HOKA ELECTRONIC (NL)

HF Datacommunications Consultants

CODE300-32 for Windows

Introduction.

CODE300-32 is our latest 32Bit system for decoding and analysing of radio transmitted digital signals. CODE300-32 has been developed entirely for Windows 9x/2000. The strong point of all of our products has always been the processing of signals through DSP software technology, keeping the hardware's relevance to a minimum, i.e. the mere conversion of the audio signal from analogue to digital. With CODE300-32, we have gone further, giving up even the last bit of hardware by exploiting Windows's multimedia section and the sound card, which is now available on any PC.

Main functions.

- **Direct or LAN control**

  CODE300-32 can be controlled directly by the operator or remotely via LAN thanks to TCP/IP protocol. You will be able to develop the remote control program yourselves; to this end, a few examples in the most common programming languages will be supplied, also a complete working tool.

- **Multitasking functioning**

  CODE300-32 operates in real multitasking allowing you to perform several tasks simultaneously on the same signal or on different signals.

- **Recording**

  CODE300-32 allows the recording and re-playing (re-processing) of audio signals in standard WAV format.

- **Two channels**

  CODE300-32 can simultaneously process two audio signals coming from separate sources using the two channels of a standard sound card. The signals can be recorded, decoded or analyzed equally well.
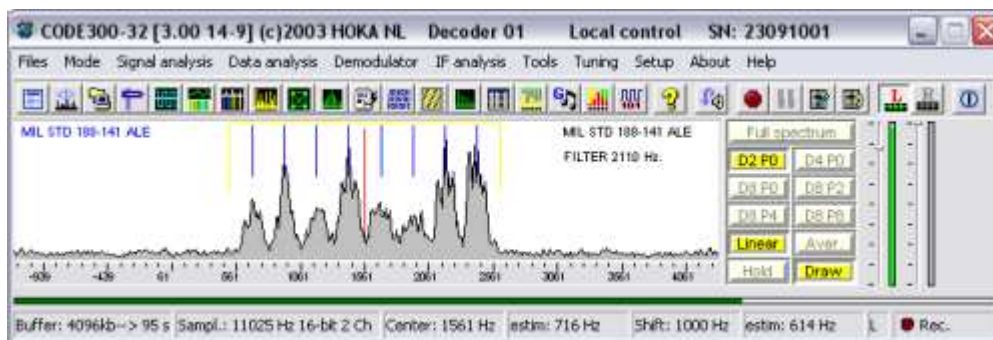
CODE300-32 is a software based DEMODULATOR, DECODER and ANALYSER which runs under all actual Microsoft Windows operating systems, Windows 98 and 98 SE, Windows 2000, Windows NT4, Windows Me and Window XP. This program is part of a new generation of Data Decoder Analysers and follows the well-known DOS based decoders CODE3, 30, 300 and a lot of new functions and ideas could be realized in this 32-bit WINDOWS release.

The program uses the integrated sound device(s) of a modern PC while running under Windows as the AD/DA device. The software does not need an expansion slot nor any dedicated hardware to function, it works by using the PC's sound card. Now nearly all of the modern sound devices offer very good performance when compared with industrial AD cards. This solution makes it particularly versatile in the fixed and in the mobile employment and offer the facility to use the program also on an normal notebook. It is possible to install the software on different PCs and make it operative by simply shifting the security key, which can be parallel or usb, according to your choice. The program can be allocated to a sound card different from the system card, which allows the simultaneous use of other applications.

CODE300-32 keeps our long experience with software based DSP, but is completely different from the DOS based versions. Every module, analysis or decoding, is completely independent and can be used stand-alone. This offers a complete new world in utility decoding.

The program can use both channels of the sound card, left and right; in this way, it is possible to decode different signals from different receivers at the same moment.

