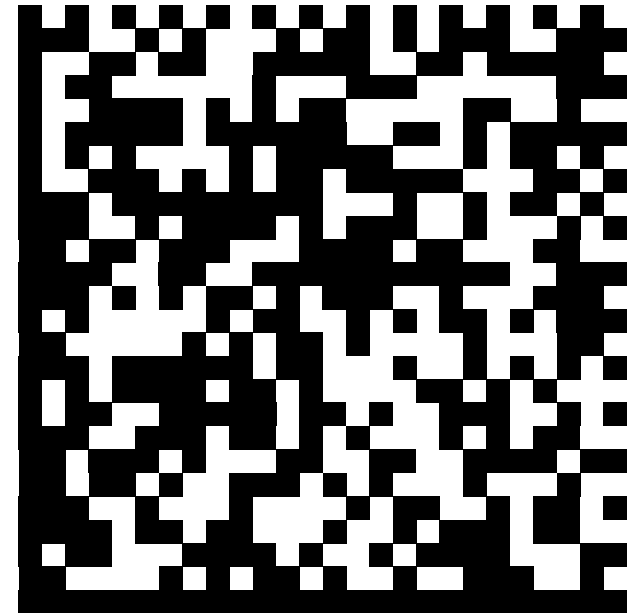


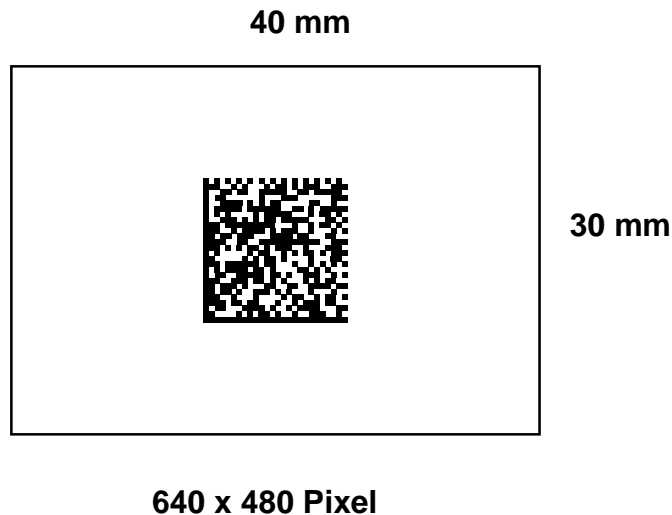
# SICK AG Auto Ident

**2D-Code  
Reading Technology**



## Matrix Type limitation Code in motion

### Matrix CCD

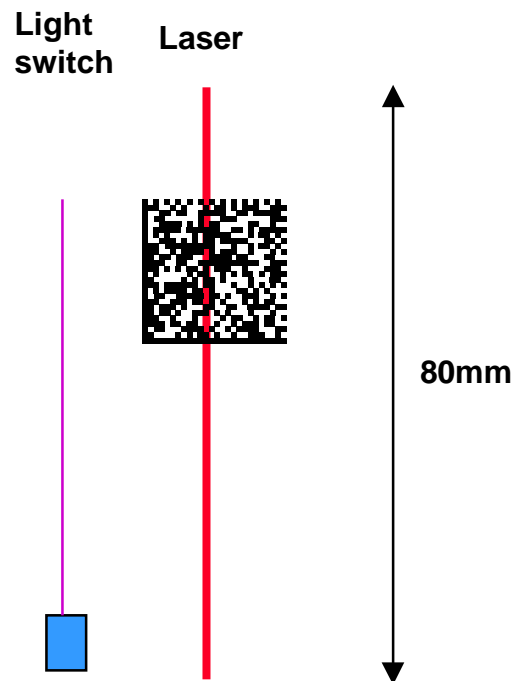


### Disadvantages

- **Positioning of the labels**
- **Triggering on code**
- **Small field of view**
- **Resolution of the matrix sensor**
- **Illumination external or flashed**
- **Image processing system**

