

LINESCAN SENSORS



Tichawa is manufacturer of fully custom or semi-custom camera systems made on pre-finished modules with CIS technology. A CIS is a compact line scan camera which is mounted directly to the object under inspection as we can know it from fax scanners or document scanners. The CIS consists of a scanning line (sensor), a SELFOC lens and a light source (optional).

MODEL	Key features																																
Low-cost CIS	<p>TiVi Contact Image Sensor model 25 dpi Low-cost monochrome CIS, 25 dpi</p> <ul style="list-style-type: none"> ▪ Scan width 520 - 4160 mm ▪ 1.016 mm pixel grid ▪ Shading correction ▪ Camera Link Interface ▪ Lighting white, red or UV ▪ Internal or external light source ▪ Internal data processor as option ▪ High-temperature-proof version available <p>▪ Specifications:</p> <table> <tr> <td>Reading width (mm)</td> <td>520, 1040, 1560, 2080, 2600, 3120, 3640, 4160</td> </tr> <tr> <td>Max. line rate (kHz)</td> <td>4</td> </tr> <tr> <td>Resolution</td> <td>25dpi/1,016 mm</td> </tr> <tr> <td>ADC resolution</td> <td>10 Bit</td> </tr> <tr> <td>Total pixels</td> <td>512 ... 4096</td> </tr> <tr> <td>Data rate</td> <td>40 Mpixel/s up to 2 m 2 x 40 Mpixel/s over 2m</td> </tr> <tr> <td>Built-in pixel/Shading correction</td> <td>Yes</td> </tr> <tr> <td>Trigger</td> <td>Yes</td> </tr> <tr> <td>Exposure control</td> <td>Yes</td> </tr> <tr> <td>Camera Link Shading</td> <td>Yes</td> </tr> <tr> <td>Electrical Interface</td> <td>1 Camera Link (Base) Connector up to 2 m 2 Camera Link (Base) Connectors up to 4 m</td> </tr> <tr> <td>Power supply (VDC)</td> <td>24 V</td> </tr> <tr> <td>Optical Port</td> <td>N/A</td> </tr> <tr> <td>Mechanical Dimensiones (W x H x L)</td> <td>Approx. 40 x 36 x L</td> </tr> <tr> <td>Operation case temperature range</td> <td>5 ... 40°C (normal version) 5 ... 100°C (high-temperature version)</td> </tr> <tr> <td>Working distance</td> <td>11mm</td> </tr> </table>	Reading width (mm)	520, 1040, 1560, 2080, 2600, 3120, 3640, 4160	Max. line rate (kHz)	4	Resolution	25dpi/1,016 mm	ADC resolution	10 Bit	Total pixels	512 ... 4096	Data rate	40 Mpixel/s up to 2 m 2 x 40 Mpixel/s over 2m	Built-in pixel/Shading correction	Yes	Trigger	Yes	Exposure control	Yes	Camera Link Shading	Yes	Electrical Interface	1 Camera Link (Base) Connector up to 2 m 2 Camera Link (Base) Connectors up to 4 m	Power supply (VDC)	24 V	Optical Port	N/A	Mechanical Dimensiones (W x H x L)	Approx. 40 x 36 x L	Operation case temperature range	5 ... 40°C (normal version) 5 ... 100°C (high-temperature version)	Working distance	11mm
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High performance CIS	<p>High-Performance monochrome CIS-Sensor – TIVI CIS 4</p> <ul style="list-style-type: none"> ▪ Sensor length 520 up to 3640mm ▪ Very sensitive, line rates up to 45 kHz ▪ High spatial resolution 200, 300, 400 or 600 dpi ▪ Flat field correction ▪ Rugged monochrome CIS sensors ▪ Built-in optics and light source <p>▪ Specifications:</p> <table> <tr> <td>Effective Sensor Length (mm)</td> <td>520 up to 3640</td> </tr> <tr> <td>Max. Line rate (kHz)</td> <td>15 standard, 45 on demand</td> </tr> <tr> <td>Resolution (dpi)</td> <td>200 or 400 standard, 300 or 600 on demand</td> </tr> <tr> <td>ADC Resolution</td> <td>10 bit</td> </tr> <tr> <td>Total Pixels</td> <td>4096 up to 57344 standard, 86016 on demand</td> </tr> <tr> <td>Pixel Spacing (im)</td> <td>approx. 