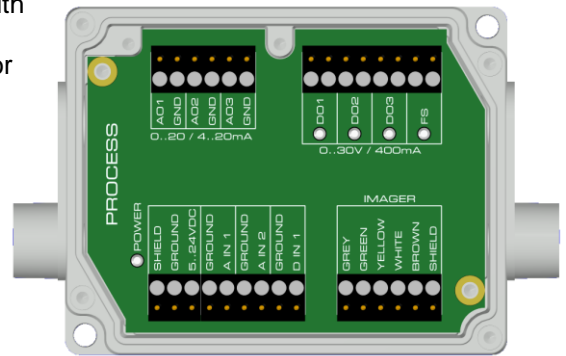# Technical Note

Industrial Process Interface for optris PI series and Xi 400

For use in industrial environment an industrial process interface with 500 VAC$_{RMS}$ isolation voltage between imager and process is available (connection box with IP65, 5 m, 10 m or 20 m standard or high temp cable for camera connection, terminal for process integration).

Pin assignment PIF cable (industrial process interface)

GREY	Interrupt
GREEN	SCL (I²C)
YELLOW	SDA (I²C)
WHITE	3,3 V
BROWN	GND
SHIELD	GND

The industrial process interface offers the following inputs and outputs:

Name	Description	max. range [1]/ status
A IN 1 / 2	analog input 1 and 2	0-10 V
D IN 1	digital input	24 V
AO1 / 2 / 3	analog output 1, 2 and 3	0/4-20 mA
	alarm output 1, 2 and 3	0/4-20 mA
DO1 / 2/ 3	relay output 1, 2 and 3 [2]	open/ closed (red LED on) / 0...30 V, 400 mA
FS	fail-safe relay	open/ closed (green LED on) / 0...30 V, 400 mA

[1] depending on supply voltage
[2] active if AO1, 2 or 3 is/ are programmed as alarm output

The process interface has an integrated fail-safe mode. This enables a complete monitoring of the imager hardware and software like interruption of cables, shut-down of the software etc.
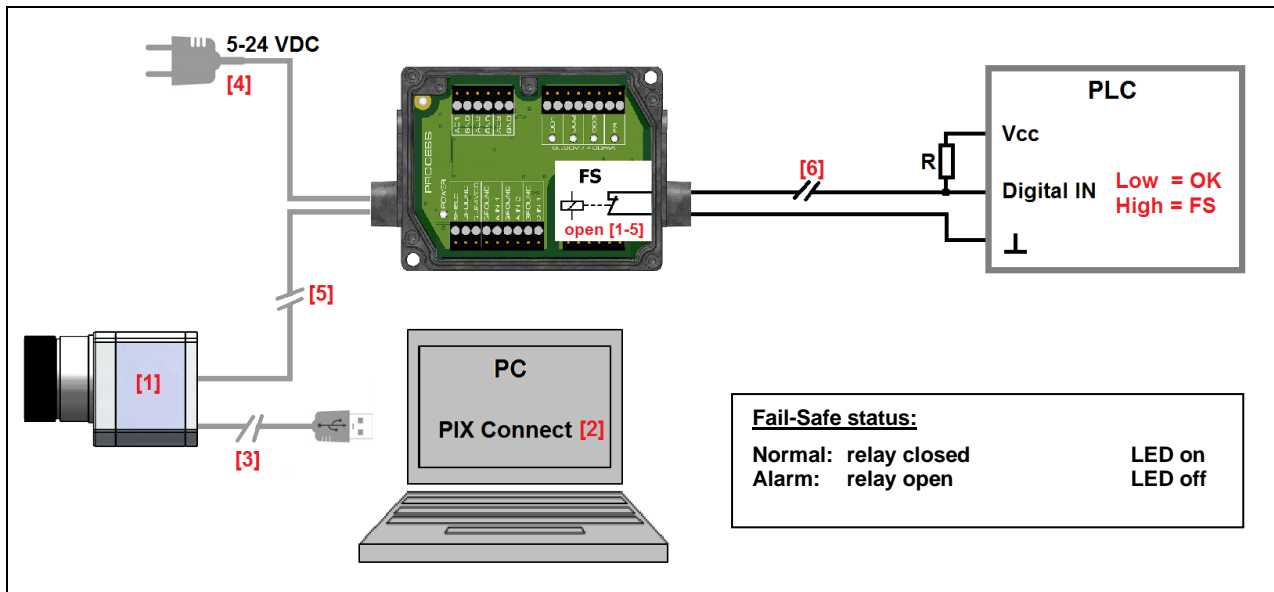The PIF has a separate fail-safe relay output (0-30 V/ 400 mA).

Controlled conditions on camera and software	Industrial Process interface ACXIPIFCBxx
Interruption USB cable to camera	✓
Interruption data cable camera – PIF	✓
Interruption power supply PIF	✓
Shut-down of software	✓
Crash of software	✓
Fail-Safe output	Open contact (Fail-safe relay) / red LED on

Technical Note

Example for a Fail-Safe monitoring of the PI with a PLC

Fail-Safe status:

Normal:	relay closed	LED on
Alarm:	relay open	LED off

Fail-Safe monitoring states

[1]   Malfunction of PI
[2]   Malfunction of PIX Connect software
[3]   Breakdown of PI power supply/ Interruption of USB cable
[4]   Breakdown of PIF power supply
[5]   Interruption of cable PI-PIF
[6]   Cable break of fail-safe cable