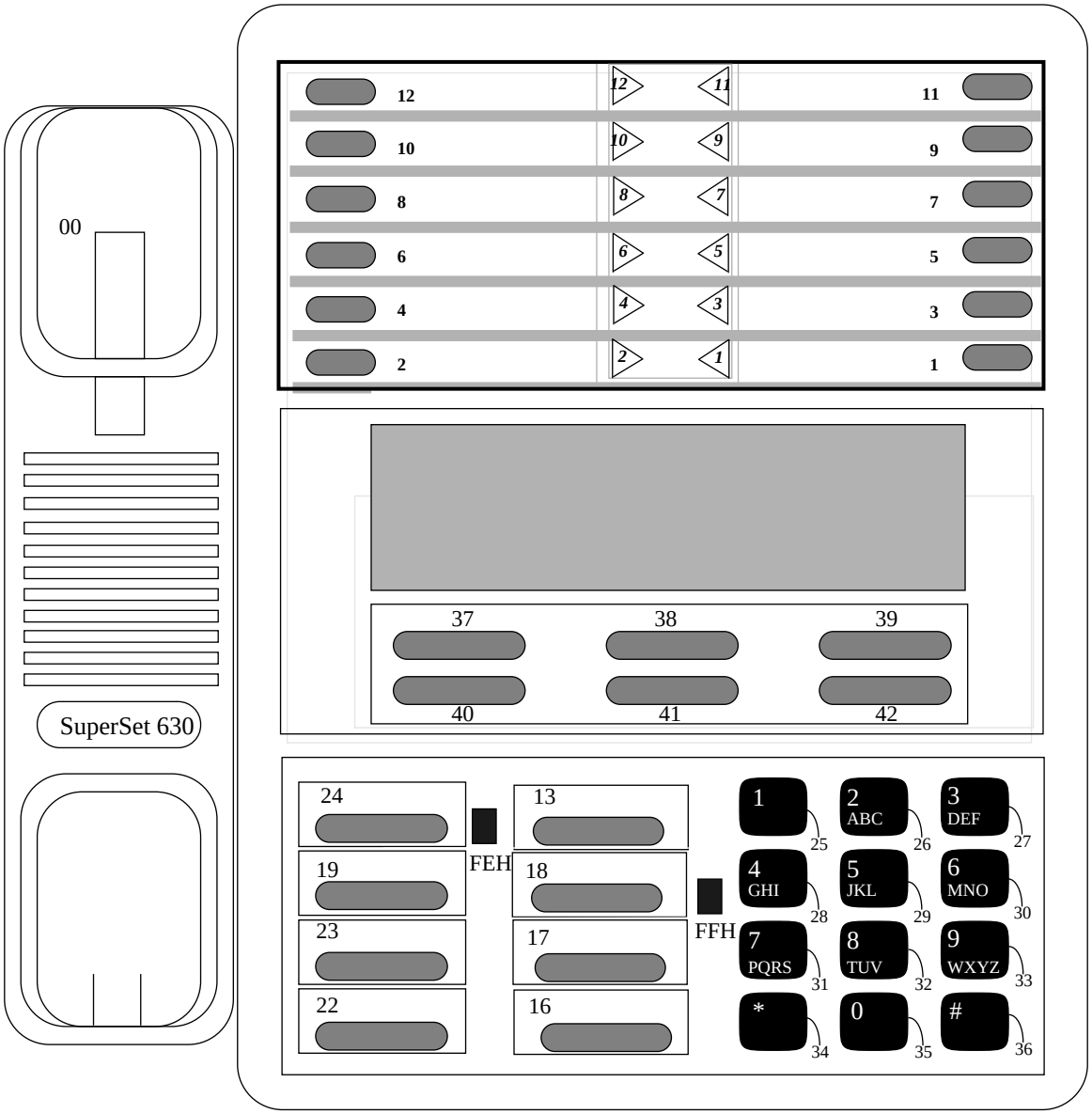
"This product is intended to be a peripheral device to commerical network connecting equipment and has been designed to be in compliance with the applicable sections of the current US regulatory requirements and standards listed below:

- FCC Part 68 rules for terminal connection requirements to the public switched telephone network.

- FCC Part 15 Subpart B, regulations specifying limits for electromagnetic emissions of digital apparatus.

- UL/ANSI 1459 Second Edition specifying product safety requirements for telephone equipment.

REGULATORY APPROVAL IS DEPENDENT UPON THE HOST SYSTEM AND THE METHOD BY WHICH THE SET IS CONNECTED AND IS THE RESPSONSIBILITY OF THE LICENSEE."



NOTE: All numerical values are decimal unless indicated otherwise (H=hex).

SS630 Illustration

Notes: