



# **OPTRIS PlugIn**

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## 1 Information

#### **1.1 About this manual**

This manual describes the configuration and operation of the OPTRIS PlugIn. The PlugIn supports data acquisition of infrared cameras OPTRIS company from Berlin . The plugin is published and supportes by the company PMR. The plugin is licensed and the license key can be purchased through PMR or IPETRONIK .

### 1.1.1 Support for this PlugIn

Prozess Mess Regeltechnik (PMR) HandelsgmbH St. Peter Hauptstraße 50 • A-8042 Graz Tel.: +43 316 464999-0 • Fax DW: -11 e-mail: office [at] pmr.at Internet: www.pmr.at/ CEO: Erich Kickenweitz

Company register: 323245k UID- number: ATU 64802244 Firmengericht: Landesgericht für ZRS Graz

## 2 System Overview

#### 2.1 Introduction

By OPTRIS PlugIn users can integrate infrared cameras into IPEmotion. It can be transmitted by IPEmotion PlugIn in the current version only the readings of the measuring windows. The transfer of thermographic images is currently not possible.



To be able to run the plug-in must be at least IPEmotion 2014 R1 on your Computer installed .

### 2.2 Supported OPTRIS IR cameras

This PlugIn supports the following PI cameras: http://www.OPTRIS.de/infrarotkameras

PI160 / PI200 / PI400 / PI450

### 2.3 System structure

In order to capture the data from the camera in IPEmotion, following programs must be installed on the measuring computer:

- IPEmotion Release 2014 R1 or higher
- OPTRIS PlugIn (with activation License [4.2.2])
- PI Connect Software with SDK\*

The camera is connected via USB to the measuring computer. A connection via extender cables for long distances is also possible.





The I Information softw (IPC

The PI software must have at least Version : 08/02/2145. Older PI Connect software versions do not support the extended InterProcess Communication (IPC Imager.DLL) for data transmission for IPEmotion OPTRIS PlugIn.

\* (SDK = Software Developer Kit with Imager DLL i.a. for data transmission to IPEmotion)

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## 3 Starting and settings of PI Connect Software

For a data transmission from the Optris PI infrared camera to IPEmotion, the PI Connect software on the measurement computer must be started. The PI Connect software automatically synchronizes the camera calibration files from the Internet or from a local drive and the measurement is starting. The measurement data is then transferred from the PI Connect software via an IPC Imager.DLL to IPEmotion software.



Information <sup>L</sup>

Data acquisition with IPEmotion is only possible if the PI Connect software is started.

#### 3.1.1 Activating IPC communication

For transfer data via PI Connect software to IPEmotion, the Inter Process Communication (IPC) must be activated. For this purpose, the user must call under menu Tools configuration and switch to "External Communication".



neral Measure areas Te	mp. profiles Temp/Time dia	agram Device Device (PIF) Recording Playing
apshots / Copy to clipboard	Trig. Recording / Snapshi	ots Histogram Extended measuring Measuring colors
Image arranging Alarms	External Communication	
Off     IPC     Interprocess Communication	Comport	Activate external communication in the PI Connect software. (IPC = inter process communication).
Mode: Temperatures	•	
Mode: Temperatures	5	

#### 3.1.2 Enable measuring areas

As described above, the OPTRIS PlugIn receives only temperature values from defined measuring areas of the PI Connect software. Therefore, measurement areas must be defined. You have to open configuration in menu Tools switch to "Measure areas".



This screenshot shows that 5 measuring areas where created. The measurement areas can be displayed directly in IPEmotion in the next step.



Save changes with "Apply".

## 4 Installing IPEmotion and OPTRIS PlugIn

### 4.1 Installing IPEmotion Software

You find the current IPEmotion measuring software on the official IPETRONIK website. www.ipetronik.com

### 4.2 Installing and activating OPTRIS PlugIn license

The OPTRIS PlugIn is placed on to the IPETRONIK website for download.

Link: <u>www.ipetronik.com</u>

After you have downloaded the plug-in, it must be installed. The installation wizard leads you through the installation steps.

#### 4.2.1 OPTRIS PlugIn activation in the options

After installing the software IPEmotion needs to be started. The new PlugIn is automatically recognized and is actively enabled via the checkbox in the first column.

212	8 8			X 🖬 🛙	164R)	×						
File						Ì						
	New		Recent	projects list		_						
	Open											
	Save							Activate Plu	ıgIn in O	PTIONS		
æ	Save as				PEmotion options							×
	App Expert				Frequently used	Active		Title	Version	Description	Manufacturer	
<b>~</b>	Approxport				Basic settings		30	GPS	01.05.00	Serial interface for GPS mouse	IPETRONIK	
					Appearance	~	1	SIEMENS PLC	01.05.00.58	Access to process data of Siemens	IPETRONIK	
<b>O</b>	Runtime version				View		2	Video	01.02.00.58	Synchronic recording of video dat	IPETRONIK	
					Data manager	~	£.	Protocols	02.00.00	Protocol acquisition with any CAN	IPETRONIK	
O	Compare				Import	~	<u>a</u>	PROFIBUS	01.01.00	PROFIBUS connector as master or	IPETRONIK	
• and a second					Export			technikmedia Univ	01.01.12	Universal Modbus PlugIn	Technikmedia	
	Print	•			Analysis		1	ETAS - ES4xx	01.01.00.13	Connection of ETAS ES4xx Series	IPETRONIK	
					Maps	1	88	Velleman	02.01.00	Velleman devices	IPETRONIK	
	View				Directories			OPTRIS	C 1.00.00	OPTRIS PI acquisition plugin 🛛 🔞	PMR Hande	
	VIEW				Units	~	D	DATAFORTH MAQ	01.02.04.0001	DATAFORTH MAQ	DATAFORTH	
					Hotkey	~	1	Demo	01.05.00	Generation of demo signals	IPETRONIK	
	Administration	•			User administration		-	PCAN-USB Pro LIN	02.01.00	LIN Master/Slave	IPETRONIK	
			-		IPEdoud							
3	Options		Option: Show/e	dit general IP	PlugIns User displays					Download manua	al Downlow	ad
	About	_			User operations	Plugin s Specify to The used no autom	ettings he plugin l plugin hatic upo	s ns to be used. version can be changed late is run at installing k	within the list. If ater plugin version	a version number is selected that ends 15.	with a '=' character	r, _
0	Close									0	K Car	ncel

#### 4.2.2 Activating OPTRIS PlugIn license

IPEmotion is available for 30 days as a demo Edition free of charge. The license key for the demo edition can be purchased from the IPETRONIK website. For further use of IPEmotion, you can use the free BASIC edition or buy a license from PMR or IPETRONIK.