Real multi-tasking functioning: it is possible to simultaneously use several different modules for decoding, analysing, and measuring on the same signal for both channels or on the same audio channel. This function is especially useful when it becomes necessary to follow transmissions utilising different systems during connection, a typical example being transmissions using the Mil 188-141 A (ALE) system to establish the first connection and later the Mil 188-110 39 Tones to send the real message. Even in the study or analysis of new signals, the possibility to avail oneself of several means of analysis simultaneously facilitates the analysis operations.

A good series of recording facilities are available on CODE300-32. You can record one or both channels completely independent from the decoding modules and then at a later time play these back into the decoder and perform more tasks as-if the signals were live data. The data format can be specified in the decoder set-up but for most users 11,025Khz and 16bit MONO do just fine. Note this is in standard WAV format so you are free to use the audio with other programs or it can be stored as a reference for future use

Besides this a special recording module with a GRAPHICAL SQUELCH is available, this enables automatic recording in perfection. You can use your mouse to define Squelch level and start stop gap frequency.

The modules for the decoding of the presently most widespread PSK systems, MIL 188-110 Serial, MIL 188-110 39 Tones, Stanag 4285, Stanag 4529, MIL 188-141-A, are available (not in preparation only); in addition, the Auto-classification process for these systems is also available. It should not be overlooked that, besides all FSK and MFSK systems of common use, different new generation systems are included, for example Skyfax RC 5000, etc.

In VHF/UHF, Code300-32 offers a variety of decoding modules for all popular Paging formats, Trunk Mobile radio, selective calling, dialling formats and common mobile data text transmission systems

Code300-32 offer also a complete series of tools for signal and data analysis

Signal Analysis
- AFP Oscilloscope
- Analog Oscilloscope
- Auto Classification
- Eye Pattern
- FFT Special with zoom
- FSK Oscilloscope
- Phase Oscilloscope
- Phase Plane
- Phase Spectrum
- Shift & Speed Measurement
- Straddle
- Waterfall
- Waterfall and sonogram

Data Analysis
- Bit Analysis
- Universal demodulator
- Binary Data and Text editor
- Character Analysis Duplex
- Character Analysis Simplex
- Character Count
- Correlation Bit
- Correlation Mod
- Correlation VHF
- ITA 2 Analysis
- Speed Bit Analysis
- Alphabet Mapping
- TEXT Scanning

Code300-32 includes innovative facilities to create new alphabetical tables on the ASCII/ITA5 structures (on all 256 characters), ITA 2 (32/64/96 characters 2/3/4 Shift) and CCIR 476, CCIR 342, ITA 2P. In addition, it is possible to create mixed tables with single characters or combinations of different characters, HEX, BIN, DEC, and OCTAL combinations.

Bitstream output of the intelligent binary (synchronised) output is available in the MIL 188-110 serial, MIL 188-110 39 tones, Stanag 4285, Stanag 4529 systems. It is possible, upon request, to have the binary (synchronised) bit stream output also for other systems.

Text Scanning functions in real time on received texts; it is possible to handle in fuzzy logic mode up to 8 different strings, which can be associated to text saving functions, sound saving in WAV format, via LAN output activation and an acoustic alarm.

Many different ways to handle the received texts: ASCII text includes only printable characters, RTF text with the association of the font used for the reception of that single text; RAW ASCII includes all characters received inclusive of nonprinting and control characters.

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Output via LAN of all data generated even by different modules simultaneously. Serial port output of the decoded text (from one single module only) and only of printable characters.

Custom mode menu or 'Run from IP' function: this function, available in all modules, allows to "freeze" all parameters in actual use (Baudspeed, Center Frequency, Shift, Table, etc.) in one single file which may be recalled later, thus saving precious time. This function is available both in local and remote mode.

The program may be used for On-Line applications by means of the audio signal arriving from the receiver, or in Off-Line mode through audio WAV samples which can be read as files, or acquiring any other source (WAV, MP3, AUD, RAM, RA, audio CD, etc.) directly from the audio mixer of the operating system.

