

Performance Series Thermal

2CD-TDxx17-x/V1

Thermal Camera Configuration Guide Copyright © 2019 Hikvision USA Inc. and Hikvision Canada Inc.

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- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

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Industry Canada ICES-003 Compliance

This device meets the CAN ICES-3 (A)/NMB-3(A) standards requirements.

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Introduction

This guide explains how to configure a Hikvision Performance Series thermal camera.

This configuration guide is for the following Hikvision Performance Series cameras:

- 2CD-TD1217-x/V1
- 2CD-TD2117-x/V1
- 2CD-TD2617-x/V1

VCA (Video Content Analysis)

- 1. Enter the camera's IP address in a Web browser to access the camera's interface.
- 2. Go to Configuration > Maintenance > VCA Resource Type.
- 3. Check the Temperature Measurement + Behavior Analysis radio button (default).
- 4. Click the Save button.



Figure 1, VCA Resource Configuration

- 5. Go to **Configuration** > Local to view the Live View parameters.
- 6. Check the Rules Enable radio button.

HI	KVISION	Live View	Playback	Picture	Configuratio	n	
₽	Local	Live View Pa	rameters				
	System	Protocol		⊖ TCP	UDP	O MULTICAST	
G	Network	Play Perform	mance	O Shortest Delay	 Balanced 	⊖ Fluent	
Q.	Video/Audio	Rules		 Enable 	 Disable 		
1	Image	Auto Start L	ive View	⊖ Yes	No		
圁	Event	Image Form	nat	 JPEG 	⊖ BMP		
B	Storage	Display Rul	es Info. on Ca	. • Yes	⊖ No		

Figure 2, Live View Parameters

- 7. Go to **Configuration** > **Basic Settings**.
- 8. Check the Intelligent Analysis checkbox.
- 9. Click the **Save** button.

HI	KVISION	Live View	Playback	Picture	Configuration
₽ © %	Local System Network Video/Audio Image Event	Basic Settings	Analysis Stream VCA Info. on Stream Trajectory Vlarking Color		
6 6	Storage VCA Basic Settings Camera Calibration Shield Region Rule Advanced Configuration Temperature Measurement	Display or Display Display Display Snapshot Vupload Picture Qua	Picture Target Info. on Alarm F Rule Info. on Alarm Pic Settings JPEG Image to Center ality High Save	'icture ture	~

Figure 3, Display on Picture

- 10. Go to **Configuration** > VCA > Rule.
- 11. Create one or more rules.
- **NOTE:** A **Line Crossing** rule will be used as an example here. Other VCA functions will have different choices.
- 12. Click the 💼 button to define a rule.

	KVISION	Live View	Playback	Picture	Configuration		
Ţ	Local	Rule Armir	ng Schedule Alarn	n Linkage			
	System	Rule List					÷
Ð	Network	Enable	No.	Rule Na	ime	Rule Type	_
Q.	Video/Audio						
1	Image						
圁	Event						
8	Storage						
63	VCA						
	Basic Settings						
	Camera Calibration						
	Shield Region			- A.			
[Rule	1.9		- W.			11
	Advanced Configuration					- Otto	124.
\$	Temperature Measurement				1	- 8 - 1ª P	

Figure 4, Rule List

13. Configure the rule using the following as an example (actual choices will vary by VCA function).

- Enable: Click this checkbox to enable this rule.
- No. (Read Only): Displays the rule number.
- Rule Name: Input a descriptive name for this rule.
- Rule Type: Use the pull-down menu to select which VCA feature this rule is for.
- Delete Icon X: Click to delete this rule.
- Copy Icon <a>E : Click to make a copy of this rule.
- Filter by: Use the pull-down menu to select how to filter the target. To detect the target more accurately, it is suggested to use Filter by Pixel.
- Max. Size (Read Only): The maximum target pixel size to detect.
- Min. Size (Read Only): The minimum pixel size to detect.
- Sensitivity: Enter the sensitivity to determine how intrusive a breach has to be to trigger an alarm.
- Line Crossing: Use the pull-down menu to select the line crossing direction that will trigger an alarm.
- Detection Target: Use the pull-down menu to select target type: Human, Vehicle, or Both.
- Background Interference: Use the pull-down menu to turn the Background Interference filter ON or OFF. The Background Interference filter eliminates background noise such as rustling leaves.