The OPTRIS PlugIn is a licensed PlugIn. The OPTRIS PlugIn can be used by IPEmotion Demo period without license keys for 30 days.

If you like to use the PlugIn afterwards please contact PMR regarding a an license key. To activate the plugin, you have to enter the license key in the license dialog.

New Open Save Save as Gener	nfiguration		Projec	ct properties
Name Company name Serial number Manufacturer Project name	About IPEmotion 20	115 R2 Developer-Edition IPEmotion 2015 R2 Developer-Edit V05.01.00 Copyright © 2015 IPETRONIK Gmb All rights reserved.	n A & Co.KG	
Project manager name E-mail address project manager User E-mail address user User login Description IPEmotion version Ele name		IPETRONIK GmbH & Co. KG Im Rolfeld 28 75532 Baden-Baden, Germany Tel.: + 49 72 21 99 22 0 Mali: info@ipemotion.com	IPEmotion - Licensing           License key         28513-WP00D-#E052-00000-00FTD-00005-70000-00000-00000         00000-00000           License information:         Developer 454001:         +           Developer 454001:         +         Automation           + Automation         +         +           + Control         +         Control	, ,
Date	12.10.2015 08:07:52		Gimate	

Use the "Apply" button to enter the activation menu. The activation over internet is recommended. The following video shows the procedure for activating a license online. Youtube: <u>http://youtu.be/CEPdWfh-KnM</u>. If the PlugIn is activated, in the license dialog OPTRIS PlugIn appears.

513-NP000-KE052-00000-00F	TD-00005-70000-00000-00000-00080			
ense information: veloper-Edition: Automation				
latomation facto recording				
imate				
Rd5	PEmotion - Licensing	×		
~	License key			
	H1G17-NP00D-KE06Z-00000-00QDP-00004-L2040-00000-00000-00080			
	Кеу	Edition	Control	Climate
	2R513-NP00D-KE05Z-00000-00FTD-00005-70000-00000-00000-00080	Developer	×	~
	H1G17-NP00D-KE06Z-00000-00QDP-00004-L2040-00000-00000-00080	PlugIn OPTRIS: Full		
	EMU03-20007-LP05Z-00000-00XTX-X7004-10000-00000-00000-02000	Professional	~	
Assion Read fro	B8F03-1000X-Y10ZZ-6H4Y0-00000-00002-10000-00000-00000-02000	Basic	~	
roogr I I I I I I I I I I I I I I I I I I I	8D803-6H40W-Y10ZZ-2E000-00Z7S-CZ202-00000-00000-00000-00000	Basic		
	80803-6H40W-F1022-2E000-00275-C2202-00000-00000-00000	basic	1.1.1	

PlugIn license is activated.

## 5 Configure OPTRIS PlugIn

### 5.1 Automatic hardware identification

The OPTRIS PlugIn supports automatic HW recognition. If only one OPTRIS PI camera is connected via the USB connection on the PC, then you can establish the connection to the device via the "Detect" button.



Run automatic HW detect when camera is connected to PC.

After hardware detection all measurement areas of the PI software are automatically shown in IPEmotion. The channels have to be activated by the hardware detection, so that measurement data is displayed.

File Project	Signals	A	quisition View	Data	manage	er Ana	lysis Re	porting	Scripting	Info
OPTRIS Hardware	System Cor	npone	Functions Import	Export	Check	Adjust D	etect Initializ	e Display	Details	
01.00.00.99			Name	Aktiv	Einheit	Phys Min	Phys Max	Sensor Min	Sensor Ma	x Abtastrate
me	Σ	٩								
			Image Snapshot	~		0	1			1 Hz
🔶 OPTRIS PI 1	9		Start movie recording	~		0	1	0	1	1 Hz
			Stop movie recording	~		0	1	0	1	1 Hz
			Case temperature	~	°C	-19,99999	100	-19,999998	100	1 Hz
			Measurement area 0	~	°C	-19,99999	100	-19,999998	100	1 Hz
			Measurement area 1	~	°C	-19,999999	100	-19,999998	100	1 Hz
			Measurement area 2	~	°C	-19,99999	100	-19,999998	100	1 Hz
			Measurement area 3	X	°C	-19,999999	100	-19,999998	100	1 Hz
			Measurement area 4	Confi Snap	guration	n Copy to clipbo	ard Trig. Rec	ording / Snaps	hots   Histo	gram Extended mea
		Al	gemein Connection	En Gen	eral Me	asure areas	Temp. profiles	Temp/Time	diagram De	evice Device (PIF)
			Aktiv:	A	ea 0 - Ce	enter <main></main>		Add	Me	easure area
			Name: OPTRIS F	PI Are	ea 1 - TC	)P			Na	ame: Area 0 - Cer
			Reschreibung:	Are	ea 3 - Bo	ttom		Remov	/e	Flipse
			Deferenz:	Are	ea 4 - Ri	ght	J	Up		Maximum
			Abtastrate:					Down	,	Bind to temperatu
			And Andrews Man					Main mea	sure	Emissivity: 1.00

All measurement areas are automatically integrated to IPEmoation as measurement channels.

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In Information "m

In IPEmotion meassuring areas are only shown with neutral numbering naming "measurement area 0" to "measurement area x". Individual area names from the software Optris PI can not currently be transferred to IPEmotion

### 5.2 Optris system – Standard channels

If no measuring areas have been created in the PI software and you perform a hardware detection or when you create a system in OPTRIS IPEmotion manually, the following 4 channels are created in the standard.

