

WISENET

# ネットワークカメラ

## ユーザーマニュアル

XNZ-6320

CE

# ネットワークカメラ ユーザーマニュアル

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❖ デフォルトの管理者IDは“admin”です。パスワードは初めてログインするときに設定する必要があります。

個人情報や安全に保護し、情報窃盗による被害を防ぐため、パスワードは3か月ごとに変更してください。

パスワードの不正管理によって発生したセキュリティおよびその他の問題は、ユーザー側の責任であることに御注意ください。

## 重要な安全ガイド

1. 本書の説明をよく読んで下さい。
2. 本書の指示を守ってください。
3. 全ての警告を留意してください。
4. 全ての指示に従って下さい。
5. 本機を水の傍で使用しないで下さい。
6. 柔らかく乾いた布か湿った布で製品表面の汚れた部分を拭き取ります。(アルコール成分、溶剤、界面活性剤や油分を含む洗剤や化粧品を使用しないでください。製品の変形や損傷につながる恐れがあります。)
7. どの換気孔も塞がないようにして下さい。メーカーの指示に従って取り付けして下さい。
8. ラジエーター、熱レジスタ、あるいは熱を発生するその他の装置（アンプを含む）などの熱源の傍に設置しないで下さい。
9. 分極タイプあるいは接地タイプのプラグの安全目的を必ず守ってください。分極プラグには一方が他方より幅広い2本の足が付きます。接地プラグには2本の足とアース（接地）差込み先が付いています。2本の平たい足あるいは3本めの差込み先はユーザーの安全のために付いています。提供されたプラグがお使いのコンセントに合わない場合には、旧式のコンセントの交換について電気技師にご相談下さい。
10. 特にプラグ、ソケット、機器との接点でコードが踏まれたり引っ張られたりしないよう電源コードを保護してください。
11. メーカーが指定する付属品のみを使用してください。
12. カート、スタンド、三脚、ブラケットはメーカー指定のもの、あるいは製品と一緒に販売されたもののみを使用してください。カートを使用する場合、カートと製品を動かす際には転倒による損傷に注意してください。
13. 雷雨のときまたは長期間使用しない場合は、製品の電源プラグを抜いてください。
14. 全ての修理は資格のあるサービス・スタッフに任せて下さい。修理は電源コードあるいはプラグの損傷、液体をこぼした、または物体を機器内に落としてしまった、機器を雨や湿度にさらしてしまった、正常に機能しない、あるいは機能の低下など、様々な原因で機器が損傷した場合に必要となります。
15. この製品は『2等級』または『LPS』が表示されていて、定格12 Vdc、0.62 A / 37-57 Vdc(PoE)、0.19A Aの電源装置に電源を供給するように設計されています。
16. 製品取り付け時に力を入れ過ぎると、カメラが損傷し、誤作動を起こす場合があります。適切でないツールを使用して製品を力まかせに取り付けると、カメラが損傷する場合があります。
17. 化学物質やオイルミストが存在する、または生成される可能性のある場所には製品を取り付けしないでください。大豆油のような食用油によって製品が損傷を受けたりゆがんだりするため、キッチンやキッチンテーブル付近には製品を取り付けしないでください。製品に損傷を与える原因となります。
18. 製品を取り付ける場合、製品表面が化学物質で汚染されないように注意してください。クリーナーや接着剤のような化学溶剤は、製品表面に深刻な損傷を与える原因となります。
19. 推奨されない方法で製品を取り付け/取り外した場合、製品の機能/性能は保証できません。ユーザーマニュアルの“取り付けと接続”を参照して製品を取付けます。
20. 水中での製品の取り付けや使用は、製品への深刻な損傷の原因となります。



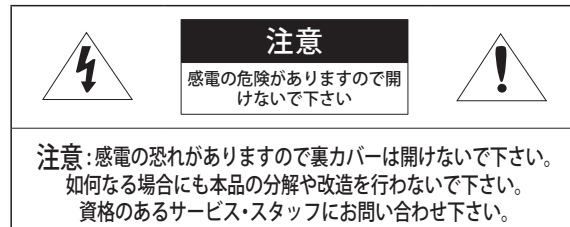
## 警告

火災または感電防止のため、この装置を雨または湿気にさらさないでください。本製品の換気グリルまたはその他の開口部から金属製物質を差し込まないでください。

製品に液体をこぼしたりかけたりせず、また花瓶のように液体が入った物体を製品の上に載せたりしないでください。

損傷を防止するため、本製品を設置説明に従って壁/天井にしっかりと取り付けてください。

## 注意



## グラフィック記号の説明



正三角形内の稲妻型の矢印は、本製品の筐体に人が感電する恐れのある“高圧電流”が存在することを、ユーザーに警告するものです。



正三角形内の感嘆符は、製品の操作およびメンテナンス(修理)に関する重要な付属説明書があることをユーザーに知らせるものです。

# 概要

## クラス I 構造

クラス I 構造を持つ装置は保護接地接続のある本線ソケットに接続してください。

## バッテリー

電源 (バッテリーパックまたは取り付けられた状態のバッテリー) は直射日光の当る場所や、熱器具の近くには置かないでください。

The battery cannot be replaced.

## デバイスの切断

問題がある場合は、装置からメインプラグを抜きます。次にお住まいの地域の修理会社に電話してください。

米国外では、認証機関が採用している取付け金具用の HAR コードが使用される場合があります。

## 注意

これらの保守説明書は、資格のあるサービススタッフのみが使用するものです。感電の危険性を低減するために、資格がある場合を除き操作説明書に含まれていない修理は行わないでください。

本製品の CVBS アウト端子は、簡単なインストールのために提供されており、監視目的にはお勧めできません。

入力電源は1台のカメラにのみ使用し、他のデバイスを接続しないでください。

ITEは、外部の施設ヘルレーティングなしで、PoEネットワークのみに接続することになります。

次に示す安全のための推奨注意事項を熟読してください。

- 本製品は平らな場所に置いてください。
- 直射日光の当たる場所、暖房設備または低温区域の近くには取付けしないでください。
- 本製品を導電性の高い物体の近くに置かないでください。
- 本製品は自分で修理しないでください。
- 本製品の上に水の入ったコップを置かないでください。
- 磁気源のそばに取付けしないでください。
- 換気口は塞がないようにしてください。
- 本製品の上に重いものを置かないでください。
- カメラを取り付ける/取り外すときは、保護手袋を着用してください。製品表面は高温になるため、やけどの原因となる場合があります。

ユーザーマニュアルは、本製品の使用方法に関するガイドブックです。

このマニュアルで使用する用語の意味を次に示します。

- 参照: 製品の使用方法についてのヘルプ情報を示す場合。
  - 注意: 指示に従わないことで、ものや人に損害が発生する可能性がある場合。
- ※ 製品を使用する前に安全のためこのマニュアルを読み、大切に保管しておいてください。

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## 製品の特徴

- **2Mピクセル解像度のビデオをサポート**
- **マルチストリーミング**  
このネットワークカメラは、複数のCODECを使用して解像度と画質が異なる映像を同時に表示することができます。
- **Webブラウザベースの監視**  
ローカルネットワーク環境で、インターネットWebブラウザを使用して画像を表示します。
- **アラーム**  
イベントが発生するとき、ビデオ映像がユーザーの登録したEメールアドレスへ送信され、FTPサーバーへ送信され、マイクロSDカード又はNASに保存されるか、又は、信号がアラーム出力端末へ送信されるかのどちらかです。
- **改ざん検知**  
ビデオ監視に対して改ざんしようとするのを検知します。
- **焦点ぼけ検知機能**  
カメラレンズの焦点ぼけを検出します。
- **モーション検知**  
カメラのビデオ入力からモーションを検知します。
- **音声検出**  
ユーザーが指定したレベルより大きい音を検出します。
- **スマートコーデック**  
カメラの視野領域に合わせてコーデックを適用し、ユーザーによる指定領域の画質を向上させます。
- **霧検出**  
検出レベル以上の濃い霧を検出します。
- **顔検出**  
カメラのビデオ入力映像の指定エリア内にある顔を検出します。
- **IVA(インテリジェントビデオ解析)機能**  
構成済みのイベントルールに該当する状況や動きを検出します。
- **音源分類**  
ユーザーが指定する音源を検出します。
- **ONVIFに準拠**  
この製品はONVIFプロファイルS&Gをサポートしています。  
[www.onvif.org](http://www.onvif.org)を参照してください。



