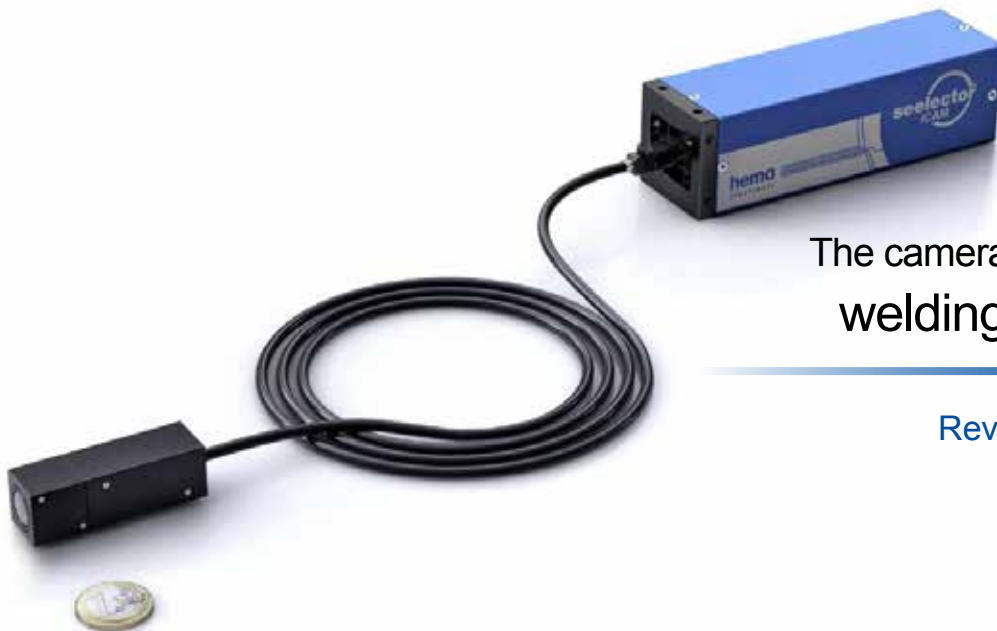




**WELDING  
MADE VISIBLE**



**seelector** / *ICAM weld*  
process-setup - monitoring - evaluating your welding process



The camera solution for your  
welding applications

Reveal what your eyes  
cannot see!

**Now available as a compact model!**



leading  
technologies



## welding process

### Your task:

### Premium welding results...

...our service: World class pictures  
down to the smallest detail!

Each image shows all the details and their surroundings:

- welding arc
- electrode
- weld pool
- welding seam
- welding gap
- solidifying melt

With **seelector/ICAM weld** you can monitor welding processes even in areas that are difficult to access. The monitoring takes place comfortably on a display attached for instance at the control station. You can create video recordings of the welding process and use them for trainings, QA documentation, tests and commissioning.

### Properties:

- brightness dynamics up to 170 dB
- image rate up to 30 images per second
- no blooming due to HDRC<sup>®</sup>-sensor
- stand-alone system - evaluation inside the camera
- direct VGA connection - only camera and monitor
- network connection via ethernet
- digital I/O
- optional profibus, CAN-bus, etc.

### Software tool ICAM view...

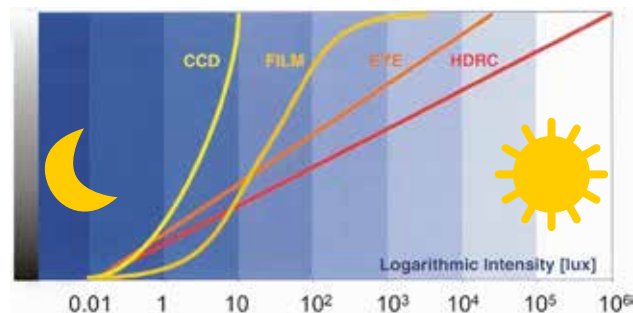
...easy to operate and effective!

The Software tool **ICAM view** shows the image on the monitor and allows you to analyse it and display various types of information.

- defined brightness range with automatic switching
- automatical brightness adaptation
- adapting camera resolution
- image transformation vertical and horizontal
- overlay a reticle
- adaptable region of interest
- change of contrast dependet on scene
- image storage and analysis functions
- single images and video streaming
- video playback

### HDRC<sup>®</sup>-characteristics:

High Dynamic Range shows more!