File Project	Signals	5 /	Acqui	sition View	Data r	manage	er A	Analysis	Rep	orting	Scripting	Info
OPTRIS Hardware	System	Compo	nents	Functions Import	Export	Check	Adjust	Detect	Initialize Access	<b>Display</b>	Details View	
V01.00.00.123			1	Name	Active	Unit	Phys Mir	n Pł	nys Max	Sensor M	in Sensor Max	Sampling rate
Name		Σ	۴			~						
			+ 1	Image snapshot			0	1		0	1	1 Hz
Optris PI 1		0	-	Start movie recording		L	0	1		0	1	1 Hz
1000			-	Stop Movie recording		TR	0	1		0	1	1 Hz
							No. and the				0 0 4000004	4.11-

4 standard channels of the OPTRIS system.

The use of these channels is described in the section of the measuring channel configuration [5.9].

### 5.3 Start measurement

The measurement can be started immediately. Then, the measurement data of the PI Connect software on the IPC Imager DLL is transferred to IPEmotion.

		xhheal	XXnn	~	1PEmotion		
File Project	Signals	Acquisition View	Data manager	Analysi at Dete	Reporting Scripting Info	• •	bileffe prmko prmef
Hardware		Configuration			Access		
V01.00.00.99		Name	Aktueller Aktiv	Einheit	Doptris PI Connect (Rel. 2.8.2139.0)		×
OPTRESPE 1		Image Snapshot     Start movie recording     Stop movie recording     Case temperature     Measurement area 1     Measurement area 2     Measurement area 3     Measurement area 4	0,00 ♥ 0,00 ♥ 29,15 °C ♥ 67,30 °C ₽ 23,70 °C ₽ 23,70 °C ₽ 25,10 °C ₽	A A A A A	He     Eat     View     Devices     Tools     Help       Image: Second	30 30 30 30 30 C Area 0 - Center 67,3° Area 1 - TOP 21,4° Area 2 - Left 38,2°C	
		Algemein Forman S Sensormodus Modus: Sensorbereich Mini: Physikalischer Bereich Mini: 0,00	utering Aungeng (	Max:	S - - - - - - - - - - - - -	Area 3 - Bottom 23,7°C Area 4 - Right 25,1°C	
Name		Status	Rohdatei	_	PI IMAGER #13010079 62" -20"C 100"C 80Hz/20Hz =1.000 24.2"	C IPC 🛋 👰	
Speichergruppe-1		Offine			for the former of the former for the	- 1	1

IPEmotion displays the same readings from the PI connect software.

### 5.4 Tab sheet – General

In the General tab, you can assign the name of the camera and set aside a description. The adjustment of the sample rate is described below measurement channels. [Fehler! Verweisquelle konnte nicht gefunden werden.].

813	- 8 2	<b></b>	a X	Ee		Ê	P	B	X	* •	0		3	?	8
File	Project	Signal	s	Acqu	uisition		View	ſ	Data	manage	er	Analy	sis		Repo
(		System	Comp	onent	<b>s</b> Fun	ctions	Imp	ort	Export	Check	 Adjust	t Det	f tect	<b>X</b> Initia	alize
н	ardware					Config	juratio	n						Acc	ess
V01.00.0	00.123				Name				Active	Unit	Phys	Min	Phy	ys Ma	x
Name		<u> </u>	Σ	۴											
				•	Image	snaps	hot				0		1		
	Optris PI 1		0		Start n	novie r	ecord	ing			0		1		
					Stop M	lovie r	ecordi	ng			0		1		
					Case t	emera	ture				-3,40	2823	3,4	10282	23
				Ge	neral	Con	nectio	n	Emissio	n / Trans	mission				
						Activ	e: 🗸								
						Name	e: 0	ptris l	PI 1						
					Desc	riptior	n: S	ystem	n for infi	rared can	neras				
					Ref	erence	: 0	ptris l	PI 1						
					Sampli	ng rat	e: 1	Hz							

### 5.5 Tab sheet – Connection

In this tab you can view the details associated camera. These areas are read automatically before the start of the measurement or during the hardware detection from the PI software. A special feature is the connection to several cameras. Therefore an automatic detection of the hardware is not possible; it has to be assigned a PI Connect instance name, which is then registered as a dry -scale system in the "Instance Name" area. For more information see chapter [Fehler! Verweisquelle konnte nicht gefunden werden.].

Allgemein	Connection	Emission / Trans	smission
	Instance name		*
	Serial number	13010079	d
ersion of the	ImagerIPC2.dll	2.3.2024.0	Enter instance nam
Versio	n of PI Connect	2.8.2139.0	
	GetTempFlag	31.600002	

### 5.6 Tab sheet – Emission/Transmission

Emission and transmission are two important parameters that need to be adjusted depending on the measured object. You can either define these parameter with the OPTRIS software in the tab "Device" or via IPEmotion. If you enter the parameters in one of the software the other program will be updated with the new input value.

	PI Connect software
	Configuration
	IR Image arranging       Alams       External Communication         Snapshots / Copy to clipboard       Trig. Recording / Snapshots       Hatogram       Extended measuring       Measuring colors         General       Measure areas       Temp. profiles       Temp/Time diagram       Device       Device<
IPEmotion Alloemein Connection Emission / Transmission	Detector heating (Chip temperature mode)     Optics       Image: Standard (Floating)     Automatic       Image: Fixed value     55       Image: Standard (Floating)     Automatic       Image: Fixed value     55       Image: Standard (Floating)     Temperature range
FixedEmissivity 1 FixedTransmissivity 1	Transmissivity:     1.000 ☆       Image: Revision temperatures     1.000 ☆       Vdeo formats     IR:       382x288@80Hz     382x288@80Hz
Emissions- & Transmissions can be entered over IPEmotion.	Auto apply     OK Apply Cancel

i

#### Information

In IPEmotion the parameters for emission / transmission can only be entered before the start of measurement. If the values are changed, the measurement must be paused.

## 5.7 Configuration of measuring channels

#### 5.7.1 Setting the sampling rate

The sampling rate is set globally for all channels (measuring areas). You can enter the sampling rate to equipment level or update a measurement channel and all other channels are being updated as well

The sampling rate for the measurement values from the measurement areas is limited to a maximum of 10 Hz. The measuring areas are updated via the PI software with the Imager.DLL only up to a maximum of 10 times / second (10 Hz).

