



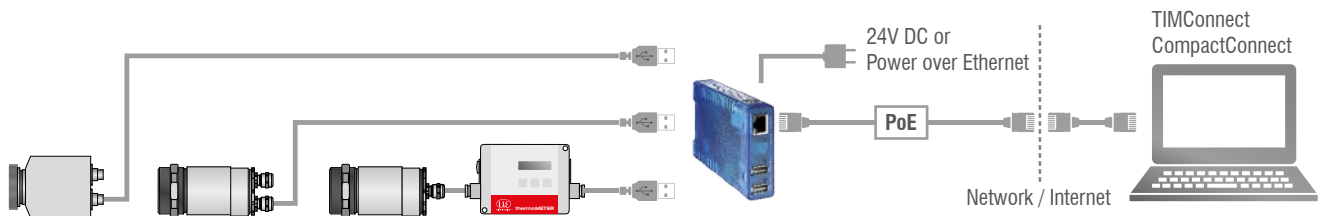
More Precision

thermoIMAGER TIM // Compact thermal imaging cameras



thermoIMAGER TIM USB Server Gigabit**Simple cable extension for the thermoIMAGER TIM series and pyrometers**

- Fully compatible with USB 2.0, data transfer rate 1.5/ 12/ 480mbps,
USB transfer modes: Control, Bulk, Interrupt, Isochronous
- For all models in the thermoIMAGER TIM series 1x TIM640, 1x TIM4xx, 2x TIM160, 1x TIM200
- Full TCP/IP support incl. routing and DNS
- Two independent USB ports
- Galvanic isolation 500V_{RMS} (network connection)
- Remote configuration via web-based management



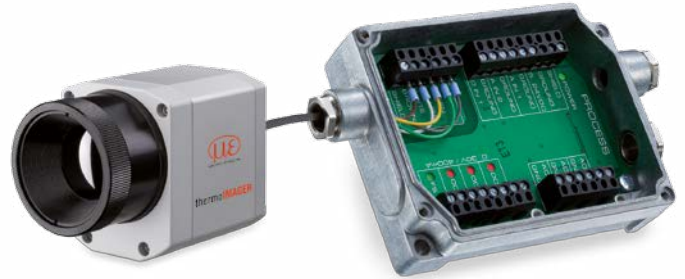
Model	TIM USB Server Gigabit
USB ports	Two independent USB ports
USB speed	480Mbit/s
Network	10/100/1000 BaseT (max. 1000Mbit/s)
Power supply	Power over Ethernet (PoE) class 3 (6.49 - 12.95W) or via screw terminal DC 24V ... 48V ($\pm 10\%$)
Power consumption	External power supply (24V DC) without USB devices: typ. 120mA External power supply (24V DC) with 2 USB devices each 2.5W: typ. 420mA
Ambient temperature range	Storage: -40 ... 85°C In operation, individually assembled: 0 ... 50°C
Permissible relative humidity	0 - 95% (non-condensing)
Housing	Compact plastic housing for DIN rail mount, 105 x 75 x 22mm
Weight	200g
Scope of supply	1 x USB Server Gigabit 24V DC power supply unit Quick guide ¹⁾
USB protocols	USB 1.0 / 1.1 / 2.0 Control / Bulk / Interrupt / Isochronous
Protocols for direct network connection	TCP/IP: Socket Auxiliary protocols: ARP, DHCP, HTTP, PING Inventory keeping, group management

¹⁾ TIMConnect CD or Compact Connect CD: USB redirector | WuTility Management Tool | Operating instructions (DE/EN)

