

# Product Specification

W51PC, W51LAN, W41PC MK-II, W41USB and W40PC

Transmission Modes	HF-Classifier W51CL	W51PC W51LAN	W41PC W41USB	W40PC
Software Version	6.1.50	6.1.50	5.6.00	5.6.00
1. ACARS		✓	✓	✓
2. AIS		[✓]	N/A	N/A
3. ALF-RDS	+	✓	N/A	✓
4. ALIS	±	✓	✓	✓
5. ALIS-2	-	✓	✓	✓
6. AMSAT-P3-D		✓	N/A	✓
7. ARQ6-90	+	✓	✓	✓
8. ARQ6-98	-	✓	✓	✓
9. ARQ-E	+	✓	✓	✓
10. ARQ-E3	+	✓	✓	✓
11. ARQ-M2-242	+	✓	✓	✓
12. ARQ-M2-342	+	✓	✓	✓
13. ARQ-M4-242	+	✓	✓	✓
14. ARQ-M4-342	+	✓	✓	✓
15. ARQ-N	+	✓	✓	✓
16. ASCII	+	✓	✓	✓
17. ATIS (Selcal Digital)	+	✓	✓	✓
18. AUM-13	-	✓	N/A	✓
19. AUTOSPEC	+	✓	✓	✓
20. BAUDOT	+	✓	✓	✓
21. BR6028	-	✓	✓	✓
22. BULG-ASCII	+	✓	✓	✓
23. CCIR-1 (Selcal Analog)		✓	✓	✓
24. CCIR-7 (Selcal Analog)		✓	✓	✓
25. CCITT (Selcal Analog)		✓	✓	✓
26. CIS-11	+	✓	✓	✓
27. CIS-14	+	✓	✓	✓
28. CIS-36	(34)	✓	✓	✓
29. CIS-36-50	+	✓	N/A	✓
30. CIS-50-50	+	✓	N/A	✓
31. CODAN	+	✓	✓	✓
32. COQUELET-13	±	✓	✓	✓
33. COQUELET-8	±	✓	✓	✓
34. COQUELET-80	±	✓	✓	✓
35. CTCSS (Selcal Analog)		✓	✓	✓
36. CW-MORSE	+	✓	✓	✓
37. DCS SELCAL	+	✓	N/A	✓
38. DGPS	+	✓	✓	✓
39. DTMF (Selcal Analog)		✓	✓	✓
40. DUP-ARQ	+	✓	✓	✓
41. DUP-ARQ-2	+	✓	✓	✓
42. DUP-FEC-2	+	✓	✓	✓
43. EEA (Selcal Analog)		✓	✓	✓
44. EIA (Selcal Analog)		✓	✓	✓
45. ERMES		✓	✓	✓
46. EURO (Selcal Analog)		✓	✓	✓
47. FEC-A	+	✓	✓	✓