File Project Sig OPTRIS Sys Hardware	gnals	Acqu onents	Functions	View Import	Data n	nanage Oheck	Ana)	vsis Rep Karalian Rep Rep Rep Rep Rep Rep Rep Rep	Display Vie	cripting ails w	Info
V01.00.00.123			Name		Active	Unit	Phys Min	Phys Max	Sensor Min	Sensor Max	Sampling rate
Name 🔺	Σ	ę									
		I	mage Snapsho	t	~		0,00	1,00	0	1	5 Hz
OPTRIS PI 1	9	s	tart movie rec	ording	~		0,00	1,00	0	1	5 Hz
		s	top movie reco	ording	~		0,00	1,00	0	1	5 Hz
		C	ase temperati	ure	~	°C	-20,00	100,00	-19,999998	100	5 Hz
		+ 1	leasurement a	rea 0	~	°C	-20,00	100,00	-19,999998	100	5 Hz
		Μ	leasurement a	rea 1	~	°C	-20,00	100,00	-19,999998	100	5 Hz
		M	leasurement a	rea 2	~	°C	-20,00	100,00	-19,999998	100	5 Hz
		M	leasurement a	rea 3	~	°C	-20,00	100,00	-19,999998	100	5 Hz
		M	leasurement a	rea 4	~	°C	-20,00	100,00	-19,999998	100	5 Hz
										1	1
		Gene	ral Connec	tion Er	mission / T	ransmiss	sion			/	
			Active:	~						/	
			Name:	Optris PI	1			Enter	sample rate	globally or	device
			Description:	System f	or infrared	d camera	as	level	or on channe	el level.	
			Reference:	Optris PI	1		/	/			
		Reference:				K					



Information

Higher sample rates than 10 Hz can be entered, but won't increase the transmission of measured values.

#### 5.7.2 Temperature ranges of the measurement areas

The PI Connect software supports 3 different measurement ranges that are presented in IPEmotion in column Physical Min / Max or physical sensor Min / Max sensor.

- ▶ -20 100°C
- ▶ 0 250°C
- ▶ 150 900°C

You can change the measuring ranges in the PI Connect Software with the menu Tool > Configuration within the Device tab. The measuring range is updated before the start of measurement in IPEmotion as the following screenshot shows



## 5.8 Synchronization of the measuring areas PI Connect to IPEmotion

#### 5.8.1 Adding measuring areas

If the number of measurement areas changes in the PI Connect software, this change can be easily redrawn in IPEmotion. If a further measurement area occurs, you can use the "synchronization function" to record the new area in the configuration.

Example: Area 6 was applied as a further measuring area . See also [Fehler! Verweisquelle konnte nicht gefunden werden.].

Configuration Snapshots / Copy to clipboard Trig. Record	ding / Snapshots   H	istogram	Extended mea	suring Mea	asuring colors
IR Image arranging   Alarms   External Comm General Measure areas Temp. profiles	Temp/Time diagram	Device	Device (PIF)	Recording	Playing
Area 0 - Center <main></main>	Add	Measure	area		
Area 1 - TOP Area 2 - Left	Remove	Name:	Area 6		Show in image
Area 4 - Right	Up	Mode:	User def. red	ctangle	•
Area o	Down	E Die	Mean value	• •	
	Main measure area	Emi	ssivity: 1.00	0	
Show in image Show nam	e at location:	Position Locatio (Cente Size:	n: X: r) Y: Width: Height: Center	130 \$\local{130} \$\local{130}\$ 250 \$\local{130}\$ 47 \$\local{130}\$ 36 \$\local{130}\$	Hot spot
	(	Ed	Edit calculate	ed measuring eas of hotspo	g objects ots/coldspots
V Auto apply	OK		Apply	Ca	ancel