Rule LISI									
Enable	No.			Rule Na	ame	Rule Typ	pe		
	1		ru	le1	Li	ne Crossing		~	×
Filter by	Pixel			\sim	Sensitivity	50		2	
Max. Size	233	*	239	(W*H)	Line Crossing	Bidirectional	~		
		-	-						

Figure 5, Rule List Settings

- 14. Go to Live View to set the following:
 - Maximum Size Icon : Click to drag and place a box to define the maximum size target to detect.
 - Minimum Size Icon : Click to drag and place a box to define the minimum size target to detect.
 - Line Icon Z: Click to drag and draw a line over which a target crosses to be detected.



Figure 6, Setting Rules in Live View

15. Repeat Steps 12 and 13 to set additional rules.

	2	rule2	Li	ne Crossing	~	× 🗈
Filter by	Pixel	~	Sensitivity	50	0	
Max. Size	464	* 419 (W*H)	Line Crossing	Bidirectional	~	
Min. Size	49	* 166 (W*H)	Detection Target	Human & Vehicle	~	
			Background Interferenc	. OFF	\checkmark	~

Figure 7, Rule Settings



Figure 8, Rule Settings Example

16. Verify the $\ensuremath{\text{VCA}}$ effect rules in Live View.



Figure 9, Live View

Temperature Measurement

- 1. Go to Configuration > Maintenance > VCA Resource Type.
- 2. Check the VCA Resource Configuration: Temperature Measurement + Behavior Analysis radio button.

HII	VISION	Live View	Playba	ck	Picture		Configuration	
Ţ	Local	Upgrade & Mair	ntenance	Log	System Service	VC/	A Resource Type	
	System	VCA Reso	ource Configu	uration				
	System Settings	 Temperation 	ure Measuren	nent+Be	havior Analysis			
	Maintenance	 Temperation 	ure Measuren	nent+Fir	e Detection			
	Security							
	User Management		Save					
O	Network			-				
Q.	Video/Audio							
1	Image							
圁	Event							
B	Storage							
63	VCA							
\$	Temperature Measurement							

Figure 10, VCA Resource Configuration

- 3. Go to **Configuration** > Local.
- 4. Check the Live View Parameters: Display Temperature Info, Yes radio buttons.

	HIP	(VISION	Live V	/iew Playback	Picture	Configuration		
I	₽	Local		Live View Parameters				
_	<u> </u>	System		Protocol	⊖ TCP	UDP		
	Θ	Network		Play Performance	 Shortest Delay 	Balanced	⊖ Fluent	
	<u>Q.</u>	Video/Audio		Rules	O Enable	 Disable 		
	<u>*</u>	Image		Auto Start Live View	⊖ Yes	No		
	Ē	Event		Image Format	JPEG			
	٥	Storage		Display Rules Info. on Ca.	Yes	⊖ No		
	6	VCA		Fire Point	✓ Locate Highest Te	. 🗹 Frame Fire Point		
	6	Temperature Measurement		Display Temperature Info.	Yes	⊖ No		
				Display Temperature Info.	Yes	⊖ No		
				Display Trajectory	 Enable 	 Disable 		

Figure 11, Live View Parameters

- 5. Go to Configuration > Temperature Measurement > Basic Settings.
- 6. Set the following items:
 - Channel No.: Use the pull-down menu to select the camera you want to configure.
 - Enable Temperature Measurement: Check the checkbox.
 - Display Min. Temperature: Check the checkbox.
 - Display Average Temperature: Check the checkbox.