## お奨めする PC 仕様

- CPU : Intel(R) Core(TM) i7 3.4 GHz以降
  - RAM : 8G以上
  - 対応OS : Windows, Mac OS X
  - 推奨ブラウザ : Google Chrome
  - 対応ブラウザ : MS Explorer, MS Edge, Mozilla Firefox (Windows 64bit Mac OS Xでのみサポート), Apple Safari (Mac OS Xでのみサポート)
- ※ 検証されたOSおよびブラウザ詳細バージョン情報は、付録をご参考ください。  
対応ブラウザで一部の機能は制限があります。

## 推奨マイクロSD/SDHC/SDXCメモリーカード仕様

- 推奨容量 : 推奨容量: 16GB~256GB (MLCタイプ)
- 以下の製造業者および種類のメモリーカードをこのカメラで使用することを推奨します。
  - 製造業者: SanDisk, Transcend
  - 製品グループ: 高耐久
- UHS-3クラス(MLCタイプ)の仕様に適合する16GB以上のメモリーカードを使用することを推奨します。

## NAS推奨仕様

- 推奨容量 : 200GB又はそれ以上を推奨します。
- 同時アクセス : NAS1台で最大16台のカメラ接続を受けられます。
- このカメラのために、NASを以下の製造仕様で利用することを推奨します。

推奨製品	入手可能なサイズ
QNAP NAS	最大16台のカメラが同時にアクセスできます。
Synology NAS	最大16台のカメラが同時にアクセスできます。

- ! ■ NAS装置をビデオ映像の保存以外の目的で使用する場合、利用できるカメラの数は減る場合があります。

## キット内容

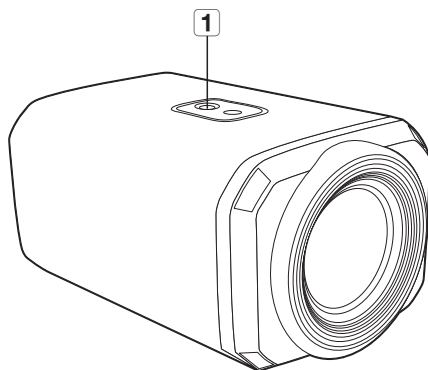
製品パッケージに、カメラと付属品がすべて同梱されていることをご確認ください。

(販売国ごとに付属品が異なるため。)

外観	品目名	数量	説明
	カメラ	1	
	説明書、 インストーラS/W CD	1	
	クイックガイド (オプション)	1	
	保証書 (オプション)	1	
	テストモニタ用ケーブル	1	ポータブルディスプレイデバイスとカメラとの接続をテストするために使用します
	10ポジションターミナルブロック	1	アラーム入力/出力ターミナルに使用します

 ■ SFPモジュール、光コンバータは別売り商品です。100 Base-FXのSFPと光コンバータを選択購入してください。

### 前面

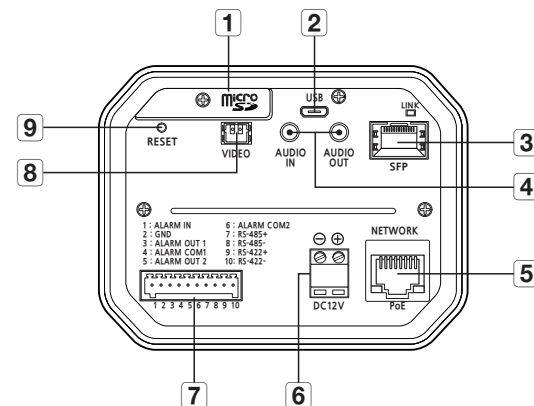


項目	説明
<b>1</b> 取付ブラケットのネジ穴	<p>取付金具にカメラを固定するために使用。</p> <ul style="list-style-type: none"> <li>ネジサイズ: サポートにカメラを固定するために使用するネジの仕様です。 1/4" - 20 UNC L: 4.5mm±0.2mm (ISO標準)、または0.197" (ASA標準)</li> </ul>



- 取付ブラケットは含まれていません。取付ブラケットの使用方法については、製品マニュアルを参照してください。

### 背面



項目	説明				
<b>1</b> マイクロSDメモ리카ード	マイクロSDメモ리카ードを挿入します。				
<b>2</b> MICRO USBポート	<p>WiFi Dongleに接続するポート スマートフォンにインストールしたアプリケーションを通じてインストールビデオを確認できます。 12ページの「WiFi Dongleへの接続」を参照します。</p> <ul style="list-style-type: none"> <li>WiFi DongleとOTGアダプタは別売りです。</li> </ul>				
<b>3</b> SFPモジュールスロット	SFPモジュール(LC Type)で光通信接続するポートです。(100Base-FX)				
<b>4</b> 音声端子	<table border="1"> <tr> <td>AUDIO OUT</td> <td>スピーカーの接続に使用します。</td> </tr> <tr> <td>AUDIO IN</td> <td>マイクの接続に使用します。</td> </tr> </table>	AUDIO OUT	スピーカーの接続に使用します。	AUDIO IN	マイクの接続に使用します。
AUDIO OUT	スピーカーの接続に使用します。				
AUDIO IN	マイクの接続に使用します。				
<b>5</b> ネットワーク・ポート	ネットワーク接続用のPoEまたはイーサネットケーブルの接続に使用します。				
<b>6</b> 電源ポート	電源ケーブルを差し込みます。				



項目	説明	
7 アラーム入出力ポート	ALARM IN	アラーム入力センサーや外部デイ/ナイトセンサーを接続するために使用します。
	ALARM OUT	アラーム出力信号の接続に使用します。
	ALARM COM	アラーム出力信号を接続させるための共通ポートです。
	GND	接地に使用します。
	RS-485+/RS-485-	RS-485 Dataライン
	RS-422+/RS-422-	RS-422 Dataライン
8 テストモニター出力	テストモニターケーブルを使用して、モバイルディスプレイに映像を出力します。	
9 リセットボタン	<p>すべてのカメラ設定を工場出荷時のデフォルトに復元します。 約5秒間押し続けてシステムを再起動します。</p> <p>■ カメラをリセットすると、DHCPを有効化されるようにネットワーク設定が調整されます。ネットワーク内にDHCPサーバーがない場合、ネットワークに接続する前に、IPインストールプログラムを実行して、IPアドレス、サブネットマスク、ゲートウェイなどの基本的なネットワーク設定を変更する必要があります。</p>	

- ! ■ RS-485/RS-422ポートはパンニング/チルトドライバとの直接接続のみサポートしており、RS-485/RS-422コントローラの外部接続はサポートされていません。

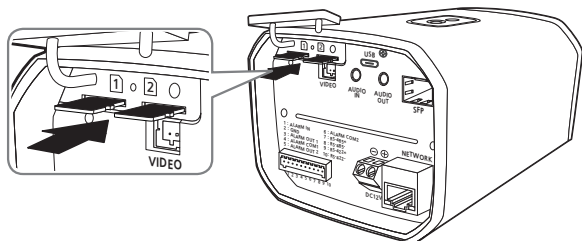
# 取付けおよび接続

## マイクロSDメモ리카ードの挿入/取出し

- マイクロSDメモ리카ードを挿入する前に、カメラの電源ケーブルを抜いてください。
- 逆方向で無理に挿入しないでください。Micro SDメモ리카ードと製品が破損するおそれがあります。
- 雨あるいは高湿度の状態ではMicroSDカードを挿入したり取り出したりすることは推奨されません。

