

❖ **SP-20000-PMCL**
20-megapixel CMOS global shutter



- *Large format 20 MP CMOS imager (global shutter)*
- *30 fps at full resolution*
- *6.4 μm square pixels*
- *User-selectable ROI*
- *Built-in high dynamic range (HDR) mode*
- *Flat-field and blemish compensation plus in-camera CMOS pattern correction*
- *CMOS imager includes correlated double sampling (CDS) function for improved uniformity*
- *8/10/12-bit digital output over two-channel Mini Camera Link interface*
- *Accepts power over Mini Camera Link connectors (PMCL) or via 12-pin connector for maximum application flexibility*
- *Monochrome or color models with raw Bayer output*
- *F-mount lens mount*
- *Automatic Level Control (ALC) for dynamic lighting conditions*

Specifications for SP-20000-PMCL

Spark Series

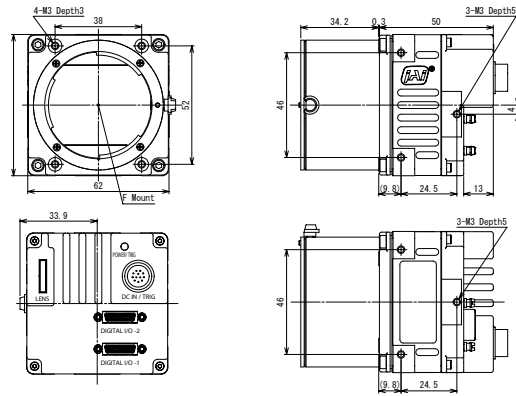
Specifications	SP-20000-PMCL
Sensor	41 mm diag. CMOS global shutter (CMV20000)
Pixel Clock	39.16 MHz
Frame rate, full frame	30 frames/sec.
Active area	32.77 mm (h) x 24.58 mm (v), 41 mm diagonal
Cell size	6.4 μm (h) x 6.4 μm (v)
Active pixels	5120 (h) x 3840 (v)
Horizontal output frequency	11.37 kHz to 122.2 kHz
Read-out modes	Full: 5120 (h) x 3840 (v) 30 fps ROI: Any start position. 8 - 5120 pixels wide x 2 - 3840 lines high Width in 8 pixels per step Height in 1 line/step (mono) or 2 lines/step (color)
Sensitivity (SP-20000M)	0.88 Lux (shutter off, max. gain, f1.4, 50% video)
Sensitivity (SP-20000C)	1.18 Lux (shutter off, max. gain, f1.4, 50% green)
S/N ratio	mono: >53 dB. (0 dB gain) color: >51 dB. (0 dB gain, green)
Video signal output	8/10/12-bit monochrome, or 8/10/12-bit Bayer
Auto-iris lens video output	0.7Vp-p, with 0.3V horiz. sync
Gain	Manual/automatic -0 dB to +24 dB
White balance (SP-20000C)	Manual, one-push auto, or continuous (3000K to 9000K)
Gamma	0.45-1.0 (16 steps) or 256-point LUT
Synchronization	Internal
Trigger input	TTL (Line 1), Camera Link (CC1) Pulse generators 1-4, NANDo, NAND1, Software trigger
Trigger modes	EPS, PIV, Trigger Width, RCT (with ALC)
Electronic shutter	
Timed exposure	100 μs to 8 sec in 1 μs steps
Auto shutter	1/30 to 1/100,000 sec.
Auto level control (ALC)	Shutter range from 1/30 to 1/100,000, gain range from 0 dB to +24 dB Tracking speeds and max values adjustable
Pre-processing functions	Flat field correction, color shading correction (SP-20000C), blemish compensation (>2000 pixels)
High dynamic range mode	Possible to set 2 knee points and slopes, to expand dynamic range within scene
Operating temperature	-45° C to +70° C †
Storage temperature	-45° C to +70° C
Humidity	20 - 80% non-condensing
Vibration	10G (20 Hz to 200 Hz XYZ)
Shock	80 G
Regulations	CE (EN 61000-6-2, EN 61000-6-3), FCC part 15 class B, RoHS/WEEE
Power	12V to 24V DC ± 10%. 5.4W typical (full frame @ 12V)
Lens mount	F-mount
Dimensions (H x W x L)	62 mm x 62 mm x 84.5 mm
Weight	F-mount: 320 g

†Reduced performance may occur when operating outside the standard range of -5°C to +45°C

Ordering Information

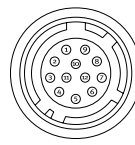
SP-20000M-PMCL-F	Monochrome camera with Mini Camera Link & F-mount
SP-20000C-PMCL-F	Color camera with Mini Camera Link & F-mount

Dimensions



Connector pin-out

DC In / Trigger



HIROSE HR10A-10R-12PB-01

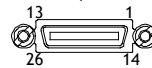
Pin	Signal
1	GND
2	+12V to +24V DC input
3	GND
4	Iris video out
5	NC
6	NC

Connector Pin-out

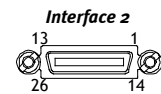
Pin	Signal
7	NC
8	NC
9	TTL out 1
10	TTL in 1
11	+12V to +24V DC input
12	GND

Additional TTL I/O & LVDS input available on AUX connector

Interface 1



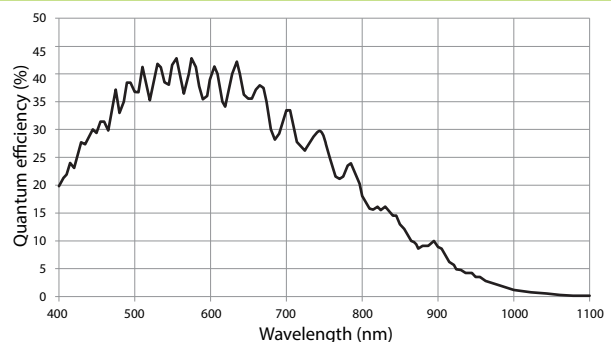
Mini-CL interface



Pin	Signal	Function
1	Power	DC +12V to +24V
13	GND	Power return
14	GND	Power return
26	Power	DC +12V to +24V
2	15 -/+ TxOUT 0	CL Video Channel 1
3	16 -/+ TxOUT 1	
4	17 -/+ TxOUT 2	
5	18 -/+ TxClk	
6	19 -/+ TxOUT 3	
7	20 +/- RXD	
8	21 -/+ TXD	Serial out
9	22 CC1-/CC1+	Ext. trig
10	23 CC2-/CC2-	Not used
11	24 CC3-/CC3+	Not used
12	25 CC4-/CC4-	Not used

Pin	Signal	Function
1	26	Power
13	14	GND
2	15	-/+ TxOUT 0
3	16	-/+ TxOUT 1
4	17	-/+ TxOUT 2
5	18	-/+ TxClk
6	19	-/+ TxOUT 3
7	20	+/- RXD
8	21	-/+ TxOUT 0
9	22	-/+ TxOUT 1
10	23	-/+ TxOUT 2
11	24	-/+ TxClk
12	25	-/+ TxOUT 3

Spectral Response



Monochrome —
* Red — Green — Blue —
* Color spectral response not yet available

Europe, Middle East & Africa
Phone +45 4457 8888
Fax +45 4491 3252

Asia Pacific
Phone +81 45 440 0154
Fax +81 45 440 0166

Americas
Phone (Toll-Free) 1 800 445 5444
Phone +1 408 383 0300

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