HI	KVISION	Live View	Playback	Picture	Configuration							
Ţ	Local	Basic Settings	Advanced Settings	Linkage Method								
	System	Channel No.	Camera	02	\sim							
Ø	Network	Enable Tem	perature Measurement	1								
Q.	Video/Audio	Enable Colo	r-Temperature	-								
1	Image	Display Tem	☑ Display Temperature Info. on Stream ☑ Display Max. Temperature									
圁	Event	Display Max										
B	Storage	Display Min.	Display Min. Temperature									
63	VCA	Display Aver	rage Temperature									
8	Temperature Measurement	Position of The	rmometry I Near Tar	get	\mathbf{v}							
		Add Original	I Data on Capture									
		Add Original	I Data on Stream									
		Data Refresh In	terval 3		Ƴ s							
		Unit	Degree 0	Celsius(°C)	~							
		Temperature R	ange -20.0~15	0.0	~							
		Version	V2.0.3bu	ild20181121								
		E	Save									

Figure 12Temperature Measurement, Basic Settings

- 7. Go to Configuration > Temperature Measurement > Advanced Settings.
- 8. Set the following items:
 - (Temperature Measurement) Configuration Mode: Use the pull-down menu to select a mode.
 - Normal. This mode will display the highest temperature and lowest temperature.
 - **Expert.** This mode will let you create points, lines, and areas as temperature rules according to a specific scene. It supports 10 points, 10 areas, and one line.
 - a) Alarm Rule: Check the checkbox to enable the alarm rule.

Enable	ID	Name	Туре	Emissivity	Distance(Reflective Temp	Alarm Rule	
	1	Point1	Point V	Cu: 🗸 0.96	30	20		Ø
	2	Area1	Area 🗸	Cu: 🗸 0.96	30	20		
	3	Line1	Line 🗸	Cu: 🗸 0.96	30	20		

Figure 13, Alarm Rules

b) Click 🐼 to enter the Alarm Rule interface.

rm Rule						
Alarm Rule	Above (Average Temperature					
Alarm Temperature	40	°C				
Filtering Time	0	s				
Pre-Alarm Temperature	0	°C				
Filtering Time	0	s				
Tolerance Temperature	3	°C				
Pre-Alarm Output	□ A->1					
Alarm Output	□ A->1					
	ОК	Cancel				

Figure 14, Alarm Rule

- c) Alarm Rule: Use pull-down menu to select choice (e.g., the above example is set to Above (Average Temperature)).
- d) Alarm Temperature: Input the temperature that will cause the alarm to trigger (e.g., the above example is set at 40° C, so the device will alarm when its average temperature is above 40° C).
- e) Tolerance Temperature: Input the number of degrees that the Alarm Temperature needs to vary (above or below, depending on the Alarm Rule) to cancel the alarm (e.g., in the above example, when the temperature falls below 37° C, the alarm be canceled).
- **Fmissivity**[•] This measurement is the target material's effectiveness in emitting energy as thermal radiation. Set the emissivity of your target. 0.96 is suitable for most targets.
- **Distance:** Input the number of meters for a straight line between the target and the device.
- **Reflective Temperature:** If there is any object reflecting to the target, e.g., a mirror, enter the reflecting object's temperature value. If not, skip this step.



Figure 15, Configuration (Normal)



Figure 16, Configuration (Expert)

Enable	ID	Name	Туре	Emissivity	Distance(Reflective Temp	Alarm Rule	
	1	Point1	Point 🗸	Cu: 🗸 0.96	30	20		
	2	Area1	Area 🗸	Cu: 🗸 0.96	30	□ <u>20</u>		
	3	Line1	Line 🗸	Cu: ✔ 0.96	30	20		\$

Figure 17, Point, Area, Line

Fire Source Detection

1. Make sure VCA Resource Type has been selected with the Fire Detection option.

HI	KVISION	Live View	Playback	Picture	Configuration
Ţ	Local	Upgrade & Maint	enance Log	System Service	VCA Resource Type
	System	VCA Resou	urce Configuration	on	
	System Settings	 Temperatur 	re Measurement+	Behavior Analysis	
	Maintenance	 Temperatur 	re Measurement+	Fire Detection	
	Security				
	User Management	B	Save		
Ø	Network				
Q.	Video/Audio				
1	Image				
圁	Event				
8	Storage				
63	VCA				
6	Temperature Measurement				