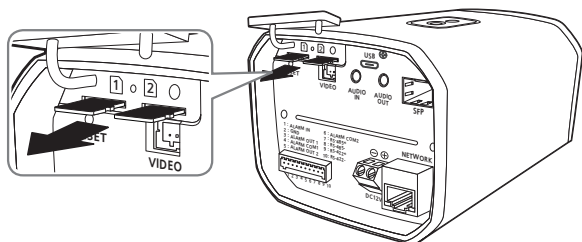
### マイクロSDメモ리카ードの挿入

図のように、MicroSDカードを矢印方向へ挿入します。



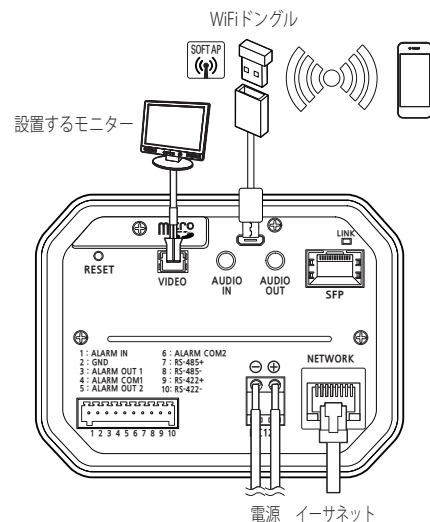
### マイクロSDメモ리카ードの取出し

図に示されているように、メモ리카ードの露出部分を慎重に押して、スロットからメモ리카ードを取り出します。



- マイクロSDメモ리카ードを強く押しすぎると、手を放したときに、カードがスロットから勢いよく飛び出す可能性があります。
- Micro SDメモ리카ードを取り外す前に、<ストレージ>でデバイスを<Off>に設定し、[適用] ボタンを押してカメラをオフにします。
- カメラのスイッチを切るか、データの入っているマイクロSDメモ리카ードを製品から抜くと、データが失われるか、または損傷を受ける場合があります。

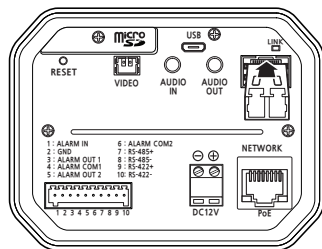
## 他のデバイスとの接続



- 本製品のCVBSアウト端子は、簡単なインストールのために提供されており、監視目的にはお勧めできません。
- 本製品のMicro USBアウト端子は、簡単なインストールのために提供されており、監視目的にはお勧めできません。

## SFPモジュール接続

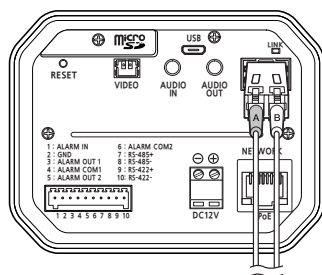
1. SFPモジュールを挿入します。



2. SFPモジュールにLCタイプの光ケーブル(AB)を接続します。

3. SFPモジュールとpairの光コンバータに光ケーブルの反対側(BA)を接続します。

- ☑ ■ SFPモジュール、光ケーブル、光コンバータは別売り商品です。
  - 下記のような製造会社のSFPモジュール使用を推奨します。
    - Comnet, IFS, Skylane, AVAGO, CISCO
  - SFPモジュールと光コンバータは、光ケーブルを交差(AB/BA)して接続させます。
- !
- SFPモジュールの脱着は必ず接続するカメラの電源をオフにした状態で接続します。
  - カメラ動作中にSFPモジュールを装着/分離しないでください。
  - 光ケーブルが折れている場合、通信接続できないことがあります。
  - 光ケーブルを直接に見ないでください。視力損傷の恐れがあります。

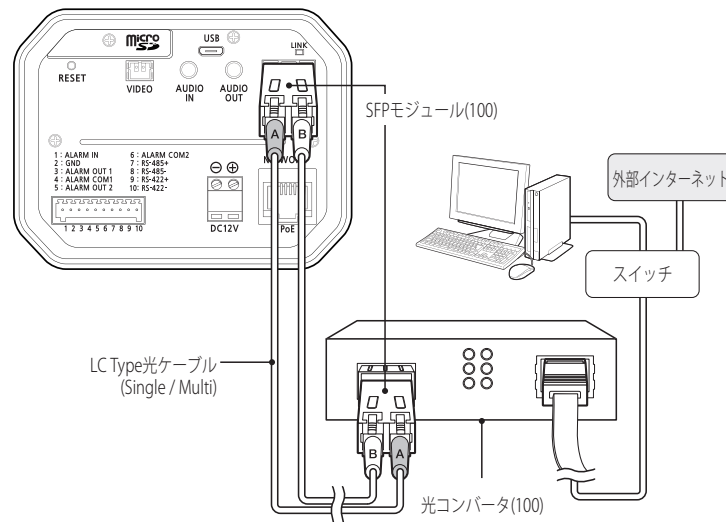


## イーサネット接続

イーサネットケーブルまたはSFP Optic Linkを接続させてローカルネットやインターネットに接続します。本製品のイーサネットリンクはRJ-45とSFPリンクの間の二重化に対応し、SFPに優先動作します。

動作の例)

- RJ-45に動作中、SFPポートが接続(link-up)されるとイーサネットリンクはSFPに有効となり、RJ-45は無効になります。
- SFPで通信中、SFPリンクが急にdownされると自動的にRJ-45リンクが有効となります。



# 取付けおよび接続

## WiFi接続

### カメラ設定

1. OTGアダプタ (5ピン)とWiFiドングルをMicro USB端子に接続します。

### スマートフォン設定

1. Wisenetインストールアプリケーションをインストールします。
2. WiFiをオンにしてからカメラのSSIDを選択します。
3. Wisenetインストールアプリケーションを起動します。
4. カメラにログインすると、ビデオに接続されます (初期パスワード:4321)。
  - 初期接続中は、ログインしていなくてもビデオが再生されます。
5. スマートフォンでビデオを視聴しながら、画角を調整することができます。

### 推奨するドングル製造業者

製造業者	モデル
NETIS	WF2123 n300
EDIMAX	EW-7811Un
IP Time	N100mini
TP-LINK	TL-WN823N V1
ASUS	USB-N13
NETGEAR	WNA3100M

## 電源

ドライバーを使用して、電源ケーブルの各線 (+, -) をカメラの対応する電源ポートに接続します。



- PoE、DC 12V電源を同時投入すると、デバイス電源は外部電源(DC 12V)に動作します。
  - また、PoE HUBを使用して、カメラに電源を供給することもできます。
  - IEEE802.3afプロトコルに準拠したPoEを使用してください。
  - デバイス電源はPoE、DC 12Vの中でシングル電源使用を推奨します。
- DC12Vの接続時に、極性を逆にならないようご注意ください。
- 外部デバイスを接続する場合は、作業を進める前に外部デバイスの電源を切る必要があります。
- セットとアダプター電源ラインを最初に接続し、その次に電源ケーブルを壁のコンセントに接続します。

## 各モデルの電源ケーブルの仕様

入力電力	ワイヤータ입(AWG)	ケーブルの長さ(最長)
DC 12V	#20	23m
	#18	30m

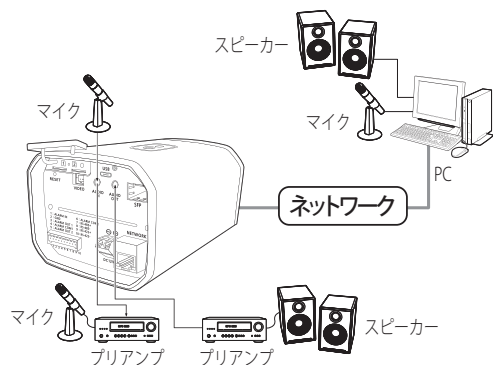
## ネットワークケーブルの仕様

アイテム	コンテンツ	備考
コネクタ	RJ45 (10/100BASE-TX)	
イーサネットケーブル	10/100Base-TX UTP カテゴリ 5e	
最大距離	100M	DC抵抗 ≤ 0.125 /m
PoE サポート	IEEE 802.3af	