Transmission Modes	HF-Classifier W51CL	W51PC W51LAN	W41PC W41USB	W40PC
Software Version	6.1.50	6.1.50	5.6.00	5.6.00
48. FELDHELL	-	✓	✓	✓
49. FLEX		✓	✓	✓
50. FM-HELL	+	✓	✓	✓
51. FMS-BOS (Selcal Digital)		✓	✓	✓
52. GMDSS/DSC-HF	+	✓	✓	✓
53. GMDSS/DSC-VHF/UHF		✓	✓	✓
54. GOLAY		✓	✓	✓
55. G-TOR	+	✓	✓	✓
56. G-TOR with different code table	+	✓	✓	✓
57. GW-CLOVER	+	*	N/A	N/A
58. GW-PACTOR	+	*	N/A	N/A
59. HC-ARQ	+	✓	✓	✓
60. HF-ACARS (HF DL)	-	✓	N/A	✓
61. HNG-FEC	+	✓	✓	✓
62. ICAO-SELCAL (ANNEX 10)		✓	✓	✓
63. INMARSAT™ (see SAT-A/B/C/M/mM)		*	*	N/A
64. METEOSAT		✓	✓	✓
65. MFSK-16	±	✓	✓	✓
66. MFSK-20	-	✓	N/A	✓
67. MFSK-8	-	✓	✓	✓
68. MIL-188-110A Serial Tones, 75-4800 bps	+	✓	N/A	N/A
69. MIL-188-110A, 16 Tones	±	[*]	N/A	N/A
70. MIL-188-110A, 39 Tones	-	[*]	N/A	N/A
71. MIL-188-110B (App. C) 3200-12800 bps		[*]	N/A	N/A
72. MIL-188-110B, 16 Tones	±	[*]	N/A	N/A
73. MIL-188-110B, 39 Tones	-	[*]	N/A	N/A
74. MIL-188-141A (ALE)	+	✓	✓	✓
75. MPT-1327	+	✓	✓	✓
76. NATEL (Selcal Analog)		✓	✓	✓
77. NMT-450	+	✓	N/A	✓
78. NOAA-GEOSAT		✓	✓	✓
79. PACKET-1200	±	✓	✓	✓
80. PACKET-300/600	+	✓	✓	✓
81. PACKET-9600		✓	✓	✓
82. PACTOR 1-8	✓	✓	✓	✓
83. PACTOR-II 1-8	±	✓	✓	✓
84. PACTOR-II-FEC 1-8	+	*	*	N/A
85. PICCOLO-MK12	±	✓	✓	✓
86. PICCOLO-MK6	±	✓	✓	✓
87. POCSAG		✓	✓	✓
88. POL-ARQ	+	✓	✓	✓
89. PRESS-FAX		✓	✓	✓
90. PSK-125F	+	✓	✓	✓
91. PSK-31	+	✓	✓	✓
92. PSK-63F	+	✓	✓	✓
93. RUM-FEC	+	✓	✓	✓
94. SAT-A-TELEX		*	*	N/A
95. SAT-B-F (Forward, TELEX, FAX, VOICE, DATA)		[*]	N/A	N/A
96. SAT-C-TDMA (Inmarsat™)		*	N/A	N/A
97. SAT-C-TDM (Inmarsat™)		*	*	N/A
98. SAT-M-F (Forward, DATA, FAX)		[*]	N/A	N/A
99. SAT-M-R (Return, DATA, FAX)		[*]	N/A	N/A
100. SAT-mM-F (Forward, DATA, FAX)		[*]	N/A	N/A

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Software Version	6.1.50	6.1.50	5.6.00	5.6.00
101. SAT-mM-R (Return, DATA, FAX)		[*]	N/A	N/A
102. SAT-M/mM (VOICE)		[*]	N/A	N/A
103. SI-ARQ	+	✓	✓	✓
104. SI-AUTO	+	✓	✓	✓
105. SI-FEC	+	✓	✓	✓
106. SITOR-ARQ	+	✓	✓	✓
107. SITOR-AUTO	+	✓	✓	✓
108. SITOR-FEC	+	✓	✓	✓
109. SKYPER (POCSAG)		✓	✓	✓
110. SP-14	-	*	*	N/A
111. SPREAD-11	+	✓	✓	✓
112. SPREAD-21	+	✓	✓	✓
113. SPREAD-51	+	✓	✓	✓
114. SSTV Automatic		✓	✓	✓
115. SSTV Martin 1 & 3		✓	✓	✓
116. SSTV Martin 2 & 4		✓	✓	✓
117. SSTV Robot 12s		✓	✓	✓
118. SSTV Robot 24s		✓	✓	✓
119. SSTV Robot 36s		✓	✓	✓
120. SSTV Robot 8s		✓	✓	✓
121. SSTV SC-1 16 & 32s		✓	✓	✓
122. SSTV SC-1 8s		✓	✓	✓
123. SSTV Scottie 1 & 3		✓	✓	✓
124. SSTV Scottie 2 & 4		✓	✓	✓
125. SSTV Wraase SC-1 24 & 48s		✓	✓	✓
126. SSTV Wraase SC-1 48 & 96s		✓	✓	✓
127. SSTV Wraase SC-2 120s		✓	✓	✓
128. SSTV Wraase SC-2 180s		✓	✓	✓
129. SSTV Wraase SC-2 30 & 60s		✓	✓	✓
130. STANAG 4285 75-3600 bps	+	✓	N/A	N/A
131. STANAG 4415 75 bps (NATO ROBUST)	-	*	N/A	N/A
132. STANAG 4529 75-1800 bps	-	✓	N/A	N/A
133. STANAG 4539 3200-12800 bps		[*]	N/A	N/A
134. STANAG 5066		[*]	N/A	N/A
135. SWED-ARQ	+	✓	✓	✓
136. TWINPLEX ARQ	-	✓	✓	✓
137. VDEW (Selcal Analog)		✓	✓	✓
138. WEATHER-FAX	-	✓	✓	✓
139. ZVEI-1 (Selcal Analog)		✓	✓	✓
140. ZVEI-2 (Selcal Analog)		✓	✓	✓
141. ZVEI-VDEW (Selcal Digital)		✓	✓	✓