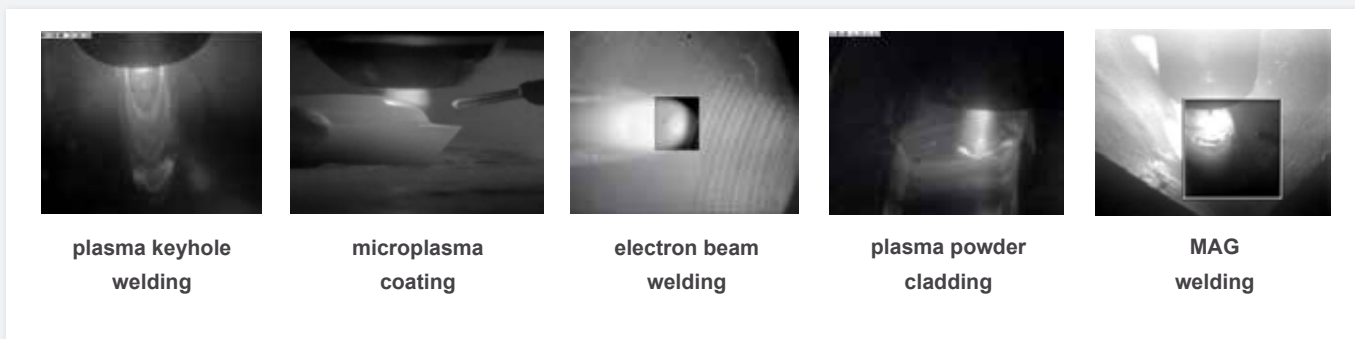


# High Dynamic Range can see even more!

specifications	seelector/CAM HD1	seelector/CAM HD2	seelector/CAM HD4
senstor technology	CMOS HDRC®	CMOS HDRC®	CMOS HDRC®
scanning	progressive	progressive	progressive
optical format	2/3"	2/3"	2/3"
resolution	768 x 496	768 x 496	768 x 496
pixel size	10 µm x 10 µm	10 µm x 10 µm	10 µm x 10 µm
image rate	30 fps	30 fps	30 fps
exposure time	not applicable	not applicable	not applicable
shutter	rolling	global	global
dynamic range	170 dB	140 dB	140 dB
sensitivity	0,001 lux	0,001 lux	0,001 lux
data format	10-bit	10-bit	10-bit
trigger mode	external, internal, free run, single shot	external, internal, free run, single shot	external, internal, free run, single shot
video output	SVGA (800x600) 60 Hz	SVGA (800x600) 60 Hz	SVGA (800x600) 60 Hz
temperature range	0 °C to + 55 °C	10 °C to + 55 °C	0 °C to + 55 °C
version	monochrome	monochrome	monochrome
size	50 x 50 x 200 mm	50 x 50 x 200 mm	head: 20 x 20 x 99 mm main unit: 50 x 50 x 160 mm sensor cable LVDS

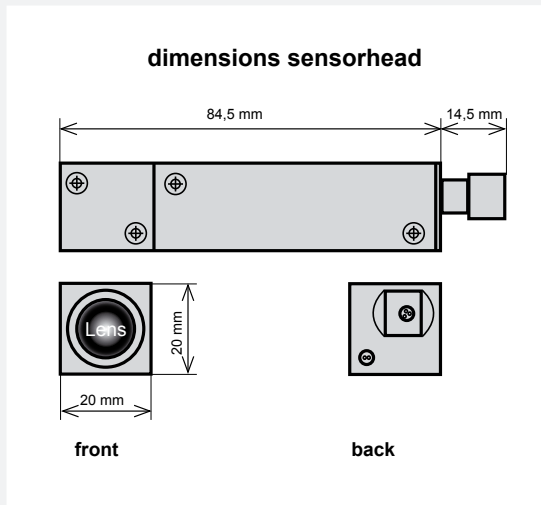
## Outstanding brightness dynamics in action:

seelector/CAM weld is a camera with unique brightness dynamics, that never lets you down:



Videos of various welding processes on [hema.de](http://hema.de)

# High-dynamic video image processing fast and intelligent



KUKA Systems GmbH



**Your partner for video based development.  
For your customized version we offer leading  
edge hardware and software design.**

## Highlights:

### Extremely small!

#### seelector/CAM HD4

The miniaturized sensor head has room everywhere. It is small, lightweight and is mounted meters away from the camera main unit - ideal for robots or narrow space!

seelector/CAM is a robust system suited for industrial usage. It offers a wide range of software functions and is easy to operate.

### suited for industrial use:

- compact and robust
- extended temperature range
- low power consumption
- real-time capability

### flexible:

- intelligent with onboard computer
- sensitive even in the infrared range
- easy to operate
- extension to autonomous QA-system with image analysis algorithms on-board

### versatile:

- image compression in real-time
- picture overlay of camera data, watermarks, etc.
- comfortable user interface
- comprehensive software options

Do you need a camera for another purpose?

Let us talk about your application!  
[sales@hema.de](mailto:sales@hema.de)