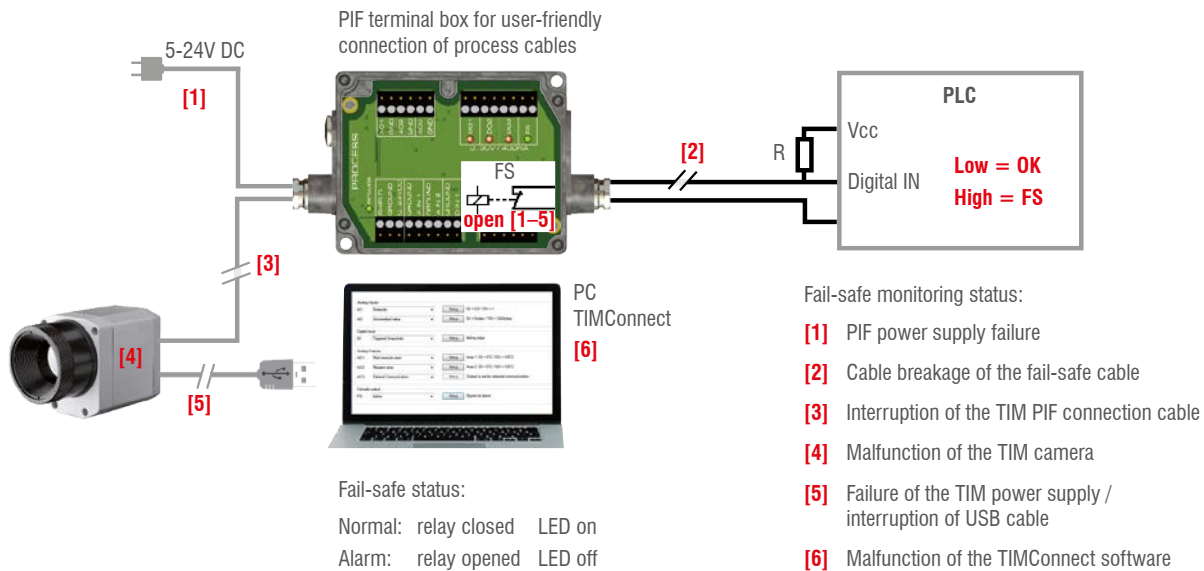
Industrial process interface

Camera and process control for use in industrial environments

- Industrial process interface with 3 analog / alarm outputs, 2 analog inputs, 1 digital input, 3 alarm relays
- 500V AC_{RMS} galvanic isolation between TIM camera und process
- Separate fail-safe relay output
- TIM hardware with all cable connections and the TIMConnect software are permanently monitored during operation



Exemplary fail-safe monitoring of the TIM camera with connected PLC



Model	Industrial process interface
Protection class	IP65 (NEMA-4)
Ambient temperature range	-30°C to 85°C
Storage temperature	-30°C to 85°C
Relative humidity	10 to 95%, non-condensing
Vibration resistance	IEC 60068-2-6 (non-condensing)/ IEC 60068-2-64 (broadband noise)
Shock	IEC 60068-2-27 (25g and 50g)
Weight	610g (with 5m cable)
Cable length	5m, optional 10m and 20m or HT cable (180°C or 250°C)
Power supply	5 to 24VDC
LED indicators	2 green LEDs for voltage and fail safe / 3 red LEDs for alarm relay status
Insulation	500V AC _{RMS} between TIM camera und process
Outputs	3 analog / alarm outputs 3 alarm relays ¹⁾
Inputs	2 analog inputs 1 digital input
Ranges	0 – 10V (for AO 1 – 3) ²⁾ 0 – 30V / 400mA (for alarm relays DO1 – 3) 0 – 10V (for AI 1 – 2) 24V (for DI)
Analog inputs	Emissivity setting Ambient temperature compensation Reference temperature Uncommitted value Flag control Triggered snapshots, triggered recordings, triggered line scan camera
Digital input	Flag control Triggered snapshots, triggered recordings, triggered line scan camera
Analog outputs	Main measuring range Measuring range Internal temperature Flag status Alarm Frame synchronization Fail safe External communication

¹⁾ active when AO1, 2 or 3 is / are programmed as alarm output ²⁾ depends on supply voltage