Alphabets	W51PC /LAN	W41PC W41USB	W40PC
ITA-1 Latin, 5 bit	✓	✓	✓
ITA-2 Latin, 5 bit	✓	✓	✓
ITA-2 Latin Transparent, 5 bit	✓	✓	✓
ITA-2 Cyrillic, 5 bit	✓	✓	✓
ITA-2 Hebrew, 5 bit	✓	✓	✓
ITA-2 Swedish, 5 bit	✓	✓	✓
ITA-2 Danish-Norwegian, 5 bit	✓	✓	✓
Baghdad70 Arabic, 5 bit	✓	✓	✓
Baghdad80 Arabic, 5 bit	✓	✓	✓

TASS Cyrillic, 5 bit	✓	✓	✓
Third Shift Cyrillic, 5 bit	✓	✓	✓
Third Shift Greek, 5 bit	✓	✓	✓
ITA-5 US, 7 bit ASCII	✓	✓	✓
ITA-5 German, 7 bit ASCII	✓	✓	✓
ITA-5 Swedish, 7 bit ASCII	✓	✓	✓
ITA-5 Danish-Norwegian, 7 bit ASCII	✓	✓	✓
ITA-5 Bulgarian, 7 bit ASCII	✓	✓	✓
ITA-5 Chinese, 7 bit ASCII	✓	✓	✓
ITA-5 French, 7 bit ASCII	✓	✓	✓
SITOR, 7 bit	✓	✓	✓
ARQ1A, 7 bit	✓	✓	✓
Bauer, 10 bit t	✓	✓	✓
HNG-FEC, 15 bit	✓	✓	✓
RUM-FEC, 16 bit	✓	✓	✓
Latin Morse	✓	✓	✓
Cyrillic Morse	✓	✓	✓
Greek Morse	✓	✓	✓
Arabic Morse	✓	✓	✓
Hebrew Morse	✓	✓	✓
Wavecom UNICODE Font	✓	✓	✓

Demodulators	W51PC W51LAN	W41PC W41USB	W40PC
Demodulator FSK, Baudrate range: 10-2400	✓	✓	✓
Demodulator FFSK, Baudrate range:10-12000	✓	✓	✓
Demodulator GFSK, Baudrate range:10-12000	✓	✓	✓
Demodulator 4FSK, Baudrate range: 10-3250	✓	✓	✓
Demodulator MFSK, Tone length 4 – 1000 ms / max. 64 Tones	✓	✓	✓
Demodulator BR6028 Modem, 7 FDM channels ± 85 Hz, Pilot-Tone 561Hz	✓	✓	✓
Demodulator DPSK, 2DPSK - 16DPSK, 10 – 2400 symbols/s	✓	✓	✓
Demodulator DPSK dual carrier adaptive modulation, 2DPSK-16DPSK, 200 baud	✓	✓	✓
Demodulator BPSK (symbols/s)	10–12000	10–2400	10–2400
Demodulator QPSK (symbols/s)	10–12000	10–2400	10–2400
Demodulator OQPSK (symbols/s)	10–12000	N/A	N/A
Demodulator CW Morse (WPM)	10-500	10-500	10-500
Demodulator AM-FAX, Carrier 2.4 kHz	✓	✓	✓
Demodulator bit error rate (white Gaussian noise, non fading channel)	within 3 dB of theory	within 3 dB of theory	Within 3 dB of theory

