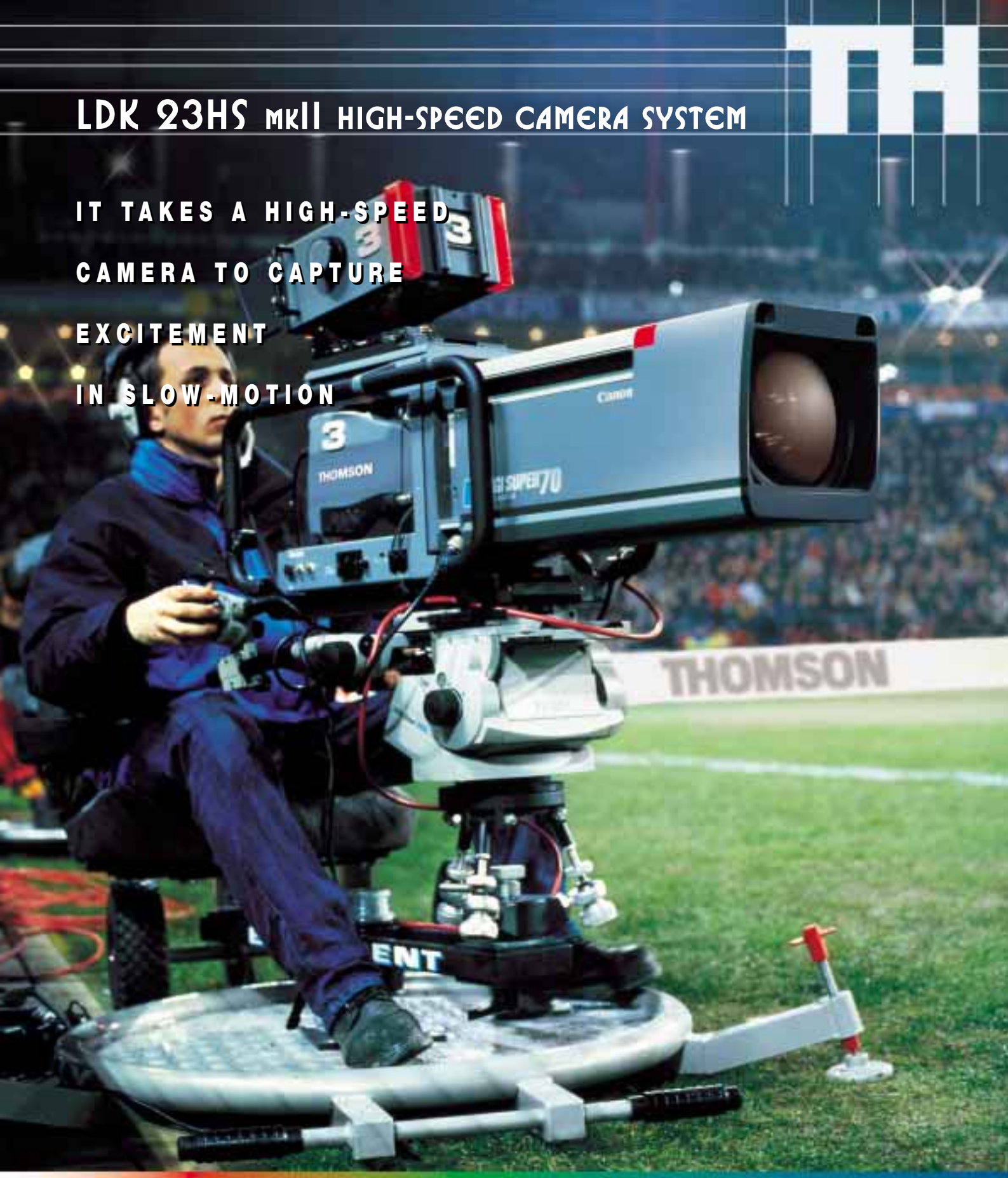
LDK 23HS mkII HIGH-SPEED CAMERA SYSTEM

IT TAKES A HIGH-SPEED CAMERA TO CAPTURE EXCITEMENT IN SLOW-MOTION



THOMSON MULTI MEDIA
BROADCAST SOLUTIONS

LDK 23HS mkII shoots like a normal camera, but isn't!

