



PWTC-200 Series Dual Vision Thermal Camera User Manual

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**PWTC-200 Series
Dual Vision Thermal Camera
User Manual**

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1 Overview

Protectowire's dual-vision thermal camera can simultaneously record visible and thermal images while collecting characteristic temperature information from the scene. It can be used in indoor and outdoor environments for asset monitoring, early warning heat detection, intelligent security, and other applications. Edge-based processing continuously analyzes thermal data against configurable pre-alarm and alarm thresholds, ensuring real-time detection while minimizing network bandwidth usage.

Through an IP network, the thermal camera transmits collected data to PC clients or web browsers for real time surveillance and alarm condition monitoring. A JSON restful API is available to facilitate secondary development and integration of the PWTC200 camera with third party platforms. The camera supports RTSP, RTP, TCP, UPNP, ONVIF and other general protocols, such as FTP and MODBUS to make integration easy.

2 Camera Specifications

Table 2-1 provides a list of features that are available on the camera. This camera is a high featured camera with the option for wireless network configurations.

Table 2-1: Features*

Network	Network Protocol	HTTP, RTP, RTSP, FTP
	User Rights	3 User/Pass Permissions
	Security Measures	User authentication (ID and PW)
	Video Compression	H.264/H.265
	Audio Compression	Audio G.711 u/Intercom G.722
Functions	Temperature Measurement	4 above high, below low, in between, out of range
	Temperature Measurement Range	High Gain: -68°F to 302°F; Low Gain: 32°F to 1022°F (High Gain: -20°C to 150°C; Low Gain: 0°C to 550°C) Extended range option: -4°F to 2,192°F (Extended range option: -20°C to 1200°C)
	Temperature Accuracy	±2°C or ±2% (whichever is greater) ±3.6°F or ±2% (whichever is greater)
	Area Security	4 Regions
	Illumination	IR LED
System Integration	Audio Input/Output	Yes
	Fault Relay	No
	Communication Interface	RJ45 10M/100M self-adaptive; RS485
	Alarm Input	1 Channel
	Alarm Output	1 Channel (minimum)
	Analog Video Output	PAL/NTSC/BNC
	Built-in on Head Storage	TF Card 1T
	Operation Temperature	-40°F to 158°F (-40°C to 70°C); RH ≤ 95%
	Power	12-24VDC. ≤ 10W Barrel Plug, and POE

* Specifications are subject to change.

PWTC-200 Series Dual Vision Thermal Camera

2.1 PWTC100 Resolution and Housing

This camera comes with a 640×512 Uncooled VOx Microbolometer detector, 2560 x 1600 visible resolution, and a NEMA 4x / IP67 rating housing.

3 What's in the Box

Table 3-1: Packing list

Number	Name	Quantity
1	Camera	1
2	Power Adapter	1
3	Warranty Card	1
4	Certificate of Conformity	1
5	Mounting Bracket	1

4 Physical interface

The physical interface of the camera is shown in Figure 4-1



Figure 4-1: Appearance and interface diagram of dual-vision camera

Table 4-1: Appearance and interface description

#	Item	Label	Function
1	Visible light window		Sensor lens over 1/2.9 inches CMOS
2	Infrared window		Sensor lens over Uncooled Focal Plane Detector
4	IR Illuminator		Onboard IR Illumination
5	Network Interface	LAN	Connect standard Ethernet cable, POE available
6	Power connector	DC 12V	Input DC 12V power supply
7	RS485 serial port	RS485	RS485
8	Audio input	AUDIO IN	Input audio signal, receives analog audio signal from pickups and other equipment
9	Audio output	AUDIO OUT	Output audio signal to speakers and other equipment
10	Alarm input channel	ALARM IN	2 alarm input interfaces
11	Relay output 1	ALARM OUT	1 relay output interface 1 & 2 = Alarm Relay Contact, Form A (Normally Open)
12	Analog video output	VIDEO	Output analog video signal, which can be connected to a monitor

5 Initial Setup

- **Step 1:** After connecting camera power and the network ports between the camera and the computer, please make sure that the camera IP address (192.168.1.19 by default) and the PC's IP address are in the same network segment.
- **Tip:** To adjust the PC's network card IPV4 address, go to Start menu > Network & Internet, select Ethernet, then Edit next to IP assignment.