Analysis Modes	W51PC W51LAN	W41PC W41USB	W40PC
Real time FFT with adjustable cursors, 10-20 frames/sec, 4096 points	✓	✓	✓
FFT bandwidth 500 Hz, 1 kHz, 4 kHz, 24 kHz	✓	✓	✓
FFT bandwidth 2 kHz, 48 kHz, 96 kHz	✓	N/A	N/A
FFT Averaging	1 - 64	1 - 64	1 - 64
FFT windows types	4	4	4
Real time Waterfall display with cursor functions	✓	✓	✓
Real time Sonagram display with cursor functions	✓	✓	✓
Real time Oscilloscope: Up to 200 us/div display of the time signal from any of the input ports	✓	✓	✓
HF FSK Baudrate analysis with graphical display and cursor functions (Baud)	30 – 1000	30 – 1000	30 – 1000
VHF/UHF FSK Baudrate analysis with graphical display and cursor functions	✓	N/A	✓

Analysis Modes	W51PC W51LAN	W41PC W41USB	W40PC
FSK Baudrate sonagram display with full graphical recall / averaging and cursor functions	✓	✓	✓
HF Shift analysis with graphical display and cursor functions (Hz)	5 – 3500	5 – 3500	5 – 3500
VHF/UHF Shift analysis with graphical display and cursor functions, automatic noise gate	✓	N/A	✓
FSK Shift sonagram display with graphical recall/averaging, cursor functions	✓	✓	✓
Symbol rate measurement and graphical display, cursor functions (baud)	30–24000	30–4000	30–4000
OQPSK measurement with phase plane display (baud)	25–12000	N/A	N/A
BPSK, QPSK measurement with phase plane display (baud)	25–12000	25–2400	25–2400
DPSK measurement with phase plane display (baud)	25–2400	25–2400	25–2400
QAM analysis with eye diagram	[✓]	N/A	N/A
Determination of the frequency shift with movable cursors	✓	✓	✓
Autocorrelation length, maximum no of bits	200'000	200'000	200'000
Autocorrelation, X-Y zoom with continuous numeric display of cursor position	✓	✓	✓
Bit Analysis with continuous variable line length, freely selectable cursor step size, continuously display of extracted alphabet and bit pattern, simultaneous display of LTRS and FIGS cases with normal or inverted polarity and selectable MSB/LSB function, programmable code interleaving with graphic highlighting of bit position	[✓]	N/A	N/A
Bit length analysis. Graphical display of demodulated data, with automatic calculation of bit length analysis with bit pattern display.	✓	✓	✓
Raw FSK Analysis: Graphical display of demodulated data on a raster time line. For visual recognition of character and block lengths.	✓	✓	✓
HF MFSK Analysis: Graphical display of FSK data for MFSK signal analysis.	✓	✓	✓
VHF/UHF Selcal analysis: Graphical display of FSK data for Selcal signal analysis.	✓	✓	✓
Bitstream: Raw, synchronized FSK bitstream available through DCOM interface. (Description of DCOM interface and source code of demo program included)	*	*	N/A
Bitstream: Raw, synchronized PSK bitstream available through DCOM interface	*	N/A	N/A
MFSK bitstream available through DCOM interface.	[*]	N/A	N/A

Additional Functions	W51PC W51LAN	W41PC W41USB	W40PC
1 channel INMARSAT M/mini-M Monitoring System, with FAX-Viewer	*	N/A	N/A
1 channel INMARSAT C TDM Monitoring System (with database)	*	*	N/A
Multi Channel INMARSAT C TDM Monitoring System (with database)	Option	Option	N/A
Database controlled receiver and decoder control application	Option	Option	Option
Classifier	Option	N/A	N/A
Full functionality over LAN with SERVER CONTROL	✓	✓	N/A
Full functionality over INTERNET (encrypted and speed optimized) with SERVER CONTROL	✓	N/A	N/A
Remote control of one or more cards over LAN	✓	✓	✓
Simultaneous operation of cards in one PC (depends on the mode)	8/4	8	1
SERIAL LINK, Serial data output over COM1-16 with	✓	✓	✓
Files limited only by Hard Disk or LAN resources	✓	✓	✓
ALARM MONITOR, Automatic frame detection with 10 programmable strings of up to 50 characters	✓	✓	✓
Automatic detected text-string saving to HD or LAN	✓	✓	✓
Automatic SMS messaging to HD or LAN with programmable repetition suppressing	✓	✓	✓
Automatic insertion of time stamps	✓	✓	✓
Unlimited scroll back buffers for text and graphic modes	✓	✓	✓