The LDK 23HS mkII does what you want it to –exactly how you want it to. The ergonomic control layout will make you feel immediately at home. And it produces the excellent shots you'd expect. But the LDK 23HS mkII has something extra. It does what no normal camera does; it scans at three times the normal rate. Instead of scanning at 50 or 60 Hz, LDK 23HS mkII scans at 150 Hz (PAL) or 180 Hz (NTSC), collecting much more motion in detail.

And that's not all. To ensure that every detail is preserved, image information is transferred to the CPU of the LDK 23HS mkII via a super wideband triax link, where three time-shifted, standard CCIR 601 triple-scan outputs are generated for direct registration on virtually any disk-based slow-motion system, such as EVS' SLSM package. The outcome is that viewers see breathtaking detail they've never experienced before, making your broadcasts even more competitive.



What is more, the perfect slow-motion replay gives extra clarity and prominence to advertisers' billboards posted along the field of play. This ensures that advertisers' messages receive maximum exposure, also when shown in slow-motion.





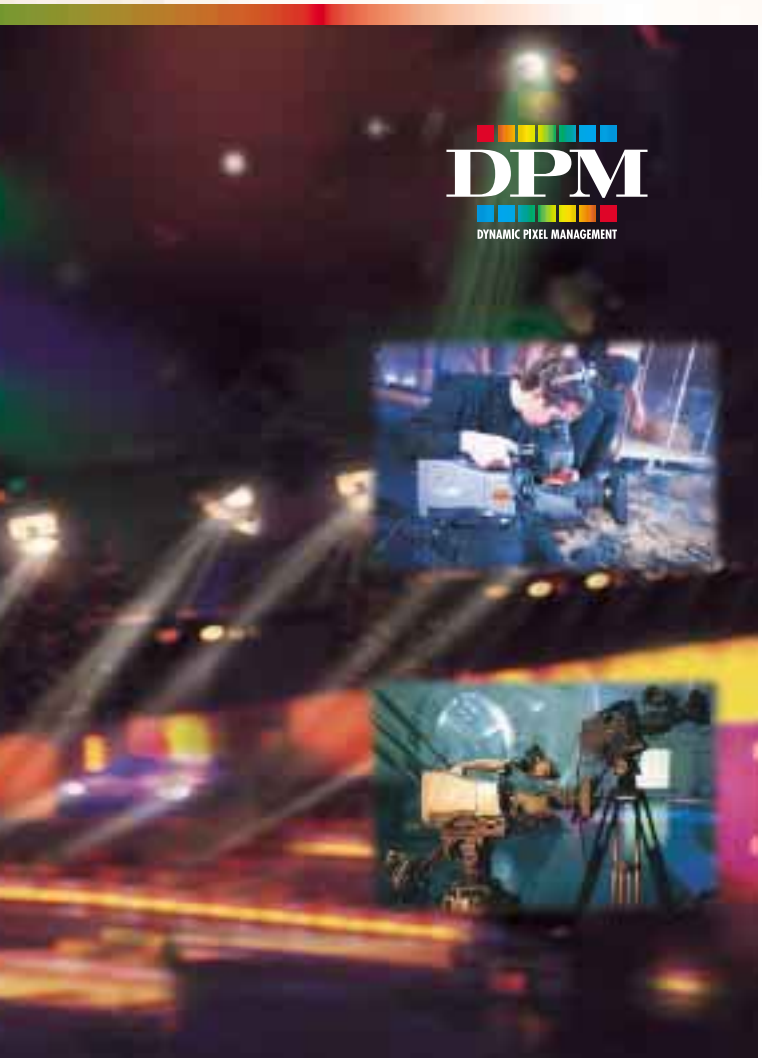
Optional zoomgrip for low angle shooting

Let your creativity run wild

The LDK 23HS mkII has unique live slow-motion capability that opens up a new world for broadcasting program producers. Action in indoor and outdoor entertainment takes on a new meaning. From sporting events to dance, from game shows to documentaries, there is a new opportunity to make programs more attractive for viewers.

Capturing outdoor action

Film-like image quality reveals every detail, from facial expressions to tape-breaking drama as athletes strive to win. Was the ball in or out? The powerful image capturing capability of the LDK 23HS mkII settles the arguments as soon as the action is replayed.