127 (200 dpi), 63 (400 dpi), 42 (600 dpi), 84 (300 dpi)</td> </tr> <tr> <td>Data Rate (MPixel/s)</td> <td>60 up to 2800</td> </tr> <tr> <td>Built-In Pixel / Flat Field Correction</td> <td>yes</td> </tr> <tr> <td>Trigger</td> <td>yes</td> </tr> <tr> <td>Expo Ctrl</td> <td>yes</td> </tr> <tr> <td>Camera Link Shading</td> <td>1 up to 14 Connectors, BASE Configuration</td> </tr> <tr> <td>Power Supply (VDC)</td> <td>24 V</td> </tr> <tr> <td>Optical Port</td> <td>not required</td> </tr> <tr> <td>Mechanical Dimensiones (W x H x L)</td> <td>780 up to 3401 x 73 x 107mm</td> </tr> </table>	Effective Sensor Length (mm)	520 up to 3640	Max. Line rate (kHz)	15 standard, 45 on demand	Resolution (dpi)	200 or 400 standard, 300 or 600 on demand	ADC Resolution	10 bit	Total Pixels	4096 up to 57344 standard, 86016 on demand	Pixel Spacing (im)	approx. 127 (200 dpi), 63 (400 dpi), 42 (600 dpi), 84 (300 dpi)	Data Rate (MPixel/s)	60 up to 2800	Built-In Pixel / Flat Field Correction	yes	Trigger	yes	Expo Ctrl	yes	Camera Link Shading	1 up to 14 Connectors, BASE Configuration	Power Supply (VDC)	24 V	Optical Port	not required	Mechanical Dimensiones (W x H x L)	780 up to 3401 x 73 x 107mm				
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High resolution CIS	<p>High Resolution Contact Image Sensor 1200/2400/3600 dpi</p> <ul style="list-style-type: none"> ▪ Scan width up to 1 m with 140,000 pixels ▪ Line rates up to 27 kHz ▪ 1200, 2400 or 3600 dpi ▪ 48, 96 or 144 pixels/mm ▪ 20, 10 or 7 µm pixel size ▪ Real Time Correction for accuracies down to 1 µm ▪ Color or Monochrome ▪ Diffuse and coaxial light sources ▪ <u>Specifications:</u> <table border="0"> <thead> <tr> <th>TYPE</th> <th>CIS 1200</th> <th>CIS 2400</th> <th>CIS 3600</th> </tr> </thead> <tbody> <tr> <td>Max. Scan width</td> <td>1040 mm</td> <td>1040 mm</td> <td>1100 mm</td> </tr> <tr> <td>Line Rate</td> <td>6 kHz</td> <td>3 kHz</td> <td>27 kHz</td> </tr> <tr> <td>Resolution</td> <td>1200 dpi</td> <td>2400 dpi</td> <td>3600 dpi</td> </tr> <tr> <td>Amplitude Resolution (output)</td> <td>8 Bit</td> <td>8 Bit</td> <td>8 Bit</td> </tr> <tr> <td>Pixel Spacing (nom)</td> <td>21 µm</td> <td>10.5 µm</td> <td>7 µm</td> </tr> <tr> <td>Dynamic Range</td> <td>54 dB</td> <td>54 dB</td> <td>50 dB</td> </tr> <tr> <td>ADC Resolution</td> <td>10 Bit</td> <td>10 Bit</td> <td>use 8 or 10 bits</td> </tr> <tr> <td>Dynamic Range</td> <td>54</td> <td>54</td> <td>dB</td> </tr> <tr> <td>Camera Link</td> <td>1 - 4</td> <td>1 - 8</td> <td>1 - 20</td> </tr> <tr> <td>Power Supply Electronics</td> <td>24 VDC</td> <td>24 VDC</td> <td>24 VDC</td> </tr> <tr> <td>Power Supply Light</td> <td>24 VDC</td> <td>24 VDC</td> <td>24 VDC</td> </tr> <tr> <td>CDS</td> <td>yes</td> <td>yes</td> <td>yes</td> </tr> <tr> <td>PGA</td> <td>yes</td> <td>yes</td> <td>no</td> </tr> <tr> <td>Geometry Correction</td> <td>yes</td> <td>yes</td> <td>use 100 ohms</td> </tr> <tr> <td>Auto Zero</td> <td>yes</td> <td>yes</td> <td>yes</td> </tr> <tr> <td>Cross Section</td> <td>100 x 86 mm</td> <td>100 x 86 mm</td> <td>100 x 86 mm</td> </tr> <tr> <td>Operating Temp.</td> <td>0...+40° C</td> <td>0...+40° C</td> <td>0...+40° C</td> </tr> <tr> <td>CE Approval</td> <td>yes</td> <td>yes</td> <td>yes</td> </tr> </tbody> </table>	TYPE	CIS 1200	CIS 2400	CIS 3600	Max. Scan width	1040 mm	1040 mm	1100 mm	Line Rate	6 kHz	3 kHz	27 kHz	Resolution	1200 dpi	2400 dpi	3600 dpi	Amplitude Resolution (output)	8 Bit	8 Bit	8 Bit	Pixel Spacing (nom)	21 µm	10.5 µm	7 µm	Dynamic Range	54 dB	54 dB	50 dB	ADC Resolution	10 Bit	10 Bit	use 8 or 10 bits	Dynamic Range	54	54	dB	Camera Link	1 - 4	1 - 8	1 - 20	Power Supply Electronics	24 VDC	24 VDC	24 VDC	Power Supply Light	24 VDC	24 VDC	24 VDC	CDS	yes	yes	yes	PGA	yes	yes	no	Geometry Correction	yes	yes	use 100 ohms	Auto Zero	yes	yes	yes	Cross Section	100 x 86 mm	100 x 86 mm	100 x 86 mm	Operating Temp.	0...+40° C	0...+40° C	0...+40° C	CE Approval	yes	yes	yes