## 光通信イーサネット規格

アイテム	コンテンツ
イーサネット:光通信	SFP (LC Type)
光通信:イーサネット物理階層	100 Base-FX
光通信:デフォルト速度	100Mbps
光通信:イーサネット規格	IEEE 802.3u

## 音声入力/出力への接続



1. カメラのAUDIO INポートにマイクか、マイクが接続されているアンプのLINE OUTポートを接続します。
2. カメラのAUDIO OUTポートにスピーカーか、スピーカーが接続されているアンプのLINE INポートを接続します。
3. 音声入力の仕様を確認します。

### ● 音声コーデック

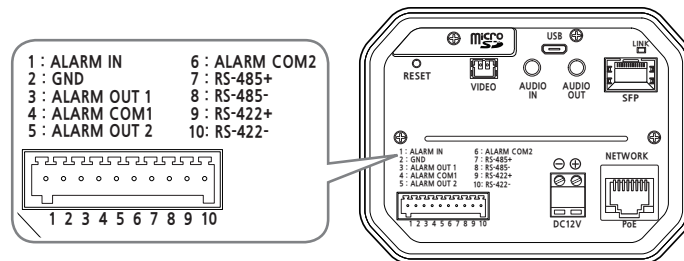
- 音声入力: G.711PCM (ビットレート: 64kbps / サンプリング周波数: 8kHz), G.726ADPCM (ビットレート: 16Kbps, 24Kbps, 32Kbps, 40Kbps / サンプリング周波数: 8kHz), AAC (Bit Rate: 48Kbps / Sampling Frequency: 16kHz)
- 音声出力: G.711PCM (ビットレート: 64kbps / サンプリング周波数: 8kHz)

### ● 全二重音声

- 音声入力: モノラル信号のライン入力 (最大 2.4 Vpp)
- 音声出力: モノラル信号のライン出力 (最大 2.4 Vpp)
- インピーダンスライン出力: 600Ω

## I/Oポートボックスへの接続

アラーム入出力信号を、背面の対応するポートボックスに接続します。



- ALARM IN: アラーム入力センサーや外部デイ/ナイトセンサーを接続するために使用します。
- ALARM OUT: アラーム出力信号の接続に使用します。
- ALARM COM: アラーム出力信号を接続させるための共通ポートです。
- GND: 接地に使用します。
- RS-485+: RS-485レシーバ (+) 用の通信ポートです。
- RS-485-: RS-485レシーバ (-) 用の通信ポートです。
- RS-422+: RS-422レシーバ (+) 用の通信ポートです。
- RS-422-: RS-422レシーバ (-) 用の通信ポートです。

## 外部RS-485/422デバイスの接続

[RS-485/422 +, -]ポートを使用して、カメラと外部デバイスを接続します。RS-485/422通信により、カメラのパン/チルト操作を制御することができます。

- RS-485/422通信には、GND接続をお勧めします。通信障害が発生した場合、必要に応じてGNDピンを接続し、カメラと外部デバイス間のGNDレベルを修正します。

## RS-485/422プロトコル変更

ウェブビューアーにアクセスした後、『設定 → PTZ → 外部PTZ』メニューでプロトコルを変更することができます。

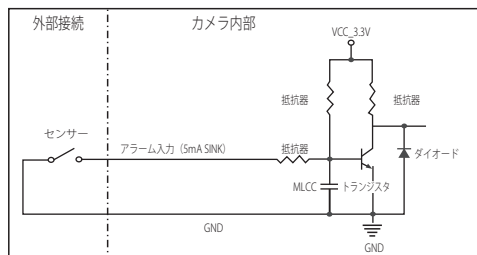


# 取付けおよび接続

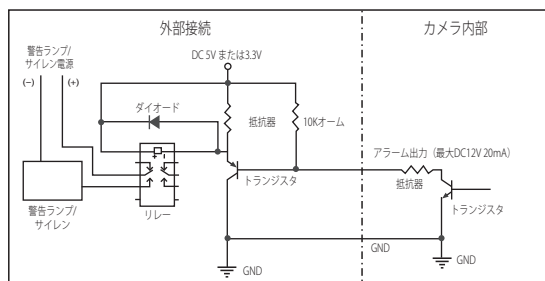
## 外部センサーの接続

センサーの各信号ライン(2つより)の一方を[ALARM IN]ポートに接続し、もう一方を[GND]ポートに接続します。

## アラーム入力配線図



## アラーム出力配線図



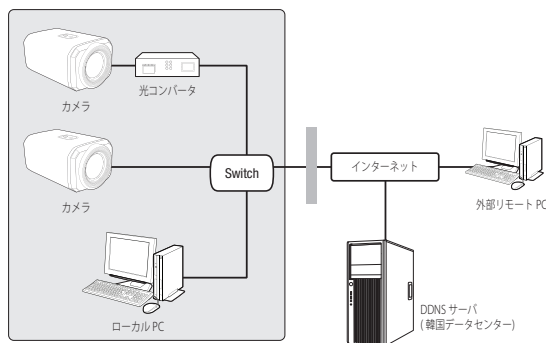
# ネットワーク接続と設定

使用中のネットワーク環境に合わせてネットワークを設定することができます。

## カメラを直接ローカルネットワークに接続する

### LAN のローカル PC からカメラに接続する

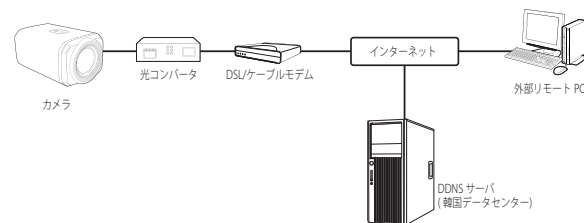
1. ローカル PC でインターネットブラウザを起動します。
2. ブラウザのアドレスバーにカメラの IP アドレスを入力します。



＜ローカルネットワーク＞

- LAN ネットワーク範囲外の外部インターネットのリモート PC は、ポート転送がきちんと設定されていない場合やファイアウォールが有効の場合には、設置済みカメラとインターネット接続ができない場合があります。この場合、ネットワーク管理者にお問い合わせください。
- IP インストーラーでは、IP アドレス、サブネットマスク、ゲートウェイ、HTTP ポート、VNP ポート、IP 方式を設定するために、デフォルトパスワード、"4321" を御利用いただけます。ネットワークインターフェース変更後、セキュリティを向上させるため、ウェブビューアにアクセスしてパスワードを変更してください。
- 工場出荷時の設定で、IP アドレスが DHCP サーバーから自動的に割り当てられます。使用可能な DHCP サーバーがない場合、IP アドレスは 192.168.1.100 に設定されます。IP アドレスを変更するには IP インストーラーを使用してください。IP インストーラーの使用の詳細は、「静的 IP の設定」を参照してください。（16 ページ）

## カメラを直接 DHCP ベースの DSL/ケーブルモデムに接続する

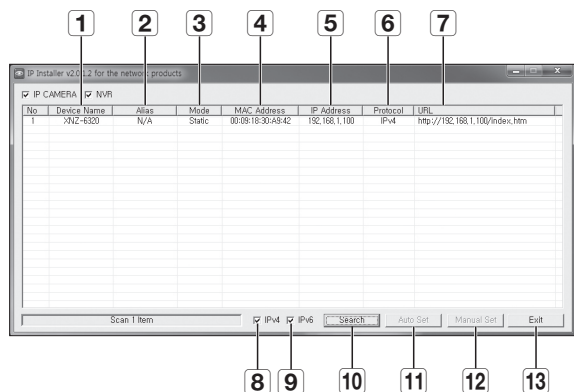


1. ユーザの PC をネットワークカメラに直接接続します。
2. IP インストーラーを実行してカメラの IP アドレスを変更し、デスクトップ上で Web ブラウザを使用してインターネットと接続できるようにします。
3. インターネットブラウザを使用して Web Viewer と接続します。
4. [設定] ページに移動します。
5. [ネットワーク] - [DDNS] に移動し、DDNS の設定を行います。
6. [Basic] - [IP & ポート] へ移動し、IP 方式を [DHCP] に設定します。
7. PC から取り外したカメラを直接モデムに接続します。
8. カメラを再起動します。