Additional Functions	W51PC W51LAN	W41PC W41USB	W40PC
Automatic tuning of the demodulator to FSK signals	✓	✓	✓
Automatic mode analysis for HF FSK modes	✓	✓	✓
Automatic decoding of the detected mode	✓	✓	✓
Automatic determination of frequency shift	✓	✓	✓
Automatic determination of center frequency	✓	✓	✓
Automatic determination of baud/bit rate	✓	✓	✓
Automatic determination of signal polarity	✓	✓	✓
Automatic determination of repetition cycle	✓	✓	✓
Automatic phasing	✓	✓	✓
Integrated error correction in all FEC and block coding modes	✓	✓	✓
Continuous measurement of baud rate (IAS)	✓	N/A	✓
Continuous measurement of baud rate and keying speed	✓	✓	✓
Real-time FSK code analysis for VHF-UHF-SHF modes	✓	N/A	✓
Automatic noise gate for VHF-UHF-SHF analysis modes	✓	N/A	✓
Automatic demodulator tuning to FSK	✓	✓	✓
Automatic demodulator tuning to FFSK and 4FSK signals	✓	N/A	✓
Automatic determination of drum speed in fax modes	✓	✓	✓
Automatic determination of IOC in fax modes	✓	✓	✓
Zoom and phasing function in fax modes	✓	✓	✓
Split-screen display of sub-channels of TDM systems	✓	✓	✓
Automatic recognition of all PACTOR 1-8 systems	✓	✓	✓
Automatic phasing and synchronization of all block lengths in SWED-ARQ and SI-ARQ	✓	✓	✓
Automatic phasing of all baud rates in PACTOR and G-TOR modes	✓	✓	✓
Print screen function without interruption of data acquisition	✓	✓	✓
Variable Baudrate for all HF-modes	✓	✓	✓
Called number and transmission mode display for pager modes	✓	✓	✓
Automatic mode analysis for HF FSK modes	✓	✓	✓
Bit Inversion for 5 bit Alphabets	✓	✓	✓
Independent FFT display in each mode	[✓]	N/A	N/A

Technical Data Software	W51PC W51LAN	W41PC W41USB	W40PC
OS WINDOWS 98/2000/XP-Professional (tested with English version)	✓	✓	✓
OS WINDOWS 2003 Standard Server (tested with English version)	✓	N/A	N/A
No Interrupt required	✓	✓	✓
Minimum computer	600 MHz, PIII	200 MHz, Pent.	600 MHz, PIII
Min. Screen Resolution	800x600	800x600	800x600
Max. Screen Resolution	No Limit	No Limit	No Limit
Programming language: MMI / GUI	MFC C++	MFC C++	MFC C++
Display Unit (min. VGA)	✓	✓	✓
Pointing Device	✓	✓	✓
Mass storage	PC/LAN	PC/LAN	PC/LAN
Printer Support	✓	✓	✓
Data format	Text file Graphic file	Text file Graphic file	Text file Graphic file
Programming language: Transmission modes	MFC,C++	C, C++	MFC C++
DCOM, Remote Control over LAN	✓	✓	✓
TCP/IP Remote Control with WAVECOM GUI	✓	N/A	N/A
Source Code (available to official government bodies only, against a written certificate)	*	N/A	N/A
Software update by CD or Internet <a href="http://www.wavecom.ch">http://www.wavecom.ch</a>	✓	✓	✓