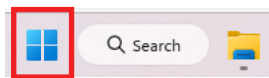


Figure 5-1

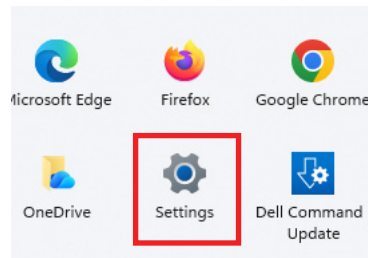


Figure 5-2

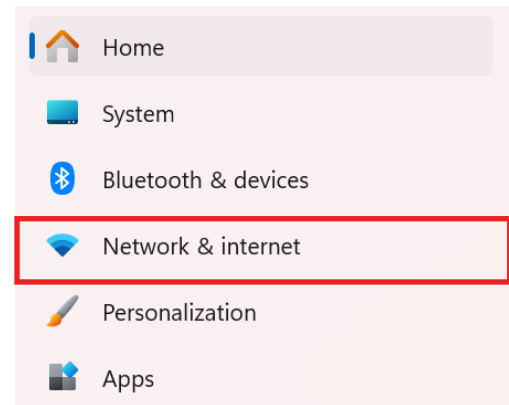


Figure 5-3



Figure 5-4

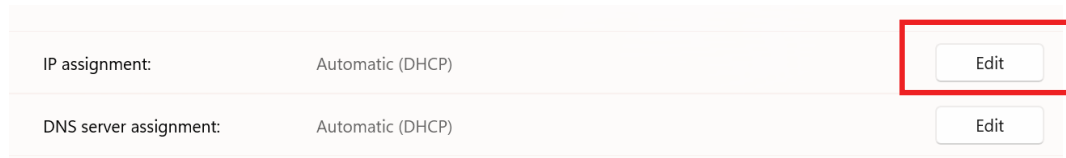


Figure 5-5

Change the dropdown from Automatic (DHCP) to Manual and toggle on IPv4. Enter the desired IP address (192.168.1.2), subnet mask (255.255.255.0), and default gateway (leave blank) and click "Save".



Figure 5-6

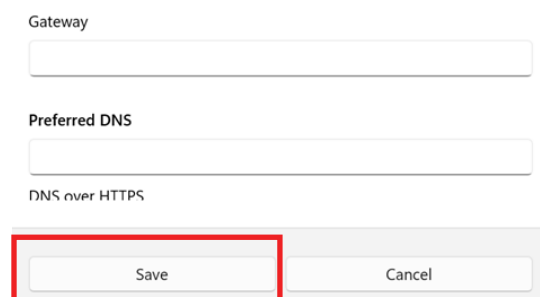


Figure 5-7

PWTC-200 Series Dual Vision Thermal Camera

- Step 2: Open the Chrome browser, enter the device IP address in the address bar, and press [Enter] key. When logging on with the browser interface for the first time, use the camera's default IP address.
- Step 3: When connecting to the camera for the first time, enter the default user name: admin and password: planck123 and click "OK" (Figure 5-8).
- Step 4: The main page of the web interface is shown in Figure 5-9. This interface can be used to configure the camera settings, preview video streams, and view all logged events.