- DDNS の設定方法についての情報は、ウェブビューアのオンラインヘルプを参照してください。
- IP フォーマットの設定方法についての情報は、ウェブビューアのオンラインヘルプを参照してください。

# ネットワーク接続と設定

## IPインストーラに使用するボタン



項目	説明
1 Device Name	接続しているカメラのモデル名です。列をクリックしてモデル名順にリストをソートします。ただし、検索中にクリックすると検索は停止します。
2 Alias	この機能は現在導入されていません。
3 Mode	現在のネットワーク接続状態によって、<Static>もしくは<Dynamic>と表示します。
4 MAC(Ethernet) Address	接続されているカメラのイーサネットアドレスです。列をクリックしてイーサネットのアドレス順にリストをソートします。ただし、検索中にクリックすると検索は停止します。
5 IP Address	IPアドレスです。列をクリックしてIPアドレス順にリストをソートします。ただし、検索中にクリックすると検索は停止します。
6 Protocol	カメラのネットワーク設定です。工場初期値は"IPv4"です。IPv6設定のカメラは、"IPv6"と表示されます。
7 URL	外部のインターネットからのアクセスに使用するDDNS URLアドレス。ただし、DDNS登録が失敗した場合、このアドレスはカメラの<IP Address>に置き換わりやす。
8 IPv4	IPv4設定のカメラをスキャンします。

項目	説明
9 IPv6	IPv6設定のカメラをスキャンします。IPv6対応の環境でのみ有効化されます。
10 Search	ネットワークに接続されているカメラをスキャンします。ただし、IPv4、IPv6どちらも確認できない場合、このボタンはグレー表示されます。
11 Auto Set	IPインストーラによって自動的にネットワークが設定されます。
12 Manual Set	ネットワーク設定を手動で行う必要があります。
13 Exit	IP Installerプログラムを終了します。

- IPインストーラは、インストールCDで提供されているインストーラバージョンが、入手可能な場合は最新バージョンのいずれかを使用してください。最新バージョンはHanwha TechwinのWebサイトからダウンロードすることができます。
- サポートするOSがWindows 8.1である場合は、IP Wisenetの代わりにWisenetデバイスマネージャーを使用することを推奨します。Wisenetデバイスマネージャープログラムは、メニューの<テクニカルガイド>-<オンラインツール>から、Hanwha Techwinのウェブサイト (<http://www.hanwha-security.com>)へアクセスしてダウンロードできます。

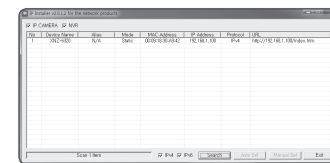
## 静的IPの設定

### 手動ネットワーク設定

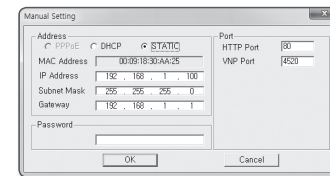
<IP Installer\_v2.XX.exe>を実行し、カメラの検索リストを表示します。最初の起動時には、[Auto Set]と[Manual Set]は両方グレー表示となります。

- IPv6設定のカメラが見つかった場合、カメラがこの機能をサポートしていないため、ボタンがグレー表示されます。

1. 検索リスト内のカメラを選択します。カメラのラベルに印字されているカメラのMACアドレスを確認します。[Auto Set]と[Manual Set]の両方のボタンが有効となります。
2. [Manual Set]をクリックします。Manual Settingダイアログが表示されます。カメラの<IP Address>、<Subnet Mask>、<Gateway>、<HTTP Port>及び<VNP Port>が予め設定された値で表示されます。
3. <Address>>ペインに必要な情報が表示されます。



- MAC (Ethernet) Address : カメラのラベルに印字されているカメラのMACアドレスが自動的に表示されるため、ユーザー設定は不要です。
- IP関連パラメータは、DHCPにチェックが入っていない場合にのみ設定することができます。





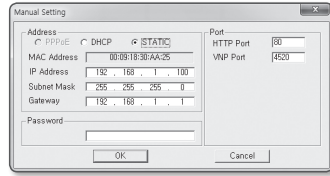
### ブロードバンドルーターを使用しない場合

<IP Address>、<Subnet Mask>、<Gateway>の設定については、システム管理者にお問い合わせください。

#### 4. <Port>ペインに必要な情報が表示されます。

- HTTP Port : インターネットブラウザを使用してカメラにアクセスする際に使用します。初期設定は80です。
- VNP Port : 映像信号の送信の制御に使用され、初期値は4520です。

#### 5. パスワードを入力してください。 カメラへのアクセスに使用していた「admin」アカウントのパスワードを入力します。

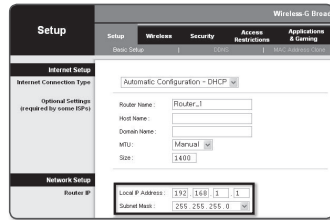


- セキュリティ上の目的で、数字、アルファベット、大文字小文字および特殊文字を使用することをお勧めします。
- パスワードの変更方法についての情報は、ウェブビューアのオンラインヘルプを参照してください。

#### 6. [OK]をクリックします。 手動でのネットワーク設定が完了しました。

### ブロードバンドルーター使用の場合

- IP Address : ブロードバンドルーターによって指定されたIP範囲でアドレスを入力します。  
例) 192.168.1.2~254、192.168.0.2~254、192.168.XXX.2~254
- Subnet Mask : ブロードバンドルーターの<Subnet Mask>が、カメラの<Subnet Mask>となります。
- Gateway : ブロードバンドルーターの<Local IP Address>が、カメラの<Gateway>となります。



- 設定は、接続しているブロードバンドルーターのモデルによって異なる場合があります。詳細は、該当するルーターのユーザーマニュアルを参照してください。
- ブロードバンドルーターのポートフォワーディングの詳細については、「ポートフォワード（ポートマッピング）の設定」を参照してください。（18ページ）

### ブロードバンドルーターに複数のカメラが接続されている場合

IPに関する設定と、ポートに関する設定は別々に設定します。  
例)

	カテゴリ	カメラ #1	カメラ #2
IP設定	IP Address	192.168.1.100	192.168.1.101
	Subnet Mask	255.255.255.0	255.255.255.0
	Gateway	192.168.1.1	192.168.1.1
ポート設定	HTTP Port	8080	8081
	VNP Port	4520	4521

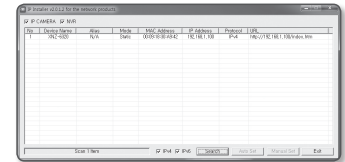
- <HTTP Port>が80以外に設定されている場合、カメラにアクセスするには、インターネットブラウザのアドレスバーで<Port>番号を設定する必要があります。  
例) http://IPアドレス:HTTPポート  
http://192.168.1.100:8080

### 自動ネットワーク設定

<IP Installer\_v2.XX.exe>を実行し、カメラの検索リストを表示します。  
最初の起動時には、[Auto Set]と[Manual Set]は両方グレー表示となります。

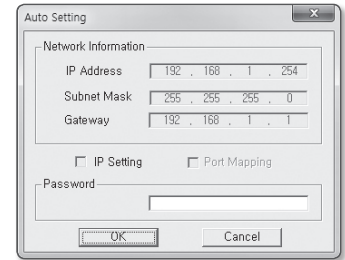
- IPv6設定のカメラが見つかった場合、カメラがこの機能をサポートしていないため、ボタンがグレー表示されます。