HOKA Electronics is able to supply new protocols wherever possible on your specific request. It is possible to proceed to the development and integration of a new protocol in two manners:

- signal study and analysis
- study on the possible implementation
- planning, implementation and integration in Code300-32
- development on specific techniques supplied by the customer

The price for the implementation is to be assessed on the basis of the preliminary study, or after evaluating the specific techniques supplied by you. You may then decide whether to keep this new protocol for your exclusive use or to make it available for others; this is another factor which will affect – positively or negatively – the final price.

Training
HOKA Electronic offers complete training on your products covering all the key features plus all the technical details:

- radio basics, operation, handling
- decoder basics, operation, handling
- modes
- analysis
- modulation
- protocols
- recording
- software installation and maintenance

If you have any questions or if you need more details or clarifications please don't hesitate to contact us via fax, e-mail or phone.

Prices:

CODE300-32 Standard Version **€ 4.500,00 Euro**

Package include

- Code300-32 Software on CD ROM
- Printed user manual
- Security key
- 6 months free software update
- 24 months warranty on hard- and software.

CODE300-32 Tool Kit for standard Version **€ 1.000,00 Euro**

- Serial output via RS232,
- Bit stream Output in MIL modes
- Editing of all code tables
- Two channel audio input by LAN
- Extra 6 months free software update

Available from stock
All prices are export prices without VAT. Shipment by UPS included.

Systems ad tools available on Code300-32 Standard

System / Function	Range	Demod.	Also know as	Include	Menu
SITOR	HF	FSK	Sitor A-B / ARQ 625 / FEC 625 / Amtor	autodetect Mode A and Mode B	Common Mode
Baudot	HF	FSK	ITA-2 / RTTY	BR 6028 VFT / BARRIE / 6028 / USA 7 Modem / R39 Demodulator / SYNOP DECODER	Common Mode
Baudot Synchr	HF	FSK			Common Mode
BF6 Baudot F7B	HF	4 FSK	Baudot F7B – ITA-2 Twin - 2 channel ITA-2 RTTY / Baudot Twinplex		Common Mode
CW	HF	OOK	Morse		Common Mode
CW-F1B	HF	FSK	FSK CW		Common Mode
ASCII	HF	FSK	ITA5 / IRA		Common Mode
Packet AX 25	HF	FSK	Packet Radio / Packet HF / Packet VHF	HF mode 300 Baud, VHF mode 1200 Baud	Common Mode
Pactor I	HF	FSK		Pactor 1 - 8, ICRC, IFRC, HAM, MIL Pactor I FEC Pactor SELCALL upto 6 chrs	Common Mode
Pactor II	HF	DBPSK DQPSK 8-DPSK 16-DPSK		all possible CRC Variant	Common Mode
Autospec	HF	FSK	Spread	AUTOSPEC with Spread 11, Spread 21, Spread 51	Common Mode
FAX FM	HF	FSK	FAX / Facsimile / MeteoFax		Common Mode
FAX AM	VHF/UHF	FSK	NOAA / Meteosat		Common Mode
SSTV	HF	FSK	SSTV / Slow Scan Television		Common Mode
PSK-31	HF	DBPSK DQPSK			Common Mode
HELL	HF	FSK	HELLSCREIBER / HELL		Common Mode
HF-Datalink	HF	M-PSK	HF Datalink / HF Acars / ARINC specification 635-2 27/02/1998		Special Mode
GMDSS HF	HF	FSK			Special Mode
G-TOR	HF	FSK			Special Mode
TWINPLEX	HF	FSK	TWINPLEX CCIR 476	with standard and wariable shift	Special Mode
IRA-ARQ	HF	MFSK			Special Mode
NUM-13	HF	MFSK	SP14		Special Mode
ANUM-13	HF	MFSK			Special Mode
MEROD	HF	FSK	RAC ARQ / Racal ARQ		Special Mode
SKYFAX	HF	10 parallel FSK tones	RC 5000 / Racal MSM		Special Mode
VISEL	HF	FSK	FEC 12		Special Mode
EPIRB	VHF				Special Mode
GW DATAPLEX	HF	FSK	GW PACTOR		Special Mode
DGPS SC104	HF				Special Mode
Baudot Parity	HF	FSK	French Baudot		Special Mode
ARQ-625 SITOR-A	HF	FSK	Sitor A / ARQ 625 mode A		ARQ
ARQ-E	HF		ARQ-E/ ARQ 1000 Duplex	ARQ N / R39 Demodulator	ARQ

