

Feature Comparison: KL-43 Family of Cryptographic Devices

Feature	KL-43C & F	KL-43D	KL-43E	KL-43G	KL-43H
Word Processing					
Plain or Cipher Text Entry; Word Wrap; Text Search; Cursor Control (up, down, left, right, beginning/end of line or text); Delete Character, Delete Word	x	x	x	x	x
Keyboard (A-Z, 0-9, comma, slash, period, space, zero, clock, question mark, enter, exit, 8 cursor control keys, delete character, delete word, and search)	x plus open & close parens"()"	x	x	x	x
Message Capacity (2600 Character Maximum, Deleted at power down)	Dual	Single	Single	Single	Single
Message Review (Red or Black text displayed on KL-43)	x	x	x	x	x
Encryption/Decryption	x	x	x	x	x
Key Management (Storage, Zeroize, Naming, Update)	x	x	x	x	x
Authentication	x	x	x	x	x
Printer Interface (Connector) (Red or Black Messages)	Serial I/O 1200 baud (U-229)	Parallel I/O (D-36)	Parallel I/O (D-36)	Parallel I/O (D-36)	Parallel I/O (D-36)
View Angle Control (KL-43 display contrast)	Keyboard Menu Selection	Panel Knob	Panel Knob	Panel Knob	Panel Knob
Quiet Mode (No audible tones emitted)	x				
Real Time Clock	x	x	x	x	x
Dual Language Prompts Available	F only			x	x

Notes:

1. All parameters are nominal unless otherwise noted.
2. TRW continues to improve its products. Changes to the KL-43 devices which affect the user are controlled under NSA's Authorized Vendor and/or Commercial COMSEC Endorsement Programs. This document is a compilation of product features and is subject to change without notice.

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Feature	KL-43C & F	KL-43D	KL-43E	KL-43G	KL-43H
Communication (mating connector needed)					
Audio (FSK Modem)					
Acoustic Adapter to Handset	Built In	External Adapter (5 pin DIN-M)	External Adapter (5 pin DIN-M)	External Adapter (5 pin DIN-M)	External Adapter (5 pin DIN-M)
Direct Cable to Telephone		X (RJ-11)	X (RJ-11)	X (RJ-11)	X (RJ-11)
Direct Cable to Radio	X (U-229)	X (5 pin DIN-M)	X (5 pin DIN-M)	X (5 pin DIN-M)	X (5 pin DIN-M)
False Sync Immunity	X				
Enhanced Noise Immunity	KL-43F (C 1.6.9 and later s/w)				
Digital (RS-232) to PC or Communication Channel	50-19.2kbs (U-229)	Opt. Ext. Adapter (300bps)	Opt. Ext. Adapter (300bps)	Opt. Ext. Adapter (300bps)	Opt. Ext. Adapter (300bps)
Digital Sync Time	750 msec (400 msec for C ver. 1.7.0 and prior)				
Push-To-Talk (PTT) Radio Control	(U-229)				
Red Message Output	Print to Printer or PC	Print to Printer	Print to Printer	Print to Printer	Print to Printer
Red Message Input (keyboard only)	X	X	X	X	X
Black Message Output	Printer, Modem or Digital	Printer or Modem (digital with opt. adapter)	Printer or Modem (digital with opt. adapter)	Printer or Modem (digital with opt. adapter)	Printer or Modem (digital with opt. adapter)
Black Message Input	Modem, Digital or Keyboard	Modem or Keyboard (digital w/opt. adptr)	Modem or Keyboard (digital w/opt. adptr)	Modem or Keyboard (digital w/opt. adptr)	Modem or Keyboard (digital w/opt. adptr)

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Feature	KL-43C & F	KL-43D	KL-43E	KL-43G	KL-43H
Power					
Power Control	Keyboard Button	Rear Switch	Rear Switch	Rear Switch	Rear Switch
External (connector)		12 VDC from 110/220 VAC adapter (3.5mm)	12 VDC from 110/220 VAC adapter (3.5mm)	12 VDC from 110/220 VAC adapter (3.5mm)	12 VDC from 110/220 VAC adapter (3.5mm)
Battery (Alkaline or NiCd)	4xAA	4xAA	4xC	4xAA	4xC
Battery Operation Time [Alk/NiCd(hrs)]	24/8	24/8	72/24	24/8	72/24
Internal Recharging of NiCd Battery		x	x	x	x
TEMPEST Tested	NACSIM 5100A				
EMI/EMC	MIL-STD-461 Class A1b, A3, A4	Design Qualified to FCC Part 15 Level A	Design Qualified to FCC Part 15 Level A	Design Qualified to FCC Part 15 Level A	Design Qualified to FCC Part 15 Level A
Environmental	Tested Per MIL-STD-810D (rain,temp. dust, altitude, submersion, drop, humidity,salt fog, fungus)	Office / Protected	Office / Protected	Office / Protected	Office / Protected
Physical Dimensions					
Width [inch(cm)]	6.6(16.8)	10.5(26.7)	10.3(26.0)	10.5(26.7)	10.3(26.0)
Depth "	3.7(9.5)	5.5(14.0)	9.3(23.5)	5.5(14.0)	9.3(23.5)
Height "	1.7(4.3)	1.5(3.8)	2.0(5.1)	1.5(3.8)	2.0(5.1)
Weight w/batteries [lbs (kg)]	2.0(.9)	1.8(0.8)	3.0(1.4)	1.8(0.8)	3.0(1.4)

