NKF Electronics
Network Video Experts

V	A	D	CC
1x	stereo	2x	2x

C-20

- Bandwidth-efficient multi-stream MPEG-2 video codec (DVD-quality)

- Environmentally hardened

- Independent 2-way audio, data and contact closure streams

- On-the-fly configurable frame rate, resolution and data rate

- Low-latency MPEG-2 coding

- Supports IGMPv2 multicast

- In-band command and control (MX™)

- Network management (SNM™)

Description

NKF's C-20 encoder and decoder are designed for the highest quality video surveillance over IP networks. The encoder is able to stream different picture qualities simultaneously, each quality optimised for its purpose: displaying, recording, intelligent scene analysis, etc.
In combination with IGMP multicast, this feature enables very efficient use of available network capacity.
To migrate analogue CCTV services to IP, the cost-effective C-20 combines video
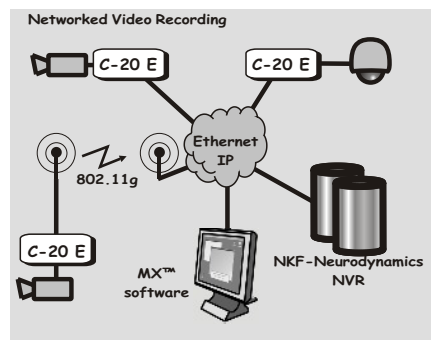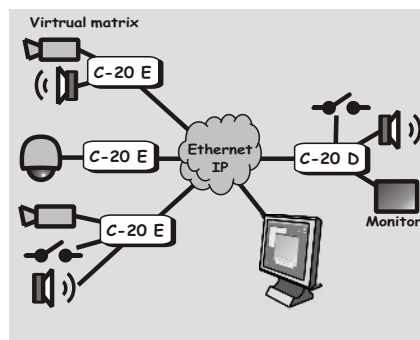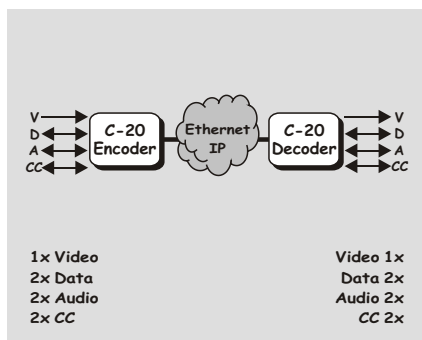
(indistinguishable from analogue quality), audio (low latency CD-quality or lip-sync), serial data (for PTZ- control or any other type of data), and dry contacts (for alarm, emergency stops, etc.). The C-20 encoder and decoder are designed and tested to operate under industrial conditions, characterized by a wide temperature range and mechanical stress (vibration and shock). Together with NKF's XSNet™ Ethernet equipment, Networked Video Recorder, intelligent picture analysis

software and MX™ software-suite, the C-series codecs complete the portfolio for every video network application. Configuration and management are made easy with NKF's MX™ software suite, using in-band communication, or with SNM™ using serial communication. The MPEG-2 codecs come as Eurocard modules to be slotted into an NKF MC 11 power supply cabinet, or as stand-alone units (/SA versions) and are fully firmware upgradeable.

Ordering information

Model	Description	Interface	Housing	Managed
C-20 E /IP	Ethernet MPEG-2 video encoder, with audio, data and CC's	10/100Base-TX	rack-mount	SNM/MX
C-20 D /IP	Ethernet MPEG-2 video decoder, with audio, data and CC's	10/100Base-TX	rack-mount	SNM/MX
C-20 /SA	Stand-alone versions of rack-mount models		stand-alone	MX

Applications

C-20 Firmware version 2.0

Video

Video format	PAL/NTSC
In-/output level	1 Vpp (± 3 dB)
Number of inputs	1
Number of output streams	3 (multi- and/or unicast)
Video connector	BNC 75 (goldplated center pin)
Compression algorithm	MPEG-2
Encoding-decoding latency	120 ms (no B-frames)

Resolution (HxV)	PAL	NTSC
D1	720x576	720x480
2/3D1	480x576	480x480
HD1	352x576	352x480
CIF	352x288	352x240

Frame rate	1 to 30 fps, configurable per stream
Data rate	up to 15 Mbps, configurable per stream

Audio

Number of channels	2 (full duplex)
Number of streams	2x 3 (multi- and/or unicast)
Max. bandwidth	20 Hz to 20 kHz
Sampling resolution	16-bits (linear PCM or G.711)
Sampling rate	44, 16 or 8 kHz (selectable)
In-/output level	0 dBV ($+6$ dBV max)
Total harmonic distortion	$< 0.25\%$ at nom. level
SNR	> 75 dBA
Input impedance	> 50 k or 600 bal.
Output impedance	< 50 bal.
Connector type	RJ45

Transmission interface

Number of interfaces	1
Interface	10/100Base-TX Fast Ethernet
selectable	Auto Negotiation, HalfDuplex/FullDuplex, 10/100 Mb
Protocols	MPEG-ES or TS, RTP, UDP, IP, DHCP, IGMP, MX/IP
Connector	RJ45

Powering

Power consumption	< 6 W
Rack-mount units	MC 10 and MC 11 power-supply cabinets
Stand-alone units (/SA)	11 to 16 Vdc (PSA 12 DC/25 or PSR 12 DC)

Management

LED status indicators	
DC	Power-on indicator (green)
NV	No video on in- or output (red)
SYNC	All links are operational (green), failure in RX stream(s) (yellow), failure in TX stream(s) (red)
Ethernet port	Green LED: on = 100 Mb, off = 10 Mb; Amber LED: on = link okay, flashes with activity.
Network Management & Control	SNM™, MX™ Control
MIB variables	Network settings and statistics, MPEG-2 settings (GOP), video settings, audio and data settings, stream control, PS Voltages, module temperature, module status, configuration, etc

Environmental

Operating temperature	-40 to $+74\,^\circ$C
Relative humidity	$<95\%$ (no condensation)
MTBF	$>200{,}000$ h
Safety & EMC	IEC/EN 60950-1, IEC/EN 60825, IEC/EN 61000
	EN 50130-4, EN 50081-1, EN 55022, FCC part 15

Mechanical

Dimensions (hxwxd)	128 x 34 x 190 mm
Weight (approx.)	450 g
Housing	Rack-mount or stand-alone

Contact Closure

Number of channels	2 (full duplex)
Number of streams	3 (multi- and/or unicast)
Input	$+3$ V pull-up, 2 k
Threshold	1.5 V
Output	Fail-safe, potential-free
Switch rating	2 A at 30 Vdc
Latency	<5 ms
Connector type	RJ45

Data

Number of channels	2 (full duplex)
Number of streams	2x 3 (multi- and/or unicast)
Interfaces	1x RS-232
	1x RS-422/485 (2- or 4-wire)
Format	Asynchronous, serial
Data rate sampling mode	DC to 19.2 kb/s
Sampling rate	153 ksamples/sec
Latency	10 ms
Data rate UART mode	300 to 230.4k baud
Latency	<5 ms
Connector type	RJ45

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