Enhanced indoor performance

One of the major enhancements in the Mark II version of the LDK 23HS is the variety of optimized preset settings to accommodate various lighting situations in stadiums and studios. This reduces the need for additional attention to the lighting of the scene. You see the eye-deceiving footwork in breathtaking dance performances – and not the present pulsating lighting.

Flexible, simple to use and fully featured

Although the LDK 23 High-Speed mkII is optimized for live slow-motion coverage at the highest level, it also serves you with a standard picture output. When used in its triple-scan role, in most cases the camera simply doubles up, saving one complete camera position*.
This maximizes the return on your investment. The standard output allows you to put the LDK 23HS mkII – to work in general program production on days when a dedicated slow-motion camera is not needed*.
You herewith enjoy the benefit of reduced inventory while being able to offer customers the value-added benefit of a more advanced camera with great flexibility.

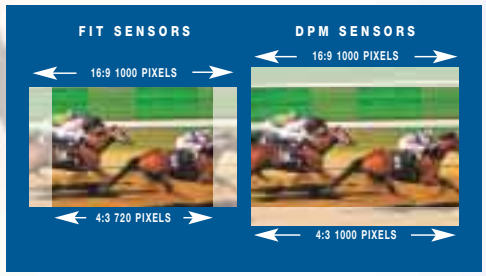
When the LDK 23HS mkII operates with other cameras, it can be mixed with either digital or analogue cameras in Series 9000 controlled configurations. And built-in diagnostics ensure correct connections. Standard triax and BNC cabling is sufficient for hooking up the camera system to the infrastructure already in place. Installation and setting up could not be easier.*
In response to customers' requests the LDK 23HS mkII cameras have full saturation control on both digital and analogue outputs and on the digital high-speed link to the disk recorder. Matching of the picture of the LDK 23HS mkII with any other camera becomes an easy job. It is a lightweight portable camera, with the quality of a studio camera –particularly when using the unique SuperXPander large-lens adapter.



The LDK 23HS mkII also supports fiber transmission with third party equipment like the Telecast Cobra system. Using this system, it is possible to combine triax and fiber and extend the total cable length for extreme distances.

For indoor and outdoor work

The various preset settings on LDK 23HS mkII to accommodate studio and other artificial lighting ensure a slow-motion picture without disturbing pulsing. Indoor slow-motion shots have never been more natural. In addition to regular broadcasting companies, the MkII version of this camera will appeal to rental companies who will be able to extend their scope by offering customers the means to capture slow-motion action under most lighting conditions.



Dynamic Pixel Management (DPM™) is incorporated into the LDK 23HS mkII to meet today's 4:3 and widescreen broadcasting needs. DPM™ 2/3 inch, 1000-pixels-per-line sensors give exceptional resolution with no lag or smear, regardless of format. It allows unrestricted switching between formats at the touch of a button, without requiring adjustment of the camera's setup or costly lens converters

** Detailed information can be found in the LDK 23 HS mkII application note.*

An extensive range of support features will make the LDK 23HS mkII a great favorite with your camera-operator. The 7-inch high-brightness viewfinder makes the coverage of field sports in less than ideal lighting conditions, child's play. Focusing is aided by switching in a (18 dB) contour boost facility, when required. And naturally there's a dual Picture in Picture feature to allow at-a-glance assessment of the actual shot in the context of the entire playing area.



LDK 23HS mkII benefits at-a-glance

- **Triple-speed scanning for superb slow-motion replay**
- **Instant replay via virtually any disk-based slow-motion system**
- **Works like a regular broadcast camera**
- **Preset settings to accommodate various lighting situations for outdoor and indoor work.**
- **Same controls, look and feel of other LDK Series cameras**
- **Film-like image and colour quality**
- **Adjustment-free switching between 16:9 and 4:3 without costly lens converters, thanks to the DPM™ sensors**
- **Iris, zoom and focus indications in the viewfinder for easy repeat shots**
- **Easy to shoot with dual PIP facility and viewfinder contour boost**
- **Dynamic white shading plus lens files for easy lens changing**
- **Full saturation control on all digital and analogue outputs**
- **Two-channel stereo audio circuit and 5-channel intercom**
- **Standard Triax cable with super bandwidth modulation.**



Capture those magic moments with the LDK 23HS mkII

Capture the emotional moments in sport. Experience the magic of dramatic performances where the skill and movement of the artists thrill the spectators. Slow-motion replay gives audiences the chance to re-live the action. But standard television cameras are not optimized to capture slow-motion.