## ICR 850 improvements

### Line CCD

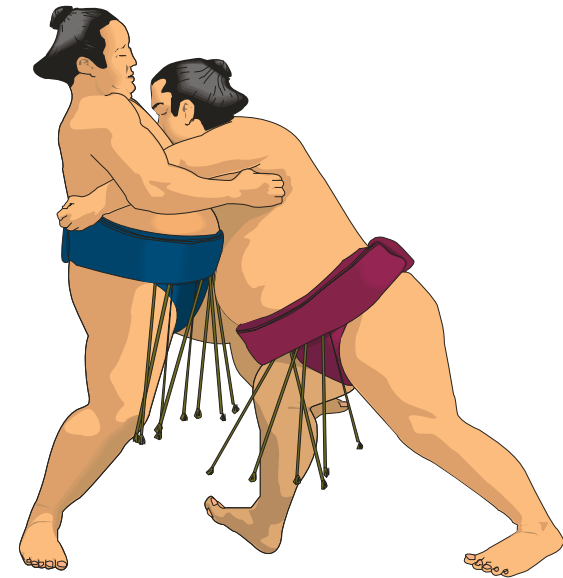


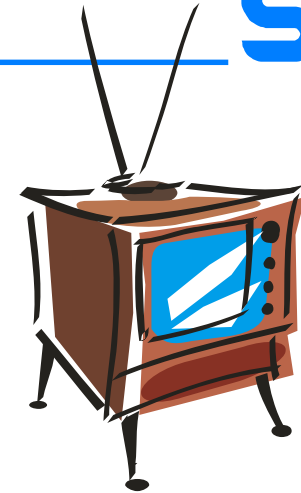
### Benefits

- Reading gate like barcode reader
- Integrated illumination
- Large field of view
- Interfacing fully compatible to standard barcode reader

## Sensor comparison Matrix versus line

- Field of view
- Resolution
- Object velocity
- Illumination
- Trigger / reading gate





## Sensor comparison Matrix properties

Lean due to video standards

Standards	No rows	freq Hz	time msec
● PAL/SECAM	625	25	40
● NTSC	525	29.97	33.37

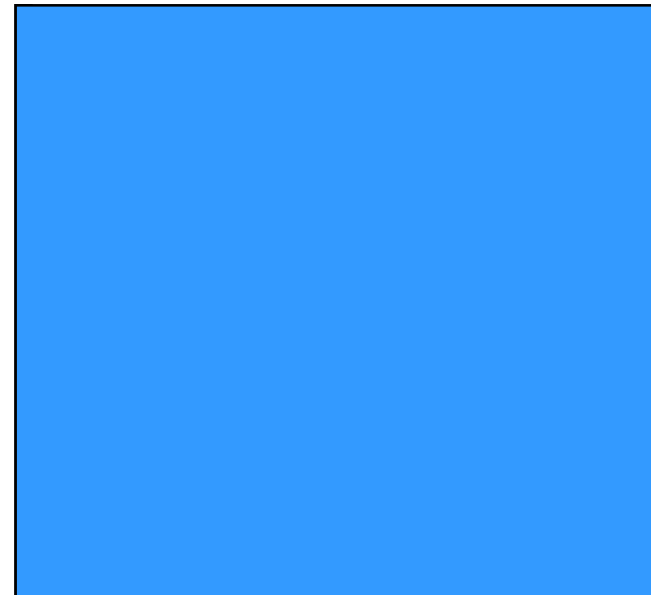
## Sensor comparison Field of view

**Matrix**

**640 x 480 pixels**

**Line**

**2048 x 2048 pixels**



## Sensor comparison Resolution

**Matrix CCD**

**80mm x-direction**

**60mm y-direction**

**Cell size**

**0.5mm**

**Line CCD**

**80mm laser line**

**15KHz scan rate**

**Cell size**

**0.17mm**



**@ 4 pixels / scans per module**

**Sensor comparison**  
**Object velocity**



**Matrix CCD**

**Line CCD**

**Progressive scan**

**15KHz scan rate**

**Shutter**

**Flash light**

**Necessary**

**Maximum values**

**shutter speed**

**0.5m/sec**

**200  $\mu$ sec**

**@ 0.17mm**

**Sensor comparison  
Illumination**

**Matrix CCD**

**Flash Light  
integrated or  
external**

**Line CCD**

**Laser line class II  
integrated**



**Sensor comparison  
Triggering / Timing**

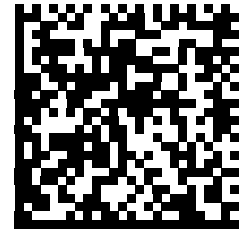
**Matrix CCD**

**Trigger on code**

**Line CCD**

**Trigger on object**

**Handling like a standard  
barcode reader**



**Thanks for  
Your  
Attention**