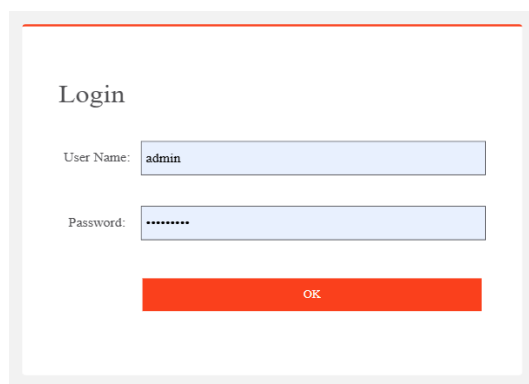


Figure 5-8: Chrome login interface

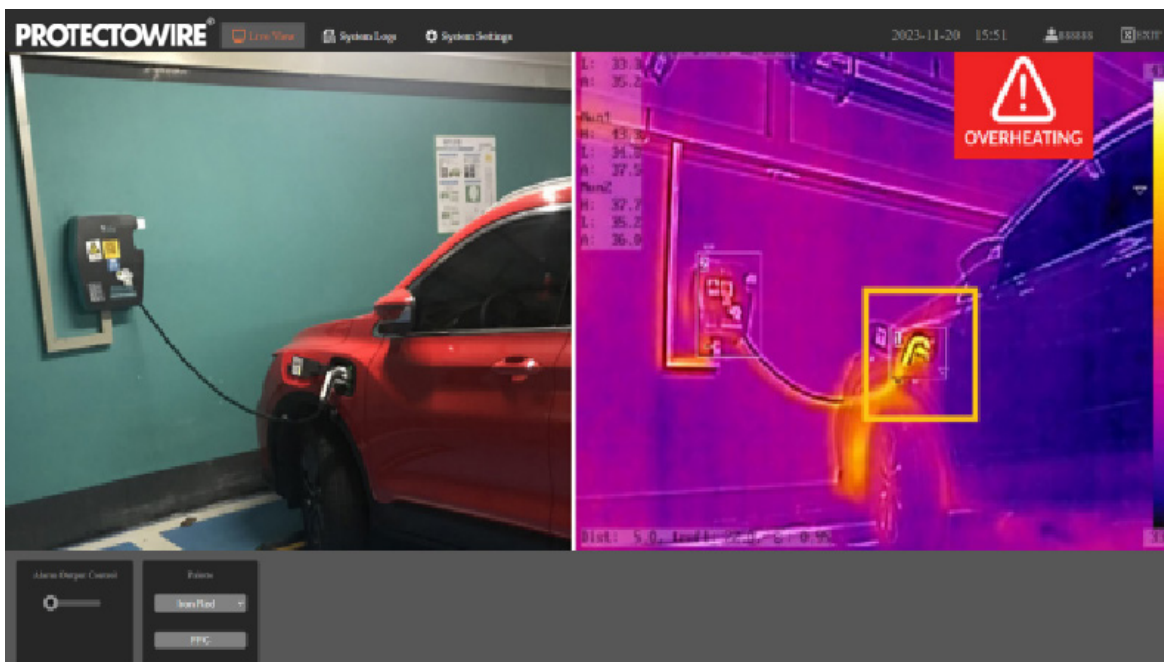


Figure 5-9: Web interface main page

5.1 User password modification

To change the default user names and passwords, select the *System Settings tab > General > User Management*, as shown in Figure 5-10. Click "Save" to save any changes