1. 検索リスト内のカメラを選択します。カメラのラベルに印字されているカメラのMACアドレスを確認します。  
[Auto Set]と[Manual Set]の両方のボタンが有効となります。
2. [Auto Set]をクリックします。  
Auto Settingダイアログが表示されます。  
<IP Address>、<Subnet Mask>、<Gateway>が自動的に設定されます。
3. パスワードを入力してください。  
カメラへのアクセスに使用していた「admin」アカウントのパスワードを入力します。



- セキュリティ上の目的で、数字、アルファベット、大文字小文字および特殊文字を使用することをお勧めします。
- パスワードの変更方法についての情報は、ウェブビューアのオンラインヘルプを参照してください。

#### 4. [OK]をクリックします。 自動ネットワーク設定が完了しました。



# ネットワーク接続と設定

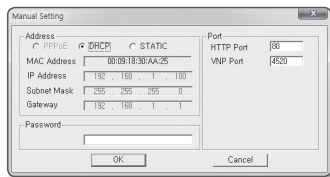
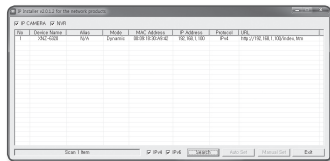
## 動的IP設定

### 動的IP環境設定

- 動的IP環境の例
  - カメラに接続しているブロードバンドルーターが、DHCPサーバーでIPアドレスを割り当てられている場合
  - DHCPプロトコルを使用して直接カメラをモデムに接続する場合
  - IPがLAN経由で内部DHCPサーバーに割り当てられている場合

### 動的IPの確認

- ユーザーのローカルコンピュータでIPインストーラを実行します。  
<Dynamic IP>アドレスが割り当てられているカメラがリストに表示されます。
- 検索結果からカメラを選択します。
- [Manual Set]ボタンをクリックし、カメラの<Dynamic IP>アドレスを確認します。  
<DHCP>のチェックを外しておく、IPを<Static>に変更できます。

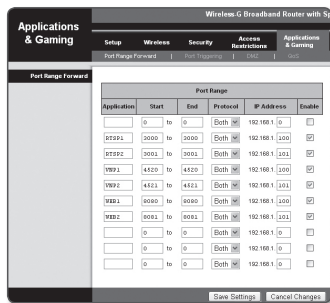


## ポートフォワード(ポートマッピング)の設定

カメラを接続したままブロードバンドルーターをインストールした場合は、ブロードバンドルーター上でポート範囲フォワードを設定し、ルーター内のカメラにリモートPCからアクセスできるようにする必要があります。

### 手動ポートフォワード

- ブロードバンドルーターの設定メニューから<Applications & Gaming> - <Port Range Forward>を選択します。  
サードパーティのブロードバンドルーター用にポートフォワードを設定するには、ブロードバンドルーターのユーザーマニュアルを参照してください。
- ブロードバンドルーターに接続されている各カメラ用の、<TCP>と<UDP Port>を選択します。  
IPルーターに設定する各ポートの数字は、カメラWeb Viewerの<設定> - <Basic> - <IP & ポート>に指定されるポート番号に合わせて設定しなければなりません。



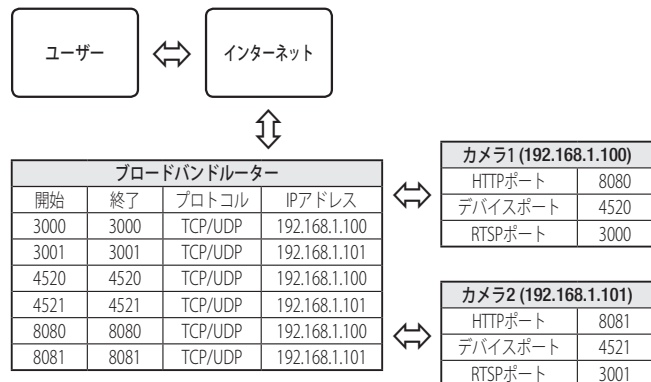
- 完了後、[Save Settings]をクリックします。  
設定が保存されます。

- 上記の説明の例はCISCOのブロードバンドルーターに基づいています。
- 設定は、接続しているブロードバンドルーターのモデルによって異なる場合があります。  
詳細は、該当するルーターのユーザーマニュアルを参照してください。

### 複数のネットワークカメラに関するポートフォワード範囲設定


- ブロードバンドルーターデバイスの設定Webページで、ポートフォワーディングのルールを設定することができます。
- ユーザーは、カメラ設定画面を使って各ポートを変更できます。

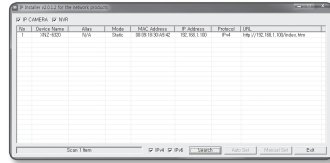
カメラ1とカメラ2がルーターに接続されている場合:



- ルータがUPnP (ユニバーサルプラグアンドプレイ) 機能をサポートしている場合、ポートフォワーディングを追加ルータの設定なしで行うことができます。  
ネットワークカメラ接続後、メニューから、<設定> -> <ネットワーク> -> <DDNS>の<Wisetnet DDNS>の<クイック接続>のチェックボックスを選択します。


## 共有ローカルPCからカメラへの接続

1. IPインストーラを実行します。  
接続されているカメラをスキャンし、そのリストを表示します。
  2. アクセスするカメラをダブルクリックします。  
インターネットブラウザが起動し、カメラに接続されます。
-  ■ インターネットブラウザのアドレスバーに検出されたカメラのIPアドレスを入力し、カメラにアクセスすることもできます。



## リモートPCからインターネット経由でのカメラへの接続

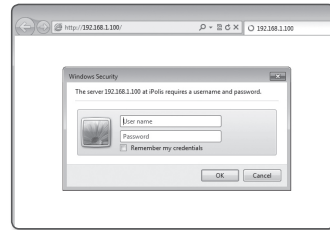
ブロードバンドルーターのネットワーククラスターに属さないリモートコンピュータ上でIPインストーラを使用することはできないため、ユーザーはカメラのDDNS URLを使用してブロードバンドルーターのネットワーク内のカメラにアクセスすることができます。

1. ブロードバンドルーターのネットワーク内のカメラへアクセスする前に、ブロードバンドルーターにポートフォワードを設定しておく必要があります。
  2. リモートPCから、インターネットブラウザを起動しカメラのDDNS URLアドレスを入力するか、アドレスバーでブロードバンドルーターのIPアドレスを入力します。  
例) <http://ddns.hanwha-security.com/ID>
-  ■ DDNSの登録方法についての情報は、ネットワーク設定ガイドを参照してください。

## カメラへの接続

### 通常の方法

1. インターネットブラウザを起動します。
2. アドレスバーにカメラのIPアドレスを入力します。  
例) IPアドレス(IPv4) : 192.168.1.100 → http://192.168.1.100  
- ログインダイアログが表示されます。
  - IPアドレス(IPv6) : 2001:230:abcd:ffff:0000:0000:ffff:1111  
→ http://[2001:230:abcd:ffff:0000:0000:ffff:1111] - ログインダイアログが表示されます。



### HTTPポートが80以外の場合

1. インターネットブラウザを起動します。
2. アドレスバーにカメラのIPアドレスとHTTPのポート番号を入力します。  
例) IPアドレス : 192.168.1.100:HTTPのポート番号(8080)  
→ http://192.168.1.100:8080 - ログインダイアログが表示されます。

### URLを使用する場合

1. インターネットブラウザを起動します。
2. アドレスバーにカメラのDDNS URLを入力します。  
例) URLアドレス : http://ddns.hanwha-security.com/ID  
- ログインダイアログが表示されます。

! ■ ネットワーク接続はLANのみの環境では無効になります。

### UPnPを介した接続

1. UPnPプロトコルをサポートするために、クライアントまたはオペレーティングシステムを実行します。
2. 検索するカメラ名をクリックします。  
Windowsオペレーティングシステムでは、ネットワークメニューから検索したカメラ名をクリックします。
  - ログインウィンドウが表示されます。