System / Function	Range	Demod.	Also know as	Include	Menu
ARQ-S ARQ-1000	HF	FSK	ARQ-S / ARQ 1000-S / Siemens ARQ 1000		ARQ
ARQ-E3	HF	FSK	ARQ-E3 / CCIR 519 Variant / TDM 342 1 Channel	R39 Demodulator / SYNOP DECODER	ARQ
ARQ-2 TDM 242	HF	FSK		ARQ-M2-242 / ARQ-M4-242	ARQ
ARQ-4 TDM 342	HF	FSK	TDM 342 / ARQM-2, ARQM-4 / ARQ28 / ARQ56 / CCIR 342-2	ARQ-M2-342 / ARQ-M4-342 R39 Demodulator	ARQ
ARQ-POL	HF	FSK	ARQ-POL / POL ARQ CCIR 476 Variant		ARQ
ARQ-SWED	HF	FSK	ARQ SWED / SWED ARQ / CCIR 518 Variant		ARQ
ARQ-DUPLEX	HF	FSK	DUP ARQ / ARTRAC		ARQ
HC-ARQ	HF	FSK	Hagelin Cripto - ARQ		ARQ
RS-ARQ MERLIN	HF		RS ARQ II / ALIS 2 / RS ARQ 240	ITA2 5 Bit / ITA2 7 Bit / ITA5 8 Bit	ARQ
RS-ARQ	HF	FSK	RS ARQ / ALIS	ITA2 5 Bit / ITA2 7 Bit / ITA5 8 Bit	ARQ
TOR dirty	HF	FSK	FEC 625 without sync control		ARQ
ARQ6-70	HF	FSK	CCIR 476 Variant		ARQ
ARQ6-90/98	HF	FSK	CCIR 476 Variant		ARQ
FEC-B Sitor-B	HF	FSK	FEC 625 / NAVTEX		FEC
ROU-FEC	HF	FSK			FEC
HNG-FEC	HF	FSK			FEC
FEC-S	HF	FSK	FEC 1000 S		FEC
FEC-A FEC100	HF	FSK	FEC-A Broadcast FEC100 A / FEC 101		FEC
FEC-100 interleaved	HF	FSK	FEC-100 Variable Interleaved		FEC
FEC-100 raw	HF	FSK	FEC-A without synchronisation		FEC
FEC-100 dirty	HF	FSK	FEC 100 Dirty without synchronisation		FEC
COQUELET-8	HF	MFSK	Coq8 – Coquelet MK2 - French Multitone – Teleimprimeur ACEC		MFSK non HAM
COQUELET-13	HF	MFSK	Coq 13 – Coquelet MK1 – French Multitone		MFSK non HAM
COQUELET-8 FEC	HF	MFSK	COQUELET 80		MFSK non HAM
COQUELET-8 FEC auto-start	HF	MFSK			MFSK non HAM
CROWD-36	HF	MFSK	CIS 36 / Russian Piccolo / URS Multitone / CIS 10 11 11		MFSK non HAM
CROWD 36 ECC	HF	MFSK	CIS 36 / Russian Piccolo / URS Multitone / CIS 10 11 11		MFSK non HAM
FIRE	HF		MS5 / CIS 12		MFSK non HAM
PICCOLO-6	HF	MFSK	PICCOLO MK6 / PICCOLO ITA-2		MFSK non HAM
PICCOLO-12	HF	MFSK	PICCOLO MK12 / PICCOLO ITA-5		MFSK non HAM
MFSK Universal	HF	MFSK			MFSK non HAM
MFSK 16	HF	MFSK	non amateur mode		MFSK non HAM
MFSK 18	HF	MFSK	non amateur mode		MFSK non HAM
MFSK 20	HF	MFSK	non amateur mode		MFSK non HAM
RF7B	HF	4FSK			MFSK non HAM
DTMF-TTY	HF		DTMF-TTY	With all speed variant	MFSK HAM
THROPB	HF	MFSK	THROB	With all speed variant	MFSK HAM
MFSK 16	HF	MFSK	MFSK 16		MFSK HAM
MT63	HF	MFSK	MT63	With all speed variant	MFSK HAM
PSK10	HF	PSK	PSK 10		PSK Modes