s 🗈 🔒 🗄 🗟 🕯	1 🔒 🗙	s Eq	a 🛍 🔒 🔒 🔓	X %	00	🖬 🐝 🕓	0 / 📢	5 · · ·		1
File Project S	ignals	Acq	uisition View	Data ma	nager	Analysis	Reportir	ng Scriptin	ng Info	
OPTRIS Sys	stem Comp	onen	ts Functions Import	Export C	neck Adj	just Detect	t Inisalize Dis	play Details		
Hardware			Configuration			16	Detect			
V01.00.00.123			Name	Active	Unit Ph	ys Min	Detection of	the connected ha	ardware am	pling rate
Name	Σ	٩					Mapping			
			Image snapshot	~	0	(+ <b>m</b> )	Mapping of t	he hardware to t	he H	z
Optris PI 1	4		Start movie recording	~	0		Synchroniz	re.	н	Synchronia
			Stop Movie recording	~	0		Synchroniza	tion of the configu	uration H	z The curren
		<b>→</b>	Case temerature	~	-3	,402	and the hard	Iware	н	the devices apply to th
Sy	nchonising OP	TRIS	systems			New "I	Measurer	ment Area	5" was c	reated.
Sy	Canc	otris :	systems			New "I	Measurer	nent Area	5" was c	reated.
Syn	Canc	el	systems	Aktiv	Einheit	New "I	Phys Max	ment Area	5" was c	Abtastrate
Syn V01.00.00.99 Name	Canc	el	systems	Aktiv	Einheit	New "I	Phys Max	Sensor Min	5" was c	Abtastrate
Sy V01.00.00.99 Name	Canc	el	systems	Aktiv	Einheit	New "I	Phys Max 1,0	Sensor Min	5" was c	Abtastrate
Sy V01.00.00.99 Name OPTRIS PI 1	Synchronising OP	rtRIS : cel	Name Image Snapshot Start movie recording	Aktiv	Einheit	New ,, I Phyr Min 0,0 0,0	Phys Max 1,0 1,0	Sensor Min 0 0	5" was c	Abtastrate
Sy V01.00.00.99 Name OPTRIS PI 1	Cance 10	rtris : cel	Name Image Snapshot Start movie recording Stop movie recording	Aktiv III V V	Einheit	New "I Phy Min 0,0 0,0 0,0	Phys Max 1,0 1,0 1,0	Sensor Min	Sensor Max	Abtastrate
Sy V01.00.00.99 Name OPTRIS PI 1	Cance	rtris : cel	Name Image Snapshot Start movie recording Stop movie recording Case temperature	Aktiv III V V	Einheit	New "P	Phys Max 1,0 1,0 1,0 250,0	Sensor Min 0 0 0 1,4901161	Sensor Max Sensor Max 1 1 1 250	Abtastrate 1 Hz 1 Hz 1 Hz 1 Hz
Syn V01.00.00.99 Name OPTRIS PI 1	Cance	rtris : el	systems Systems Name Image Snapshot Start movie recording Stop movie recording Case temperature Measurement area 0	Aktiv III V V V V	Einheit C °C	New "I Phys Min 0,0 0,0 0,0 0,0 0,0 0,0	Phys Max Phys Max 1,0 1,0 1,0 250,0 250,0	Sensor Min 0 0 1,4901161 1,4901161	Sensor Max Sensor Max 1 1 250 250	Abtastrate Abtastrate 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz
Syn V01.00.00.99 Name OPTRIS PI 1	Cancella Concella Con	rtRIS :	Name Image Snapshot Start movie recording Stop movie recording Case temperature Measurement area 0 Measurement area 1	Aktiv III V V V V	Einheit C °C °C	New "I Phys Min 0,0 0,0 0,0 0,0 0,0 0,0 0,0	Phys Max Phys Max 1,0 1,0 250,0 250,0 250,0	Sensor Min Sensor Min 0 0 1,4901161 1,4901161	Sensor Max Sensor Max 1 1 250 250 250	Abtastrate Abtastrate 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz
Sy V01.00.00.99 Name OPTRIS PI 1	Synchronising OP	PTRIS :	Name Image Snapshot Start movie recording Stop movie recording Case temperature Measurement area 0 Measurement area 1 Measurement area 2	Aktiv III V V V V	Einheit C °C °C °C	New "I Phys Min 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0	Phys Max           1,0           1,0           250,0           250,0           250,0           250,0	Sensor Min Sensor Min 0 0 1,4901161 1,4901161 1,4901161	Sensor Max Sensor Max 1 1 250 250 250 250	Abtastrate Abtastrate 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz
Sy V01.00.00.99 Name OPTRIS PI 1	nchonising OP Canc	PTRIS :	Name Image Snapshot Start movie recording Stop movie recording Case temperature Measurement area 0 Measurement area 1 Measurement area 2 Measurement area 3	Aktiv III V V V V V	Einheit C °C °C °C °C	New ,, f Phys Min 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0	Phys Max           1,0           1,0           250,0           250,0           250,0           250,0           250,0           250,0           250,0           250,0           250,0           250,0	Sensor Min Sensor Min 0 0 0 1,4901161 1,4901161 1,4901161 1,4901161	Sensor Max Sensor Max 1 1 250 250 250 250 250	Abtastrate Abtastrate IHz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz 1Hz
Sy V01.00.00.99 Name OPTRIS PI 1	nchonising OP Cance 10	PTRIS :	Name Name Image Snapshot Start movie recording Stop movie recording Case temperature Measurement area 0 Measurement area 1 Measurement area 3 Measurement area 3 Measurement area 3	Aktiv III V V V V V V V	Einheit C C C C C C C C C C C C C C C C	New ,, I Phys Min 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,0 0,	Phys Max Phys Max 1,0 1,0 250,0	Sensor Min Sensor Min 0 0 0 1,4901161 1,4901161 1,4901161 1,4901161 1,4901161	5" was c	Abtastrate Abtastrate 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz

Use the Synchronize function in IPEmotion to add an additional measuring area.

*Information* 

When a measuring area in the PI Connect software is added, then IPEmotion puts only a new measurement area with the generic description "Measurement area x". It is currently, as described in section automatic hardware detection [5.1] described, not possible to synchronize the name of the measurement areas of the PI Connect software to IPEmotion

#### 5.8.2 Deleting measuring areas – Impact on IPEmotion

The channels to the measurement areas, there is another configuration tab "Connection " with a configuration area " Area Number. The hardware detection counts "Area Number " is from 0 to the n -th measurement area up. In the automatic hardware detection, the Area Number are automatically assigned correctly and the measured values of the PI Connect software are transmitted correctly to the measurement channels in the IPEmotion.

The first measuring area has automatically the area number = 0.

The second area automatically = 1, etc...

s 👛 🖴 🗄 🖶 🕯	×	1a <b>ia 14 2a 1</b>	* *	0	1	8 0	<b>1</b>	
File Project Signals	A	quisition View	Data ma	inager	Ana	alysis	Reporting	Scripting
OPTRIS System Com	pone	ents Functions Import	Export d	neck Ac	 Jjust [	Detect Initi	alize Display	Details
Hardware	-	Configuration	Prostani	ALAL	Tink atk	Aci	Dhun Mau	View
V01.00.00.39		Name	beschrei	AKUV	Enneit	Phys Min	Phys Max	Sensor Min
Name 2	T	Turner Considert	1			0.0	1.0	0
		Image Snapshot	_	~		0,0	1,0	0
OPTRIS PI 1 8		Start movie recording		¥		0,0	1,0	0
		Stop movie recording		~		0,0	1,0	0
		Case temperature			90	-20,0	100,0	-19,999998
	1	Measurement area 0	Left		°C	-20,0	100,0	-19,999998
		Measurement area 1	Middle	~	°C	-20,0	100,0	-19,999998
		Measurement area 2	Right	~	°C	-20,0	100,0	-19,999998
		Measurement area 3	Bottom	~	°C	-20,0	100,0	-19,999998
	G	eneral Format S Area Number	caling Di	splay	Conne	ction		

Area Number is the common ID to link PI conenct areas to IPEmotion.

#### Configure OPTRIS PlugIn

Deleting measurement areas has since Area Numbers change a direct impact on the measurement data display in the IPEmotion in the PI Connect software.