### Bonjourを介した接続

1. Bonjourプロトコルをサポートするためにクライアントまたはオペレーティングシステムを実行します。
2. 検索するカメラ名をクリックします。  
Macのオペレーティングシステムでは、SafariのBonjourタブから検索したカメラ名をクリックします。
  - ログインウィンドウが表示されます。

### DDNSアドレスを確認するには

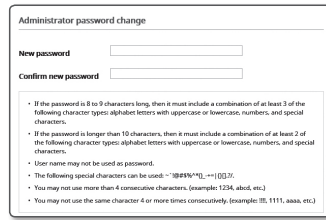
カメラを直接DHCPベースのケーブルモデムまたはDSLモデムに接続すると、ISP(ユーザーが契約する会社)に接続を試行する度にIPアドレスが変更されます。  
その場合、DDNSによるIPアドレスの変更は通知されません。

動的なIPベースのデバイスをDDNSサーバーに登録すると、そのデバイスにアクセスするときに、変更されたIPを簡単に確認することができます。  
使用するデバイスを<DDNS>サーバーに登録するには、http://ddns.hanwha-security.comにアクセスして最初にデバイスを登録し、Web Viewerの<ネットワーク> - <DDNS>を<Wisenet DDNS>に設定し、DDNS登録に使用した<製品ID>を指定します。

## パスワード設定

本製品を初めて使用する場合、ログインパスワードを登録する必要があります。  
 “パスワード変更”ウィンドウが表示されましたら、新しいパスワードを入力します。

- 新しいパスワードが8~9桁の場合、以下のうち3種類以上を使用する必要があります：大文字/小文字、数字、特殊文字。パスワードが10~15桁の場合、2種類以上を使用する必要があります。
  - 認められている特別文字：~!@#\$%^&\*()\_+=|{}?/
- 安全性を高めるため、同じ文字を繰り返したり、キーボード上の連続した文字を入力したりするのはお勧めしません。
- パスワードをなくした場合、[RESET]を押して製品を初期化します。そのため、メモ帳を利用したり、記憶したりして、パスワードをなくさないようにしてください。

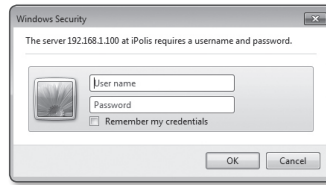


## ログイン

カメラにアクセスするたびに、ログインウィンドウが表示されます。  
 ユーザーIDとパスワードを入力してカメラにアクセスします。

1. <User name>入力ボックスに“admin”と入力します。  
 管理者ID“admin”は、確定されており変更できません。
2. <Password>入力欄に入力します。
3. [OK]をクリックします。  
 正常にログインすると、Live Viewerの画面が表示されます。

- カメラのWebビューアーにアクセスする場合は、画像データが暗号化されているか確認し、セキュリティに特にご注意ください。



- 入力完了時に、“Remember my credentials”オプションをチェックしておくと、次回からはログイン情報の入力を求められることなく自動的にログインします。
- 画面サイズが100%である場合、映像画質が最高の状態になります。倍率を小さくすると、境界線上の画像がカットされます。

## カメラ・ウェブビューアーの設定

1. [設定 (⚙️)]アイコンをクリックします。
2. 設定画面が現れます。
3. カメラの基本情報、ビデオ、オーディオ、ネットワーク、イベント、分析、ネットワーク全体のシステムの設定を構成することができます。
4. <ヘルプ (📖)>をクリックして、それぞれの機能の詳細説明を表示します。

# 付録

## 仕様

	項目	説明
映像	撮像素子	1/2.8" 2.4M CMOS
	合計画素数	1981(H) x 1288(V), 2.55M
	有効画素数	1944(H) x 1212(V), 2.35M
	走査システム	プログレッシブ
	最低照度	カラー: 0.05ルクス (1/30sec, F1.6) 白黒: 0.005ルクス(1/30sec, F1.6)
	S/N比	50dB
	ビデオ出力	CVBS: 1.0Vp-p/75Ωコンポジット、720x480(N)、720x576(P)、取付け用 USB: Micro USBタイプB、1280X720、インストール用
レンズ	焦点距離(ズーム倍率)	4.44~142.6mm(光学32X)
	最大口径比	F1.6(広角)/F4.4(望遠)
	画角	H:61.8°(広角)~2.19°(望遠)/V:36.2°(広角)~1.24°(望遠)
	最短被写体距離	広角 1.5m、望遠 2m
	焦点制御	自動/手動/ワンショットAF
	レンズタイプ	DCオートアイリス
	マウントタイプ	ボードインタイプ
操作関係	カメラタイトル	オン/オフ(最大85文字表示) - W/W: 英語/数字/特殊文字 - 共通: マルチライン(最大5)、カラー(グレー/グリーン/レッド/ブルー/ブラック/ホワイト)、透明、解像度ごとにオートスケール
	昼/夜	オート(ICR)/色/B/W/スケジュール
	逆光補正	オフ/BLC/HLC/WDR
	ワイドダイナミックレンジ	150dB
	コントラスト強調	SSDR(オフ/オン)
	デジタルノイズリダクション	SSNR5(2D+3Dノイズフィルタ)(オフ/オン)
	デジタル手ブレ補正	オフ/オン(ジャイロ内蔵)

	項目	説明
操作関係	曇り除去	オート/マニュアル/オフ
	モーション検知	オフ/オン(8、多角形)
	プライバシーマスク	オフ/オン(各24、形ゾーン) - カラー: グレー、グリーン、レッド、ブルー、ブラック、ホワイト - ズーム倍率オプション - モザイク
	利得調整	オフ/低/中/高
	ホワイトバランス	ATW/AWC/手動/屋内/屋外(水銀&ナトリウム含)
	電子シャッター速度	最小値/最大値/ちらつき防止(1~1/12,000秒)
	デジタルズーム	32x
	画像回転	フリップ/ミラー: オン/オフ
	ビデオ&オーディオ解析	タンパリング、徘徊、方向検知、霧検知、バーチャルライン、出入り、出現/消失、音声検知、顔検知、モーション検知、サウンド分類、衝撃検知
	シリアルインターフェイス	RS-485/RS-422 - Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell
	アラーム入・出力	入力1/出力2(Relay対応)
	アラームトリガー	アラーム入力、モーション検出、ビデオ&オーディオ解析、ネットワーク接続解除
	アラームイベント	<ul style="list-style-type: none"> <li>FTP、電子メールによるファイルのアップロード</li> <li>E-Mail、TCP、HTTPでの通知</li> <li>ネットワーク切断時およびイベント時(アラームトリガー)でのローカルストレージ(SD/SDHC/SDXC)またはNAS録画</li> <li>外部出力</li> <li>プリセット</li> </ul>
	オーディオ入力	選択可能(マイク入力/ライン入力) 供給電圧: 2.5VDC(4mA)、入力インピーダンス: 約2Kオーム
	オーディオ出力	ライン出力端子、最大出力: 1Vrms
ピクセルカウンター	サポート	

項目	説明
イーサネット	RJ-45 (10/100BASE-TX), SFP slot (100Base-FX)
ビデオ圧縮フォーマット	H.264 (MPEG-4 Part 10/AVC), H.265, Motion JPEG
解像度	1920x1080 / 1280x1024 / 1280x960 / 1280x720 / 1024x768 / 800x600 / 800x448 / 720x576 / 720x480 / 640x480 / 640x360 / 320x240
最大フレームレート	H.265/H.264: すべての解像度で最大60fps Motion JPEG: すべての解像度で最大30fps
スマートコーデック	マニュアルモード (領域ベース:5ea)
WiseStream II	サポート
ビデオ品質調整	H.264/H.265: ターゲットビットレートレベル制御 MJPEG: ターゲットビットレートレベル制御
ビットレート制御方式	H.264 / H.265 / MJPEG: CBR または VBR
ストリーミング機能	マルチストリーミング (最大10プロファイル)
音声圧縮フォーマット	G.711 $\mu$ -法/G.726 選択可 G.726 (ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 16KHzで48Kbps
音声通信	双方向
IP	IPv4, IPv6
プロトコル	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
セキュリティ	HTTPS (SSL) ログイン認証 ダイジェストログイン認証 IPアドレスフィルタリング ユーザーアクセスログ 802.1X認証方式 (EAP-TLS, EAP-LEAP)