System / Function	Range	Demod.	Also know as	Include	Menu
PSK 10 AM	HF	PSK	PSK 10 AM		PSK Modes
PSK 31 AM	HF	PSK	PSK 31 AM		PSK Modes
PSK 50 AM	HF	PSK	PSK 50 AM		PSK Modes
PSK 63	HF	DBPSK DQPSK	PSK 63		PSK Modes
PSK 220	HF	DBPSK DQPSK	PSK 220		PSK Modes
PSK 125	HF	DBPSK DQPSK	PSK 125		PSK Modes
CIS-11 TORG-10/11	HF	FSK		SYNOP DECODER	CIS
CIS-12 FIRE	HF		MS5		CIS
CIS-14 TORG-14	HF	FSK	CIS 14 / AMOR / AMOR 96		CIS
81-81	HF	FSK		40,5 / 81 / 162 Baud + variable	CIS
81-29	HF	FSK		40,5 / 81 / 162 Baud + variable	CIS
BEE 36-50	HF	FSK	BEE / 36-50 / T600 / CIS-36-50 / CIS-50-50		CIS
405 395	HF	FSK			CIS
R 37	HF	FSK			CIS
ARINC ANNEX-10	HF		ANNEX 10		SELCALL
EEA	VHF/UHF	5 Tone			SELCALL
EIA	VHF/UHF	5 Tone			SELCALL
EURO	VHF/UHF	5 Tone			SELCALL
CCITT	VHF/UHF	5 Tone			SELCALL
CCIR1	VHF/UHF	5 Tone			SELCALL
CCIR2	VHF/UHF	5 Tone			SELCALL
CTCSS	VHF/UHF				SELCALL
DCSS	VHF/UHF				SELCALL
DTMF	VHF/UHF				SELCALL
NATEL	VHF/UHF	5 Tone			SELCALL
VDEW	VHF/UHF	5 Tone			SELCALL
ZVEI1	VHF/UHF	5 Tone			SELCALL
ZVEI2	VHF/UHF	5 Tone			SELCALL
ZVEI1-13 BIIS	VHF/UHF	5 Tone			SELCALL
ZVEI2-ITA xtone	VHF/UHF	xx Tone			SELCALL
CODAN 8500 / CCIR 493-44	HF	FSK			SELCALL
TT	VHF/UHF		VHF-UHF Tone classification		SELCALL
Analogue-tones Class	VHF/UHF		VHF-UHF Tone classification		SELCALL
Digi-tones Class	VHF/UHF		VHF-UHF Tone classification		SELCALL
ACARS SITA	VHF		VHF ACARS		VHF/UHF
ATIS DSC GMDSS	VHF	FSK			VHF/UHF
FMS-BOS	VHF/UHF				VHF/UHF
ERMES	VHF/UHF				VHF/UHF
FLEX	VHF/UHF				VHF/UHF
POCSAG	VHF/UHF			512, 1200, 2400 Baud num/alphanum	VHF/UHF
CITYRUF	VHF/UHF			512, 1200, 2400 Baud num/alphanum	VHF/UHF
MPT1327	VHF/UHF				VHF/UHF
MDT	VHF/UHF				VHF/UHF
INMARSAT-C TDM	SAT	DPSK2			VHF/UHF
INMARSAT-C TDMA	SAT	BPSK			VHF/UHF
MIL STD 188-110 serial	HF	PSK		with all standard termninal mode Bitstream Otput	MIL STD 188-series