Figure 18, VCA Resource Configuration

2. Make sure the **Fire Point** checkboxes are checked.

HII	VISION	Live View	Playback	Picture		Configuration		
	Local	Live Vie	w Parameters					
	System	Protoc	ol	O TCP	۰ ا	JDP		
O	Network	Play P	erformance	O Shortest Delay	• E	Balanced	O Fluent	
Q.	Video/Audio	Rules		⊖ Enable	•	Disable		
1	Image	Auto S	tart Live View	⊖ Yes	•	No		
圁	Event	Image	Format	JPEG	OE	BMP		
B	Storage	Display	Rules Info. on Ca	. • Yes	0	No		
6	VCA	Fire Po	bint	Locate Highest Te	. 🗹 F	Frame Fire Point		
5	Temperature Measurement	Display	/ Temperature Info.	• Yes	0	No		
		Display	Temperature Info	. Yes	0	No		
		Display	Trajectory	O Enable	•	Disable		

Figure 19, Fire Point

3. In the **Fire Source Detection Basic** section, check the **Enable Dynamic Fire Source Detection** checkbox.

HI	VISION	Live View	Playback	Picture	Configuration
₽ E €	Local System Network	Audio Exception De Channel No. Basic Paramet	etection Dynamic Camera er Arming Schee	C Fire Source Detect 02 dule > Linkage Me	tion Fire Source Region Shield
¥0	Image Event Basic Event	Dynamic Fire Enable Dyna Fire Source Dete Display Fire S	Source Detection mic Fire Source Dete ction Dynami Source Info on Strear	~	
a 03	Storage VCA	Sensitivity Version	V1.3.0b	uild20190604	50
6	Temperature Measurement	🗎 Si	ave		

Figure 20, Enable Dynamic Fire Source Detection

4. Verify the Fire Source effect in live view.



Figure 21, Live View, Fire Source Effect

Display VCA Info by Video

Select **Display VCA Info by Video** to have the VCA info include **VCA info**, **temperature info**, and **fire source info** displayed together with the stream. VCA info will be displayed on a third-party platform.

HIKVISION	Live View Play	back Picture	Configuration
	Video Audio ROI	metadata Settings	
□ Local □ System ☑ Network ☑ Video/Audio ☑ Image ☑ Event ☑ Storage ☑ VCA ☑ Temperature Measurement	Video Audio ROI Channel No. Stream Type Video Type Resolution Bitrate Type Video Quality Frame Rate Max. Bitrate Video Encoding	metadata Settings Camera 02 Main Stream(Normal) Video Stream 320*240 Constant Medium 25 2048 H.264	 ✓ ✓ ✓ ✓ ✓ Kbps ✓
	H.264+ Profile I Frame Interval SVC Smoothing Display VCA Info By	OFF High Profile 50 OFF Video Video	 ✓ ✓ ✓ ✓ ✓ ✓

Figure 22, Display VCA Info By...

Image

1. Set **Palette:** Palettes let you select the desired colors: white hot, black hot, fusion 1, rainbow, fusion 2, ironbow1, ironbow2, sepia, color 1, color 2, ice fire, rain, red hot, green hot, and dark blue are selectable.



Figure 23, Palettes

2. Set **PIP Settings:** The system can display the thermal view overlapped on the optical view and display the thermal view with overlaid details.



Figure 24, Overlap Mode Displays on Camera 01



Figure 25, Details Overlay Mode Displays on Camera 02

NOTE: The two modes cannot be enabled at the same time.

- 3. Set the **Image Fusion Ratio (0–100, default = 75)**: Adjusts the blending ratio of the optical and thermal images' luminance components. 0 displays a fully optical image, 100 displays a fully thermal image. All color in the image is from the thermal image.
- 4. Set the **Border Fusion Ratio (0–100)**: The ratio of the optical edge information to the thermal image at the current **Image Fusion Ratio**. The larger the ratio, the sharper object edges will appear.

Temperature Highlight

In White Hot mode, you can customize different colors for objects with different temperatures.



Figure 26, Display Colors