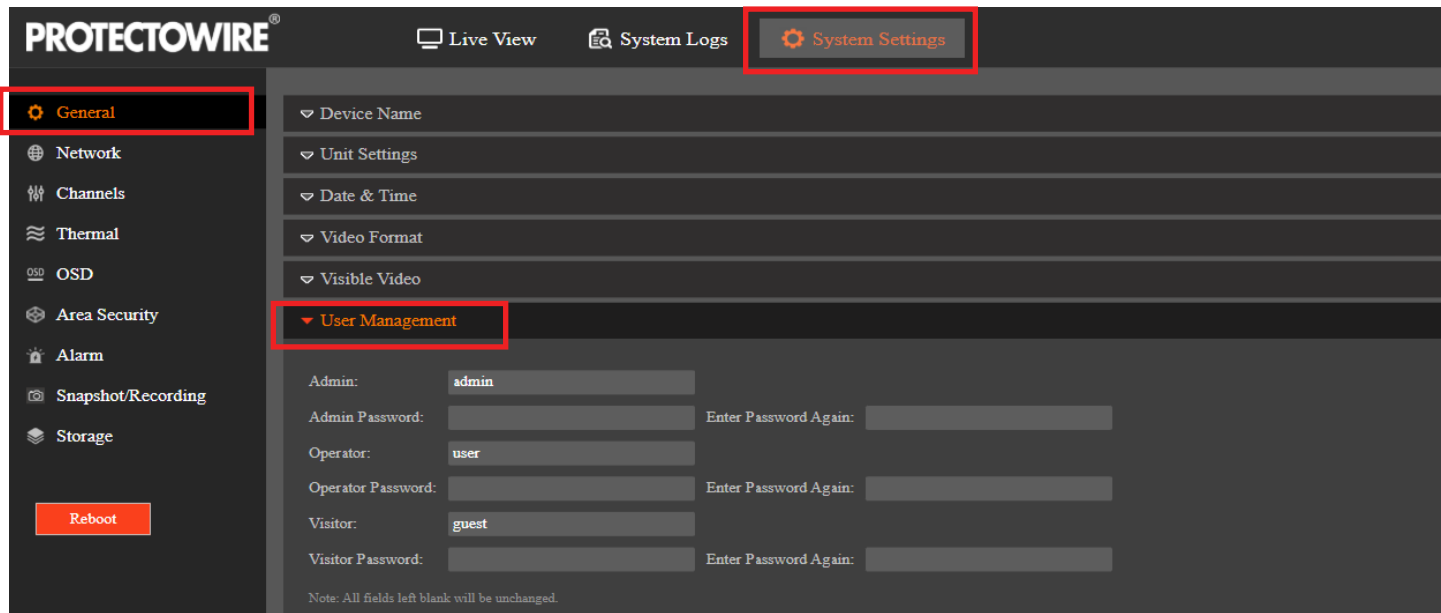


Figure 5-10: User/Password management interface

5.2 Device IP Modification

To change the camera IP address, select the *System Settings tab>Network>IP Address & Port*, as shown in Figure 5-11. Click "Save" to apply changes. Restart the device for the new IP address to take effect.