Example:

In the initial configuration, there are 4 measuring areas. In the example, the measurement box "Area 2 - Middle" removed from the PI Connect software.



The screenshot below shows the effect on IPEmotion. After the measurement area "Area 2 - Middle" was removed the measured values shift in the IPEmotion display. All mesurements slip up one line. In order to make the behaviour more visible the column description was displayed in the same channel name was deposited in IPEmotion as in the Optris PI Connect software. To see this effect the description column, which is the same channel name as of IPEmotion and the Optris PI Connect software, was displayed.



#### Configure OPTRIS PlugIn

Output	system		after deleting	g Area 2 – Middle
Area N	umber II	)	the display c	hanges in IPEmotion
ID 0	Left	ca. 70 °C (hot water)	no c	hanges - OK
ID 1	Middle the ice	ca. 50°C (power Supply) pack in IPEmotion (12 ° C )	is no	o longer detected but shows the temperature of
ID 2	Right	ca. 12 °C (ice pack)	ln m	easuring area is Right in IPEmotion now
Ambier	nt tempe	rature display ( about 23 ° C )		
ID 3	Bottom	ca. 23 °C (ambient conditions)	IPEr	notion shows 0 °C

The deletion leads to a rearrangement of the area ID numbers in the Optris PI Connect software. All measurement areas behind the measuring area "Area 2 - . Center (ID 2) have shifted with its successive ID by one count upward. This explains the channel measurement box " Middle " in IPEmotion and the temperature is represented by the ice cube .

The order of the measuring areas ( channels ) in the PI Connect software automatically decides which ( Area Number IDs ) for IPEmotion .



Attenion

It is not possible to transmit on the IPC.DLL the changes of the measurement areas in the PI Connect software was automatically after IPEmotion . You must make sure that the Area Numbers and corresponding channel name in IPEmotion with the PI Connect software correctly itself .

If the measurement is stopped and restarted, then an error message is displayed in the message window IPEmotion .

🗧 📩 블 🗃 🛃	🏯 🔒 🗙		ñ # 2 E	x x	<u>× n</u>	0.4	0	3 🔽	<b>⊕</b>		
File Project	Signals	Acqui	sition View	Data	manage	r A	nalysis	Report	ting Scrip	ting Info	fo 🕜 🕜
	System Compo	nents	Functions Import	Export T	Check	 Adjust	M Detect	Initialize	Display Details		
Hardware			Configuration					Access	View		
V01.00.00.99			Name	Bes	chrei	Aktiv	Einheit	Phys Min	Phys Max	Sensor Min	Sensor Max
Name	Σ	٩									
		•	Image Snapshot			~		0,0	1,0	0	1
🔶 🚫 OPTRIS PI 1	8		Start movie recordin	g		~		0,0	1,0	0	1
			Stop movie recordin	g		~		0,0	1,0	0	1
			Case temperature			~	°C	-20,0	100,0	-19,999998	100
			Measurement area (	) Lef	t	~	°C	-20,0	100,0	-19,999998	100
			Measurement area	1 Mid	dle	~	°C	-20,0	100,0	-19,999998	100
			Measurement area	2 Rig	ht	~	°C	-20,0	100,0	-19,999998	100
		$\Diamond$	Measurement area	Bot	tom	~	°C	-20,0	100,0	-19,999998	100
			Error mess areay defir	age in 1ed ins	dicat ide C	ing th Optris	at (Ar PI so	rea ID : ftware	= 3) is hig	ther than a	any
		4									Þ
Symbol Zeit	Ŧ	Тур	Quelle		Meldu	ing					
<b>()</b> 25.08.2014	14:55:41,133	ERR	OR Measu	irement .	Area	index to	oo great				
25.08.2014	14:55:38,515	ERR	OR		Area	index 3	found o	n channel	l'Measuremen	t area 3' out of	range.
25.08.2014	13:29:42,306	INFO	DRMATION IPETR	ONIK CAP	N Es w	rurde kei	in geeigr	netes CAN	-Medium gefu	nden.	
25.08.2014	11:46:30,292	INFO	ORMATION IPETR	ONIK CAN	Es w	rurde kei	in geeigr	netes CAN	-Medium gefu	nden.	-
🗏 Meldungen 🖽 Sta	atus 🛛 🖼 Speid	nerun	g 🔳 Ausgabe								
1 von 1 ausgewählt	🕞 🚫 Meas	surem	ent area 3: Area inde	x too grea	t.					Nutzungsta	g 10 of 60 📝

So that you still represent in an existing configuration IPEmotion the correct measurements of the OPTRIS PI Connect in IPEmotion, you need to adapt Area IDs in IPEmotion on the IDs in PI Connect software. The following screenshot shows the deleted Area "2. Middle" is disabled as not active in IPEmotion. If the IDs between the two programs go together the correct measuring values are going to be transmitted from IPEmotion software to PI Connect.



The affected downstream channels Area Number was in the channel configuration the tab "Connection " updated to the values in the OPTRIS software.