System / Function	Range	Demod.	Also know as	Include	Menu
MIL STD 188-110 39-tone	HF	PSK		with all standard termninal mode Bitstream Output	MIL STD 188-series
MIL STD 188-141 ALE	HF	MFSK	Ale (Automatic Link Establishment)	Bitstream Output scanning control	MIL STD 188-series
STANAG-4285	HF	PSK		with all standard termninal mode Bitstream Output	MIL STD 188-series
STANAG-4529	HF	PSK		with all standard termninal mode Bitstream Output	MIL STD 188-series
STANAG-5065	HF	FSK			MIL STD 188-series
Telephone quality			Audio recording	8 kHz, include squelch facilities	Audio Recording
Radio Quality			Audio recording	11 kHz include squelch facilities	Audio Recording
Shift and speed measurement				0 - 5,5 / 0 - 11 / 0 - 22 kHz	Signal Analysis
Auto Classification				more than 40 systems	Signal Analysis
Phase spectrum				0 - 4800 Baud	Signal Analysis
Phase oscilloscope				0 - 1200 Baud	Signal Analysis
Phase plane			Low speed phase analyzer	0 - 1200 Baud	Signal Analysis
Phase Constellation			High speed phase analyzer	1200 - 2400 Baud	Signal Analysis
Waterfall				0 - 5,5 / 0 - 11 / 0 - 22 kHz	Signal Analysis
Waterfall and sonogram				0 - 5,5 / 0 - 11 / 0 - 22 kHz	Signal Analysis
FSK oscilloscope					Signal Analysis
AFP oscilloscope			Amplitude Frequency Phase scope		Signal Analysis
MFSK oscilloscope					Signal Analysis
Analog oscilloscope					Signal Analysis
Eye pattern					Signal Analysis
Straddle			x-y oscilloscope		Signal Analysis
FFT special with zoom				0 - 5,5 / 0 - 11 / 0 - 22 kHz	Signal Analysis
Correlation bit			ACF	0 - 100 / 0 - 500 Bit	Data Analysis
Correlation mod			Speed meas. accuracy 0,01 Baud	0 - 1000 Baud	Data Analysis
Correlation VHF			Speed meas. accuracy 0,01 Baud	0 - 5000 Baud	Data Analysis
Speed bit analysis			Binary pattern analyzer	0 - 450 Bit Sample	Data Analysis
ITA-2 analysis			Bit Inversion Analyzer	0-31	Data Analysis
Bit analysis			Binary analyzer	0 - 450 Bit Sample	Data Analysis
Character analysis simplex				CCIR 476 / ITA-2 / ITA-5 / ITA2 PARITY- NO PARITY / CCIR 342	Data Analysis
Character analysis duplex				CCIR 476 / ITA-2 / ITA2 PARITY- NO PARITY / CCIR 342	Data Analysis
Character count				A-Z / 0-9 /CTRL CHRS	Data Analysis
Universal Demodulator			2 TO 40 TONES	OOK / FEK / FSK / 2 DPSK / 4 DPSK / BI-PHASE / OQPSK / QPSK / BPSK / Coquelet Analyzer	Demodulator
PSK Universal Demodulator					Demodulator
IF Spectrum				0 - 11 kHz	IF Analysis
Generator				more than 30 HF / VHF systems	Tools
DCF77					Tools

System / Function	Range	Demod.	Also know as	Include	Menu
Data and text editor			Advanced Bit Analisys	continuous variable line length, 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	Tools
Modulation Classifier				ASK4 / ASK2 / FSK4 / FSK2 / PSK2 / NOISE / CW / FSK / PSK 4 / PSK 8	Tools