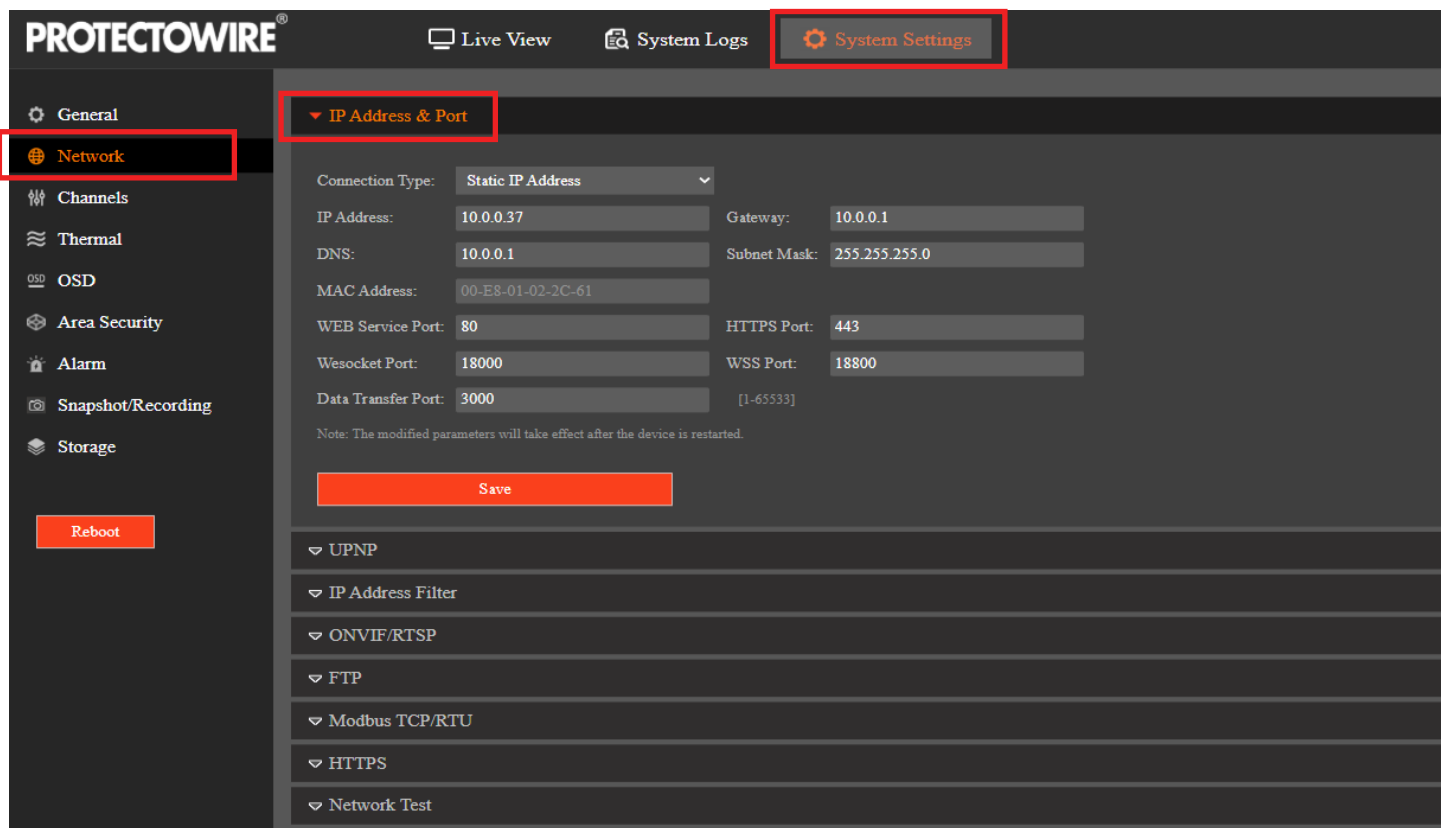


Figure 5-11: IP address and port interface

6 Communication Protocols

The PWTC camera supports RTSP, RTP, TCP, UDP, ONVIF and other general protocols, such as MODBUS data transfer. RTSP and ONVIF protocols are commonly used for cameras connected to Network Video Recorders (NVR). Select illustrations for testing these protocols are provided in the following sections.

6.1 RTSP instructions

The RTSP protocol can be tested with the VLC media player. The rtsp addresses of the camera are:

- Visible main-stream: rtsp://admin:123456@192.168.1.19:554/0/main
- Visible sub-stream: rtsp://admin:123456@192.168.1.19:554/0/sub
- Thermal main-stream: rtsp://admin:123456@192.168.1.19:554/1/main
- Thermal sub-stream: rtsp://admin:123456@192.168.1.19:554/1/sub

Note: the user/password fields should be modified if the Onvif/RTSP user management credentials have been changed.

The following steps may be used to test the RTSP protocol using the VLC media player:

1. Install the VLC media player.
2. After installation is complete, open the media player and refer to Figure 6-1.
3. Click "Media"-"Open network streaming"-"Enter the network URL (that is, the above rtsp address)"-click "Play", wait for about 30 seconds. A real-time video stream will appear.