napshot vie recording perature ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom		ς ς ς ς	0,0 0,0 0,0 -20,0 -20,0 -20,0 -20,0 -20,0 -20,0	1,0 1,0 1,0 100,0 100,0 100,0 100,0	0 0 0 -19,999998 -19,999998 -19,999998 -19,999998	1 1 1 100 100 100	1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz	ID 0 ###
napshot vie recording mperature ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom	Y Y Y Y Y	ະ ເ ະ ະ ະ ະ	0,0 0,0 -20,0 -20,0 -20,0 -20,0 -20,0 -20,0	1,0 1,0 1,0 100,0 100,0 100,0 100,0	0 0 -19,999998 -19,999998 -19,999998 -19,999998	1 1 1 100 100 100	1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz	ID 0 ###
vie recording vie recording mperature ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom	<b>Y Y Y Y</b>	ະ ເ ະ ະ ະ	0,0 0,0 -20,0 -20,0 -20,0 -20,0 -20,0	1,0 1,0 100,0 100,0 100,0 100,0	0 0 -19,999998 -19,999998 -19,999998	1 1 100 100 100	1 Hz 1 Hz 1 Hz 1 Hz 1 Hz 1 Hz	ID 0 ###
vie recording mperature ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom	y y y v y	ଂ ୧୦ ୧୦ ୧୦ ୧୦	0,0 -20,0 -20,0 -20,0 -20,0 -20,0	1,0 100,0 100,0 100,0 100,0	0 -19,999998 -19,999998 -19,999998	1 100 100 100	1 Hz 1 Hz 1 Hz 1 Hz	ID 0 ###
mperature ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom	<b>&gt; &gt; &gt;</b>	ି କୁ କୁ କୁ କୁ	-20,0 -20,0 -20,0 -20,0	100,0 100,0 100,0 100,0	-19,999998 -19,999998 -19,999998 -19,999998	100 100 100	1 Hz 1 Hz 1 Hz	ID 0 ###
ment area 0 ment area 1 ment area 2 ment area 3	Left Middle Right Bottom	> >	ବ୍ଦ ବ୍ଦ ବ୍ଦ	-20,0 -20,0 -20,0	100,0 100,0 100,0	-19,999998 -19,999998 -19,999998	100 100	1 Hz 1 Hz	ID 0 ###
ment area 1 ment area 2 ment area 3	Middle Right Bottom	>	ି ୯୦ ୩୦	-20,0 -20,0 -20,0	100,0 100,0	-19,999998	100	1 Hz	###
ment area 2 ment area 3	Right Bottom	× ×	°C °C	-20,0	100,0				
ment area 3	Bottom	>	°C	-20,0				1 Hz	ID 1
					100,0	-19,999998	100	1 Hz	ID 2
									_
ement area 0	Left	~	°C	-20,0	100,0	-19,999998	100	1 Hz	ID 0
ement area 1	Middle		°C	-20,0	100,0	-19,999998	100	1 Hz	###
ement area 2	Right	~	°C	-20,0	100,0	-19,999998	100	1 Hz	ID 1
ement area 3	Bottom		°C	-20,0	100,0	-19,999998	100	1 Hz	ID 2
	ment area 0 ment area 1 ment area 2 ment area 3	ment area 0 Left ment area 1 Middle ment area 2 Right ment area 3 Bottom	ment area 0 Left ment area 1 Middle ment area 2 Right ment area 3 Bottom	ment area 0 Left ✓ ℃ ment area 1 Middle □ ℃ ment area 2 Right ✓ ℃ ment area 3 Bottom ✓ ℃	ment area 0 Left ✓ °C -20,0 ment area 1 Middle ⊂ °C -20,0 ment area 2 Right ✓ °C -20,0 ment area 3 Bottom ✓ °C -20,0	ment area 0         Left         ✓         °C         -20,0         100,0           ment area 1         Middle         □         °C         -20,0         100,0           ment area 2         Right         ✓         °C         -20,0         100,0           ment area 3         Bottom         ✓         °C         -20,0         100,0	ment area 0         Left         ♥ ℃         -20,0         100,0         -19,999998           ment area 1         Middle         ℃         -20,0         100,0         -19,999998           ment area 2         Right         ♥ ℃         -20,0         100,0         -19,999998           ment area 3         Bottom         ♥ ℃         -20,0         100,0         -19,99998	ment area 0         Left         ♥         °C         -20,0         100,0         -19,999998         100           ment area 1         Middle         ♥         C         -20,0         100,0         -19,999998         100           ment area 2         Right         ♥         ♥         -20,0         100,0         -19,999998         100           ment area 3         Bottom         ♥         ९C         -20,0         100,0         -19,99998         100	ment area 0         Left         ✓         °C         -20,0         100,0         -19,999998         100         1 Hz           ment area 1         Middle         °C         -20,0         100,0         -19,999998         100         1 Hz           ment area 2         Right         ✓         °C         -20,0         100,0         -19,99998         100         1 Hz           ment area 3         Bottom         ✓         °C         -20,0         100,0         -19,99998         100         1 Hz

Special feature:

Several IPEmotion measurement channels may get assigned to the same Area ID Number. In the case of measuring channel are then shown the same readings on each IPEmotion. In the screenshot below , each measuring channel in IPEmotion has the ID = 0. Thus, the temperature at the measurement area on all 3 channels "Area 1 - Left" ( $37.3 \degree C$ ) appears.



#### 5.8.3 Changing the order of the measurement areas

If you change in the Optris PI Connect software the order of the measuring areas, it also has an impact on the presentation in IPEmotion. In the following example, the order of the measuring areas has been once inverted.



Revers order of measurement areas.

By reversing and new sort of measurement areas, the measured values to the corresponding to OPTRIS Area Number ID are displayed in IPEmotion. Under the new order, the "Area 4 -bottom " with the ID = 0 in IPEmotion also on the measurement channel (Left) with ID = 0 is displayed.

Hardware	Konfiguration			Zugilf		And	idit		
01.00.00.99	Name	Aktueller	Beschrei	Aktiv	Einheit	Phys Min	Phys Max	Sensor Min	
ame 🔰	9								
	Image Snapshot	0,0		×		0,0	1,0	0	
🔶 OPTRISPI 1 7	Start movie recording	0,0		¥		0,0	1,0	0	
	Stop movie recording	0,0		~		0,0	1,0	0	
	Case temperature	29,8 °C	-	20	°C	-20,0	100,0	-19,999998	
	Peasurement area 0	23,4 °C	534	10 1	Sec.	-20,0	100,0	219,9999998	
	Measurement area 2	-3,0 °C	Right	11		-20,0	100,0	-19,999998	
	Measurement area 3	68,3 °C el. 2.8.2139.0) Devices Too 0 120 - 160	ols Help	240	* <u> -</u> 240	xo xo ∏ [4] { (1] [4] {	Tempe	ratures # x Bottom	
	Area 1 - Lett	68,3 ℃ 41. 2.8.2139.0) Devices Too ● (20 4:a 1 120 + 160	is Help	240 ·	• <u>⊢</u> 240 68,	2 <u>1</u>   <u>€</u> ₹ 3 <sup>°</sup> C Area 3 - R	10015 Tempe Area 4 23, -2, Area 3	Bottom # X Bottom # X Bottom # X A°C -Right 8°C	ID ID
	Area 1 - Lett	68,3 °C 1. 2.8.2139.0) Devices Toc ● 63 Ha   120 · 100	NS Help	240	<mark>∞ ⊭</mark> 68,	3°C Area 3 - P	1011 Tempe Area 3 -2, Area 1 68,	Right 8°C -Left 3°C	   

## 5.9 Function of the 4 standard channels

### 5.9.1 Image Snapshots

With this channel you can use a trigger event (rising edge from 0 to value 1) which detects IPEmotion has (eg limit value monitoring) transferred to the PI Connect software, so a screenshot will be stored. The location where the snapshots and videos are stored are defined in the PI Connect software.