So, Thomson has developed a camera that looks and feels just like a standard TV camera. But when it comes to recording fast action, it has a unique capability that sets it apart from any other camera.

The LDK 23HS mkII with triple-speed image acquisition, which means that even though the action is scanned at three times the normal rate, it captures details that other cameras can't. And with the various preset settings to accommodate various lighting situations, the LDK 23HS mkII reduces the modulation or pulsing of artificial lighting. In addition to this unique feature, it uses wideband video processing (as in HDTV) enhancing people's enjoyment of replay action like never before.

TECHNICAL SPECIFICATIONS

CAMERA HEAD

Power requirements	triax powered
Power consumption	25 W
Operating temperature	-20°C to 45°C (-4°F to 113°F)
Head dimensions	approx. 350x210x120mm
Weight	5.5 kg (Excluding viewfinder)
Triax cable length	YUV transmission over 800m with 14mm cable, 1000m with minor performance degradation

VIDEO PERFORMANCE

Pick-up device	3x 2/3" switchable DPM™ Frame Transfer CCD's
Picture elements	150Hz: 1000 (H) x 594 (V) 180Hz: 1000 (H) x 498 (V)
Aspect ratio	4:3 / 16:9 switchable
Smear performance	No smear
Sensitivity	2000 lux at F4.0, 89.9% reflection
Minimum illumination	approx. 4 lux (F1.4 lens +30 dB gain)
Exposure control	down to 1/1000, no Clean scanning
Optical system	F1.4 with quartz filter
Optical filters	Exchangeable filtercassete with remote selectable filterwheel. Installed are: clear, 1/4 ND, 1/16 ND, 1/64 ND, 4 point star and 6 point star
Modulation depth	>60 % typ. at 5 MHz (in Y signal)
S/N ratio	180Hz: 62 dB (typical) 150Hz: 60 dB (typical)
Registration	<0.05% (all three zones, without lens)
Dynamic range	>400%
Gain	-6 dB to +30 dB in 3 dB steps (user defined presets)

CAMERA INPUTS/OUTPUTS

Triax	option: Fisher, ARD, Lemo, Trilock
Viewfinder	12 pin
Monitoring (External Video)	BNC (1.0 Vp-p, 75 Ohm), viewfinder signal or ext. video signal (from CPU)
Script light	12 V, 0.25 A, 3 pin Fisher
Lens	12 pin
Head set	option: XLR 5, Tuchel (intercom channels: ENG/PROD/PROGR)
mic	2 x XLR 3, balanced, +48 V
Control input	4p DATA, series 9000 compatible

Camera Processing Unit CPU LDK 4058 INPUTS/OUTPUTS

Triax	Option: Fischer/ARD/Lemo/Trilock
Power	AC-power connector, max 330W
Audio out	XLR3
Intercom	ENG/PROD/PROGR via 15p D-conn.
Signalling	Call/Tally R/Y via 15p D-conn.
CVBS (3x)	1Vpp; 75 Ohm; BNC
RGB	700 mVpp; 75 Ohm; BNC
Y,R-Y, B-Y	700,525, 525 mVpp; 75 Ohm; BNC
PXM	1 Vpp; 75 Ohm; BNC
WFM	1 Vpp; 75 Ohm; BNC
Digital serial triple scan	3 x BNC, SMPTE 259M-C/EBU Tech 3267E 270 Mb/s
Digital serial normal scan	3 x BNC, SMPTE 259M-C/EBU Tech 3267E 270 Mb/s
Ext 1 and Ext 2	1 Vpp; 75 Ohm; BNC
Genlock in	1 Vpp; 75Ohm; BNC
Ext. camera control	4p DATA

SuperXPander LDK 4482 (optional)

Dimensions (lxhxw) in mm (inch) 600x350x390 (23.6x13.7x15.5)
Weight (excl camera, lens and VF) 17Kg
Utility power outlet 115/230V ac, max 70VA

Viewfinder 7" (optional)

CRT	7" monochrome
Resolution	>700 TV lines (center)
Weight	7 kg
Power	30 W

Viewfinder 1.5" (optional)

CRT	1.5" monochrome
Resolution	>650 TV lines (center)
Weight	0.75 kg
Power	1.6 W

SUPPLIED ACCESSORIES

User manual
Transport case

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