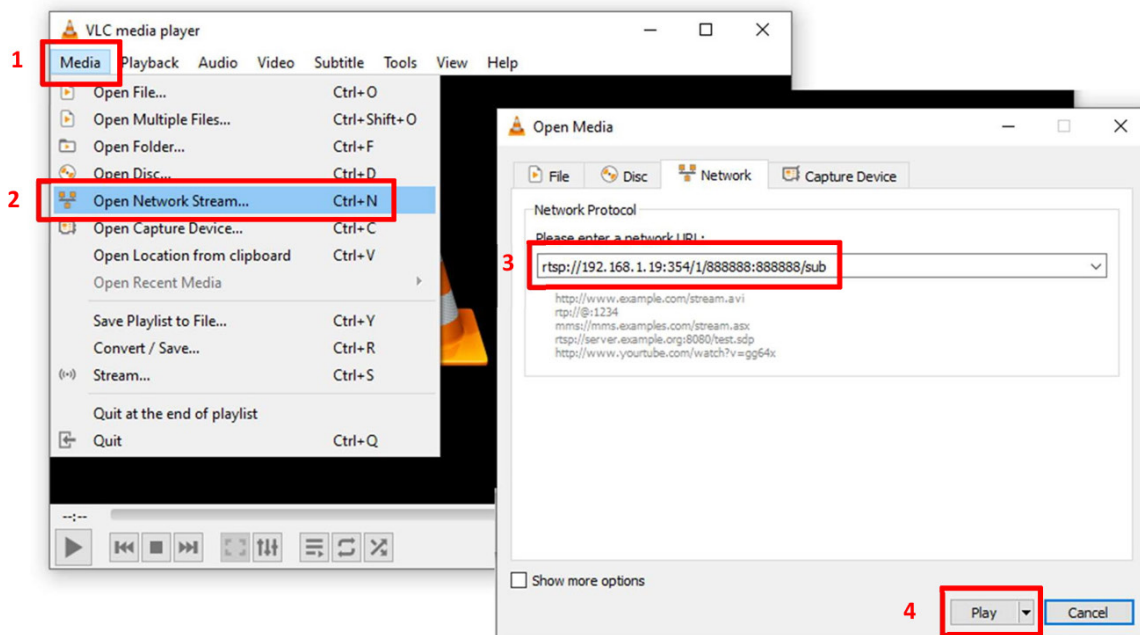


Figure 6-1: RTSP protocol with VLC media player

6.2 ONVIF instructions

The open source ONVIF Device Manager tool (version: odm-v2.2.250) can be used to test the ONVIF protocol. The following steps are taken for this test:

1. Install and run the Onvif device manager (odm-v2.2.250)
2. The camera should automatically appear in the Device list (Figure 6-2)
3. Enter the login username (admin) and password (123456) of your camera and click "Log in"
4. Select your camera from the device list, then click "Live video" under NVT, corresponding to the visible (V_SRC_000) or the thermal (V_SRC_001) video stream (Figure 6-3).

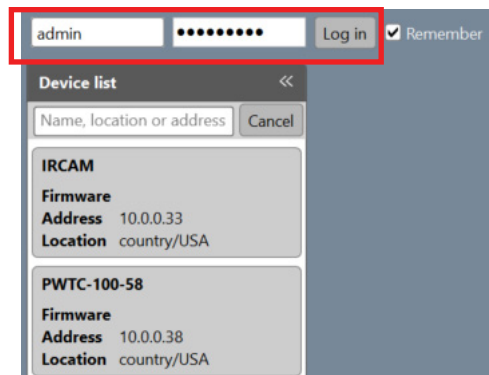


Figure 6-2: Login step for ONVIF Device Manager



Figure 6-3: Live video from ONVIF Device Manager

7 Default Settings

Table 7-1: Network settings and port numbers

Parameter	Defaults
IP address	192.168.1.19
Subnet mask	255.255.255.0
Gateway	192.168.1.1
Transmission start port	3000
Data control port	3001
Remote playback port	3002
Web port	80
Web Socket	18000
Multicast address	235.1.1.1
Multicast port	6500
Modbus Server Port	502
TCP Server Port	3000/3001
RTSP	554
ONVIF	8000

Table 7-2: Default user settings

User	Name	Password
Administrator	admin	planck123
Operator	user	planck456
Visitor	guest	planck789

Table 7-3: Default Onvif/RTSP settings

Name	Password
Admin	123456

8 Reset to Factory Settings

To reset camera back to the factory settings (including the IP address: 192.168.1.19) use the following steps:

1. Unplug camera power
2. Remove small panel on bottom of camera (two Phillip screws)
3. Press and hold reset button 20 seconds while powering up camera
4. Replace panel on bottom of camera

9 Camera Installation

Pre-installation instructions

1. Before installation, please check whether the equipment and accessories in the packing box are complete and intact against the packing list.
2. The installation wall should be able to bear at least 3 times the total weight of the bracket and the camera.
3. Please try to avoid installing the camera facing strong lighting and backlight scenes.
4. Before installation, please confirm that the power of the camera is disconnected.
5. Prepare all installation accessories and tools before installing the camera.

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