Technical Data PC Cards	W51PC	W41PC MK-II	W40PC
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Technical Data PC Cards	W51PC	W41PC MK-II	W40PC
Mechanical Concept	Half length board 32 bit PCI bus	Half length board 16 bit ISA bus	half length board 16 bit ISA bus
Weight in kg	0.5	0.4	0.3
Dimensions (LxWxH mm) , no panel	195x106x22	200x106x20	193x106x13
Power requirement, (typ, values)	1.20A@+5V 0.21A@+12V 0.01A@-12V	1.0A@+5V 0.09A@+12V 0.1A@-12V	0.6A@+5V 0.06A@+12V 0.06A@-12V
Operating Temperature range	0° C to 50°C	10° C to 45° C	10° C to 45° C
Storing Temperature range	0° C to 70°C	0° C to 70° C	0° C to 70° C
Relative humidity (non-condensing)	20 - 95 %	20 - 85 %	20 - 85 %
External Demodulator Input	✓	✓	N/A
AF Input, 0.6 - 16 kHz	✓	✓	✓
IF Input Variable, 16 kHz - 1.5 MHz	✓	✓	✓
IF Input 10.7 MHz	✓	✓	N/A
IF Input 21.4 MHz	✓	Option	N/A
AF / IF / HF Connectors	BNC	BNC	BNC
Discriminator Input	N/A	N/A	✓
Two channel audio output	✓	N/A	N/A
Local Memory (FAST SRAM and DRAM)	27 MB	4.768 MB	800 kB
DSP #1 Master	DSP 56301PCI	DSP 56002	DSP 56002
DSP #2 Slave	DSP 56303	DSP 56002	DSP 56002
DSP clock (MHz)	100	66	66
DSP computing power (MIPS)	200	50	50
A/D Converter	16 bit	16 bit	16 bit
Dynamic range	> 60 dB typ. 75 dB	> 60 dB typ. 75 dB	> 60 dB typ. 75 dB
Direct digital synthesis DDS	AD9831	AD9831	AD9831
DDS frequency resolution	< 1 Hz	< 1 Hz	< 1 Hz
Dongle	No	No	No

<b>Classifier (Option)</b>	
Classification Bandwidth, 4 kHz	*
CW	*
FSK-2, modulation index>0.5, Shift 25-2000 Hz, 25-2500 Baud	*
MFSK 4 - 34 carriers, 25-300 Baud	*
F7B	*
PSK2/4/8/16, A&B, 30-2400 Baud	*
OQPSK	*
Display of classified signals in FFT	*
Integrated codecheck of classified signals	[*]

<b>Technical Data Systems</b>	<b>W51LAN</b>
Included decoder card	W51PC
Mechanical Concept	Metall Cabinet
Weight in kg	2
Dimensions (LxWxH mm) , no panel	228.6x177x51
Power requirement, (typ, values)	1.1A @ 24V
Power supply (100-240V AC), optional 9-36 V DC	✓
Operating Systems	XP
Interface	LAN/Standalone
Computer: 800 MHz, 256 MB RAM, >=20 GB Hard disk, Triple 10/100 Base TX LAN, 1xRS232, 2xUSB, Keyboard, Mouse, SVGA (up to 1600x1200 pixel)	✓

<b>Ordering Information</b>	<b>W51PC</b>	<b>W51LAN</b>	<b>W41PC</b>	<b>W40PC</b>
Available	✓	✓	✓	N/A
Documentation, User Manual	✓	✓	✓	✓
Online Help	✓	✓	✓	✓
Installation CD with latest software version and WAV signal samples	✓	✓	✓	✓
2 Year Warranty	✓	✓	✓	✓
free Software Updates (Standard Version) from Internet <a href="http://www.wavecom.ch">www.wavecom.ch</a>	✓	✓	✓	✓
MTBF	>20'000h	N/A	N/A	N/A
Custom Code	8517.5000	9030.8300	8517.5000	8517.5000
Price in CHF (excluding VAT)	8'900.--	10'400.--	7'800.--	N/A
<b>Price Optional Classifier W51CL in EUR (excluding VAT)</b>	<b>7'900.--</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
Additional costs for professional software version (official government bodies only) CHF	5% per year	5% per year	included	N/A
Price of the Source Code in CHF (official government bodies only)	174'000	174'000	N/A	N/A

Delivery time and shipping charges on request.

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