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Colour CIS	<p>Color CIS models: 200 dpi, 400 dpi Real-time control in colour</p> <ul style="list-style-type: none"> ▪ Scan width 520 - 3640 mm ▪ Line rates up to 7,5 kHz (57 m/min) ▪ High spatial resolution of 200 or 400 dpi ▪ Flat field correction ▪ Rugged CIS sensor ▪ Built-in optics ▪ Internal RGB lighting ▪ Simple alignment ▪ <u>Specifications:</u> <table border="0"> <tbody> <tr> <td>Scan width</td> <td>520 - 3640 mm</td> </tr> <tr> <td>Max. line rate (kHz)</td> <td>Hardware design for up to 7.5</td> </tr> <tr> <td>Resolution</td> <td>200 or 400 dpi</td> </tr> <tr> <td>ADC resolution</td> <td>10 bit</td> </tr> <tr> <td>Total pixels</td> <td>3 x 4096 - 3 x 57344 RGB</td> </tr> <tr> <td>Pixel spacing</td> <td>200 dpi/127 µm or 400 dpi/63 µm</td> </tr> <tr> <td>Data rate (Mpixel/s)</td> <td>up to 3 x 85 per connector</td> </tr> <tr> <td>Built-in pixel/flat field correction</td> <td>yes</td> </tr> <tr> <td>Trigger/Exposure control</td> <td>yes</td> </tr> <tr> <td>Camera Link</td> <td>24 Bit, BASE config; number of connectors depends on resolution line rate and scan width</td> </tr> <tr> <td>Power supply (VDC)</td> <td>24 V</td> </tr> <tr> <td>Mechanical Dimensiones (W x L x H)</td> <td>130 x 788 x 107 mm</td> </tr> <tr> <td>Operation case temperature range</td> <td>5...40° C</td> </tr> <tr> <td>Working distance</td> <td>8 - 10mm</td> </tr> <tr> <td>Optimum working distance</td> <td>10mm</td> </tr> <tr> <td>PC requirement (1 or more)</td> <td>Windows 2000 or XP > 1 GHz, PCI-Express recommended</td> </tr> </tbody> </table>	Scan width	520 - 3640 mm	Max. line rate (kHz)	Hardware design for up to 7.5	Resolution	200 or 400 dpi	ADC resolution	10 bit	Total pixels	3 x 4096 - 3 x 57344 RGB	Pixel spacing	200 dpi/127 µm or 400 dpi/63 µm	Data rate (Mpixel/s)	up to 3 x 85 per connector	Built-in pixel/flat field correction	yes	Trigger/Exposure control	yes	Camera Link	24 Bit, BASE config; number of connectors depends on resolution line rate and scan width	Power supply (VDC)	24 V	Mechanical Dimensiones (W x L x H)	130 x 788 x 107 mm	Operation case temperature range	5...40° C	Working distance	8 - 10mm	Optimum working distance	10mm	PC requirement (1 or more)	Windows 2000 or XP > 1 GHz, PCI-Express recommended																																												
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Mini CIS	<p>Very compact CIS up to 307 mm image width</p> <ul style="list-style-type: none"> ▪ Flat line scan camera ▪ Scan width 57, 89, 104, 216 or 307 mm ▪ Line rates up to 12 kHz ▪ 100, 200, 300, 400 or 600 dpi corresponding to approx. 4, 8, 12, 16 or 24 dots/mm 																																																																												

- up to 7680 Pixels
- Optional shading correction
- Camera Link interface
- Built-in light source and optics
- Specifications:

TYPE	57	89	104	216	307	324
Line Rate (kHz)	4	7	6	12	2	6
Resolution(dpi)	400 - 600	200 - 400	200 - 600	200 - 600	200	600
Power Supply	+24 VDC	+24 VDC	+24 VDC	+24 VDC	+24 VDC	+24 VDC
Light Source	None	None	None	None	None	None
	Red	Red	Red	Red	Red	Red
	White	White	White	White	White	White
L x W x H (mm)	150 x 68 x 86	150 x 68 x 86	150 x 68 x 86	150 x 68 x 86	150 x 68 x 86	150 x 68 x 86
Working Distance	14mm	14mm	14mm	14mm	14mm	14mm