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Feature	KL-43C & F	KL-43D	KL-43E	KL-43G	KL-43H
Standard Accessories	Alk Batty & Manual	Carrying Bag, Power Supply, Telephone Line Cord, Acoustic Adapter, & Manual	Carrying Bag, Power Supply, Telephone Line Cord, Acoustic Adapter, & Manual	Carrying Bag, Power Supply, Telephone Line Cord, Acoustic Adapter, & Manual	Carrying Bag, Power Supply, Telephone Line Cord, Acoustic Adapter, & Manual
Optional Accessories	Radio & PC Interface Cables, Carrying Bag	Radio Interface Cables & Digital Adapter (RS-1)	Radio Interface Cables & Digital Adapter (RS-1)	Radio Interface Cables & Digital Adapter (RS-1)	Radio Interface Cables & Digital Adapter (RS-1)
Available Printer	TP-40S	TP-40P	TP-40P	TP-40P	TP-40P

Feature Comparison - KL-43 Family

INTERFACE DETAILS

ACOUSTIC INTERFACE:

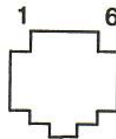
Provides 95 dBa Sound Pressure Level (SPL) output in US LINES mode, 80 dBa in EUROPEAN LINES mode. (Pressure measured 1/8" from speaker.) This generates a -12 dBm level on the Tip/Ring of a US phone line (-17 dBm on European phones with internal amplifiers).

Input level range is -35dBm to 0 dBm from a telephone line through the handset. (The is the approximate listening level using an H-250 handset.)

Acoustic Interface is provided either a) Directly through the supplied Line Cord which connects the RJ-11 connectors on the KL-43D, E, G & H to a modular jack on the phone system or b) through the Acoustic Adapter to a telephone or radio handset.

RJ-11 (LINE & TELEPHONE): (KL-43D, E, G & H)

Connection point for DIRECT wiring to telephone system.



Pin	Function
LINE Jack	Used to interface to telephone system.
1	No Connection
2	PHONE Jack pin 5
3 & 4	2 wire 600 ohm balanced, -12 dBm output, -35 to +5 dBm input (as measured on Tip/Ring of phone line), DC holding circuit in DIRECT position of TALK/DIRECT switch
5	PHONE Jack pin 2
6	No Connection
PHONE Jack	Used to connect to telephone (with supplied Telephone Line Cord). Disconnected during KL-43 Transmit and Receive (KL-43 switch in Direct position) to eliminate coupling of background noise.
1	No Connection
2	LINE Jack pin 5
3 & 4	LINE Jack pins 4 & 3 in TALK, open in DIRECT
5	LINE Jack pin 2
6	No Connection

5 PIN CIRCULAR DIN (ACOUSTIC ADAPTER): (KL-43D, E, G & H ONLY)

Connection for Acoustic Adapter or separately supplied Radio Interface Cable (TRW p/n 410-532-1).



Pin	Function
1	Audio Input to KL-43 (-35dBm to -5 dBm, 4K ohm)
2, 4, & 5	Ground
3	Audio Output from KL-43 (-9dBm; 200mV _{rms} ; 8 Ohm)

(Interface levels are on the Tip/Ring of a telephone line coupled through the Acoustic Adapter provided with the KL-43 device.)

6 PIN AUDIO (U/329) CONNECTOR: (KL-43C & F ONLY)

Pin	Function		
	Audio Interface to Radio	Digital Interface to Communications Device or PC	Digital Interface to Printer
A	Signal Ground		
B	Audio Input to KL-43 (10 - 350 mV _{rms} into 1200 Ohms)		
C	Push-to-Talk (relay closure to Signal Ground 50 msec prior to data output from KL-43), 1 ampere maximum		
D	Audio Output from KL-43 (20 mV _{rms} into 134 Ohms)		
E		Digital Data Input to KL-43	Clear To Send (or Data Terminal Ready) from printer
F		Digital Data Output from KL-43	Data to Printer (baud rate fixed at 1200)
Shield	Case Ground		

D-36 (PRINTER): (KL-43D, E, G & H)

Pin	Function
1	STROBE
2-9	Data 1-8
10,12-18,32,34-36	No Connection
11	Printer Busy
19-30, 33	Ground
31	Initialize

All signals are TTL

DIGITAL DATA SPECIFICATIONS: (KL-43C & F)

Start Bits	1
Stop Bits	2
Parity	None
Data Bits	8
BAUD Rates	50, 75, 150, 300, 600, 1200, 2400, 4800, 9600, 19200 bps asynchronus (Above are nominal interface rates. Actual rates differ slightly but meet the interface requirements for a nominal RS-232 device. Actual rates are 50, 75, 150, 300, 601, 1202, 2404, 4808, 9868, and 18750 $\pm 0.2\%$)
Meets RS-232C except for risetime specification at 9600 and 19200 bps	
Compatible with RS-423 within risetime constrains for RS-232 above.	
Compatible with MIL-STD-188C and MIL-STD-188-114A with the following exceptions:	
Max. Output Voltage	± 9 VDC
Max. Input Voltage	± 30 VDC
Rise Time	≤ 7 usec (measured through ± 3 VDC)
Source Impedance	300 Ohms