	Temp. profiles Temp.	Time diagram Device	Device (PIF) Recor	ding Playing
age arranging   Alam shots / Copy to clipbo	arc Trig. Recording /	Snapshots Histogram E	Extended measuring	Measuring colors
File name template for	triggered recording and	snapshots		
Prefix for filename:	Record			
Path:	C:\01_Daten\01_S	upport		Browse
Sample:	C:\01_Daten\01_S	upport\Record_2014-08-2	6_11-01-17.ravi	
Max. triggered snaps Ignore last snaps	hots: 5 ★ hot ge (if available)	Directory to	Snapshots and	l Videos.
Create link in "reop	en file" list for triggered	d video sequences and sn	apshots	
Create link in "reop Time controled record	en file" list for triggered ng / snapshotting event	d video sequences and sn	apshots	
Create link in "reop	en file" list for triggered ng / snapshotting event	d video sequences and sn	apshots	Add
Create link in "reop	en file" list for triggered	d video sequences and sn	apshots	Add Edit Remove

Example: Configuration of a channel threshold to trigger a snapshot. If the threshold condition is met, a Snapshot is stored by the PI Connect software.

Fie Project Signals Acquisition	Vie Vie Nal	W Data W Data Store De Control V	a manage etais	r An	S O Da S	Scripting	OP Info
Setup	1	lame	Active	Color	Channel	Operation	Reference value
	9						
> Ref Calculations 2	+ 1	imit value-1	~	-			
Variables 3							
> 35 Saving 1							
Monitoring 2							
Linit values 1							
III Ranges 0							
Anarysis 2							
Traffic exception	Gen	eral Confid	ouration	Settinos	Output View		
M tranic generators 0						100	
			Channel:	Measureme	ent area 5		
		C	peration:	>		*	
		Referer	ce value:	40		1.1	
						- Mar	
			-				
			Output:	Output cha	annei		
				V Outrait	t channel		
				Popup	window		
and the second second second				Program	m/Script		

Trigger snapshot recording from limit channel.

You need to activate the output function to set the trigger value to 1.

General	Configuration	Settings Output View
	Output channel:	Image snapshot
	Output value:	1
	Reset value:	✓ 0
	Message type:	A Warning -
	Message:	
	Execute:	Script 👻
	Script:	

You will get a notification in PI Connect software when a snapshot was stored.



#### 5.9.2 Start / Stop movie recording

There are two control channels in order to control the start and end of a movie clip (RAVI file) in the PI Connect software. Here you can also, for example, set the trigger events over a threshold channel.

Example: There is a limit / trigger channel which triggers the start of recording.

2	🔒 🗄 🗟 🏯 🗛 🗶 🖬 🖍	Ê.	2	6 X %	3	0.4	🕙 🕐 🧖 😓 ·		OP	TRIS - IPEmotion
File	Project Signals Acquisition	n	View	Data m	nanager	· Ana	lysis Reporting	Scripting	Info	
f(x)										
Formula	Number Storage group Limit FFT	Signal	Stor	e Detai	s					
	Elements		Cont	rol View						
Setup			Name		Active	Color	Channel	Operation	Reference value	Message type
		٩								
► f(x)	Calculations	2	Limit	value-1	~		Measurement area 5	>	40	🔺 Warning
	Variables	3	Limit	value-2	~					4
	Monitoring	2								
- 31	Limit values	2	Star	rt / stop	mov	ie recor	ding by using lim	nit channels	for trigger co	ndition.
l	Ranges	0	Acti	ivate Ou	tput	operati	ion.			
> 🖉	Analysis	2								
►	Control	5		Conform	No.		0.1.1.1			
<b>*#</b>	Traffic generators	0	seneral	Conngura	noor	Settings	Output View			
				Ch	annel:	Measureme	nt area 5			
				Oper	ration:	<=		-		
				Reference	value:	40		11		
				0	utout:	No output		-		
						Meccao	a window			
						Output	channel			
						Popop v	window Visciet			
						Program	n/Script			

Example. There is a second threshold / trigger channel triggers the end of recording. Set output value of the limit channel to 1 to stop the recording.

	Name	Active	Color	Channel	Operation	Reference value	Message type
٩							
	Limit value-1	~		Measurement area 5	>	40	🚹 Warning
۱.	Limit value-2	~					<u>4</u>
				Stop Mo	vie Trigger is	set to 1.	
Ge	eneral Configu	ration	Settings	Output View			
	Output d	nannel:	Stop Movie	recording			
	Output d Output	nannel: S value: 1	Stop Movie 1	recording			
	Output d Output Reset	value:	Stop Movie	recording			
	Output d Output Reset Messag	value:	Stop Movie	recording			
	Output d Output Reset Messag Me	nannel: [ value: ] value: [ e type: ] ssage: [	Stop Movie	recording			
	Output d Output Reset Messag Me	value: value: value: e type: essage: ecute:	Stop Movie	recording g			

#### 5.9.3 Case Temperature

In this channel, the internal case temperature of PI camera is displayed.

## 6 Multi-camera operation

It is possible to acquire the data of the measurement areas of multiple cameras in IPEmotion. In a multicamera system as in chapter [5.1] described no automatic hardware detection can be performed. In this case, the PI for each camera a PI Connect software instance must be started. The PI software can be launched from a command line.

If you want to use multiple cameras simultaneously please contact the PMR for further assistance .