TIM M1 / TIM M05 ¹⁾	Focal length [mm]	Angle	Minimum measurement distance*	Distance to measurement object [m]											
					0.1	0.2	0.3	0.5	1	2	4	6	10	30	100
382 x 288 px	16	20° 15° 25° 0.94mrad	0.2m	HFOV [m]		0.07	0.11	0.18	0.36	0.72	1.43	2.15	3.6	10.7	35.8
				VFOV [m]		0.05	0.08	0.14	0.27	0.54	1.08	1.62	2.7	8.1	27.0
				DFOV [m]		0.09	0.13	0.22	0.45	0.90	1.79	2.69	4.5	13.5	44.9
				IFOV [mm]		0.2	0.3	0.5	0.9	1.9	3.8	5.6	9.4	28.1	93.8
f=25mm standard lens	25	13° 10° 16° 0.60mrad	0.5m	HFOV [m]	0.023	0.05	0.07	0.11	0.23	0.46	0.92	1.38	2.3	6.9	22.9
				VFOV [m]	0.017	0.03	0.05	0.09	0.17	0.35	0.69	1.04	1.7	5.2	17.3
				DFOV [m]	0.029	0.06	0.09	0.14	0.29	0.57	1.15	1.72	2.9	8.6	28.7
				IFOV [mm]	0.1	0.1	0.2	0.3	0.6	1.2	2.4	3.6	6.0	18.0	60.0
f=50mm telephoto lens	50	7° 5° 8° 0.30mrad	1.5m	HFOV [m]				0.06	0.11	0.23	0.46	0.69	1.1	3.4	11.5
				VFOV [m]				0.04	0.09	0.17	0.35	0.52	0.9	2.6	8.6
				DFOV [m]				0.07	0.14	0.29	0.57	0.86	1.4	4.3	14.4
				IFOV [mm]				0.2	0.3	0.6	1.2	1.8	3.0	9.0	30.0
f=75mm Super telephoto lens	75	4° 3° 5° 0.20mrad	2.0m	HFOV [m]					0.08	0.15	0.31	0.46	0.8	2.3	7.6
				VFOV [m]					0.06	0.12	0.23	0.35	0.6	1.7	5.8
				DFOV [m]					0.10	0.19	0.38	0.57	1.0	2.9	9.6
				IFOV [mm]					0.2	0.4	0.8	1.2	2.0	6.0	20.0

¹⁾ TIM M05 only available with OF25 lens | Please note: the camera provides 382 x 288 px in the 80Hz mode

TIM M1 / M05 with VGA ¹⁾ Resolution	Focal length [mm]	Angle	Minimum measurement distance*	Distance to measurement object [m]											
					0.1	0.2	0.3	0.5	1	2	4	6	10	30	100
764 x 480 px	16	39° 25° 46° 0.94mrad	0.2m	HFOV [m]		0.14	0.21	0.36	0.72	1.43	2.87	4.30	7.2	21.5	71.6
				VFOV [m]		0.09	0.14	0.23	0.45	0.90	1.80	2.70	4.5	13.5	45.0
				DFOV [m]		0.17	0.25	0.42	0.85	1.69	3.38	5.08	8.5	25.4	84.6
				IFOV [mm]		0.2	0.3	0.5	0.9	1.9	3.8	5.6	9.4	28.1	93.8
f=25mm standard lens	25	26° 16° 30° 0.60mrad	0.5m	HFOV [m]	0.046	0.09	0.14	0.23	0.46	0.92	1.83	2.75	4.6	13.8	45.8
				VFOV [m]	0.029	0.06	0.09	0.14	0.29	0.58	1.15	1.73	2.9	8.6	28.8
				DFOV [m]	0.054	0.11	0.16	0.27	0.54	1.08	2.17	3.25	5.4	16.2	54.1
				IFOV [mm]	0.1	0.1	0.2	0.3	0.6	1.2	2.4	3.6	6.0	18.0	60.0
f=50 mm telephoto lens	50	13° 8° 15° 0.30mrad	1.5m	HFOV [m]				0.11	0.23	0.46	0.92	1.38	2.3	6.9	22.9
				VFOV [m]				0.07	0.14	0.29	0.58	0.86	1.4	4.3	14.4
				DFOV [m]				0.14	0.27	0.54	1.08	1.62	2.7	8.1	27.1
				IFOV [mm]				0.2	0.3	0.6	1.2	1.8	3.0	9.0	30.0
f=75 mm Super telephoto lens	75	9° 5° 10° 0.20mrad	2.0m	HFOV [m]					0.15	0.31	0.61	0.92	1.5	4.6	15.3
				VFOV [m]					0.10	0.19	0.38	0.58	1.0	2.9	9.6
				DFOV [m]					0.18	0.36	0.72	1.08	1.8	5.4	18.0
				IFOV [mm]					0.2	0.4	0.8	1.2	2.0	6.0	20.0

¹⁾ TIM M05 is only available with OF25 lens | Please note: the camera provides 764 x 480 px in the 32Hz mode