ネットワーク

項目	説明
ストリーミング方式	ユニキャスト/マルチキャスト
最大ユーザーアクセス	ユニキャストモードでは20ユーザー
エッジストレージ	Micro SD/SDHC/SDXC 2スロット (最大 512 GB) - 連続録画 (第1スロットから第2スロット) - SD/SDHC/SDXCメモリーカードに記録されるモーション画像をダウンロードできます。 NAS(ネットワークアタッチドストレージ) インスタント録画用ローカルPC
アプリケーション・プログラミング・インターフェース	ONVIF Profile S/G SUNAPI 2.0(HTTP API) Wisenet Open Platform
Webページの言語	英語、韓国語、フランス語、ドイツ語、スペイン語、イタリア語、中国語、ロシア語、日本語、スウェーデン語、ポルトガル語、チェコ語、ポーランド語、トルコ語、オランダ語、ハンガリー語、ギリシャ語
Web Viewer	対応OS: Windows 7 / 8.1 / 10, MAC OS X 10.10, 10.11, 10.12 推奨ブラウザ: Google Chrome 対応ブラウザ: MS Explorer 11, MS Edge, Mozilla Firefox (Window 64bitでのみサポート), Apple Safari (Mac OS Xでのみサポート)
集中管理ソフトウェア	SmartViewer
動作温度/湿度	-10°C ~ +55°C (14°F ~ +131°F) / RH90%以下
保存温度/湿度	-30°C ~ +60°C (-22°F ~ +140°F) / RH90%以下
保護等級	-
パンダル抵抗	-
入力電圧/電流	12VDC $\pm$ 10%, PoE(IEEE 802.3af, class3)
消費電力	最大6.7W (DC12V)、最大7W (PoE)
色/材質	黒/プラスチック+メタル
寸法	W96 x H76 x D143.5mm (3.78" x 2.99" x 5.65")
重量	580g

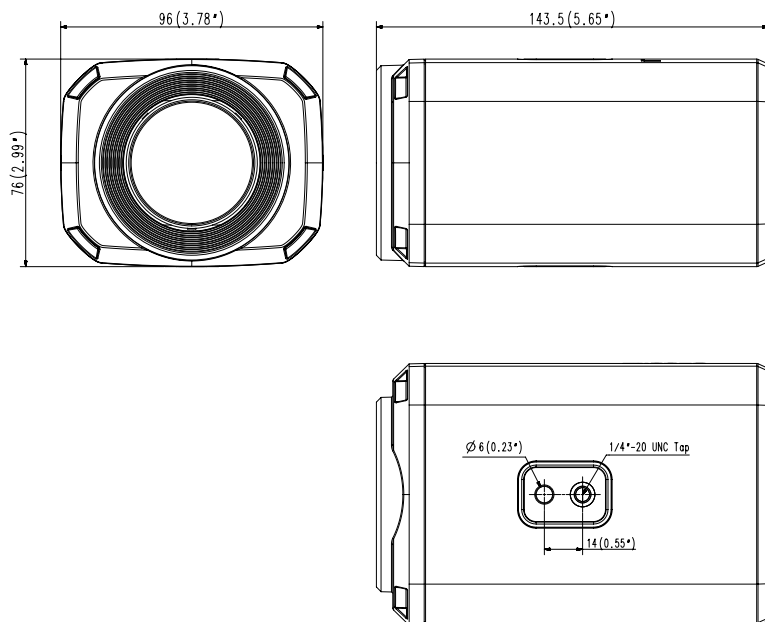
ネットワーク

環境関係

電気関係

メカニカル

単位: mm(インチ)



## トラブルシューティング

問題	解決策
Windows 10ユーザーがChromeまたはFirefoxからウェブビューアにアクセスする場合、マイクロフォンの音量は周期的に変わります。	<ul style="list-style-type: none"> <li>これは、マイクロフォンのドライバをRealtekドライバに設定している場合に生じます。High Definition Audioデバイス (Windowsの標準ドライバ) またはサードパーティ製のドライバをマイクロフォン用のドライバとしてインストールします。</li> </ul>
Safariを使用してHTTPS経由でプラグインフリーのWeb Viewerにアクセスすると、映像は表示されません。	<ul style="list-style-type: none"> <li>https初回接続時に表示されるウェブサイトの認証ポップアップで&lt;証明書の表示&gt;をクリックした後、&lt;Webビューアの設定IPに接続する際、常に信頼する&gt;の項目のチェックボックスを選択してください。</li> <li>以下のメッセージウィンドウで「次へ」を選択した後にWeb Viewerでの表示に失敗する場合は、commandキー + Qを押してSafariブラウザを終了し、再度アクセスして上述の手順に従います。</li> </ul>
ウェブブラウザからカメラにアクセスできない。	<ul style="list-style-type: none"> <li>カメラのネットワーク設定が適切か確認します。</li> <li>ネットワークケーブルがすべてきちんと接続されているか確認します。</li> <li>DHCPを使用して接続した場合、カメラが問題なく動的IPアドレスを取得できたか確認します。</li> <li>カメラがブロードバンドルーターに接続している場合、ポート転送がきちんと設定されているか確認します。</li> </ul>
閲覧中にビューアが遮断された。	<ul style="list-style-type: none"> <li>カメラまたはネットワーク設定に変更が生じた場合、接続済みビューアは遮断されます。</li> <li>ネットワーク接続をすべて確認します。</li> <li>カメラが PPPoE 上で接続している場合、ネットワーク環境の不具合が原因でビューアが遮断された可能性があります。</li> </ul>
ネットワークに接続しているカメラがIPインストールプログラムを検知しない。	<ul style="list-style-type: none"> <li>使用中のPCのファイアウォールを無効にし、カメラを再検索してください。</li> </ul>
画像がオーバーラップする。	<ul style="list-style-type: none"> <li>複数のカメラが個々のアドレスではなく、単一のマルチキャストアドレスに設定されているか確認します。複数のカメラが単一アドレスを使用すると、画像がオーバーラップする原因になります。</li> </ul>
画像が表示されない。	<ul style="list-style-type: none"> <li>送信方法がマルチキャストに設定されている場合、カメラが接続しているLANにマルチキャストに対応しているルータがあるか確認します。</li> </ul>
音声入力を設定している場合でも、音声は録音されません。	<ul style="list-style-type: none"> <li>&lt;基本&gt; - &lt;ビデオプロファイル&gt; の &lt;音声入力&gt; チェックボックスを有効にしなければなりません。</li> </ul>



問題	解決策
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iptables-1.4.21	GPL 2.0	<a href="http://ftp.netfilter.org/pub/iptables">http://ftp.netfilter.org/pub/iptables</a>
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mi-diag-2.11	GPL 2.0	
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wpa_supplicant-2.5	GPL 2.0	
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generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf. It is copyright by the Free Software Foundation but is freely distributable. The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain. sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.) So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files. To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

We are required to state that

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### T-License [License Agreement for Source Code of T-Kernel]

established by T-Engine Forum  
on January 23, 2004  
revised on June 17, 2004  
revised on December 21, 2006  
revised on March 24, 2009

#### Article 1. Scope of License Agreement

1. This License Agreement sets forth copyrights and the terms and conditions of use applicable to the source code of T-Kernel distributed by T-Engine Forum and any derivative work created therefrom.

#### Article 2. Definition

1. "T-Kernel" means a real-time operating system controlled and distributed by T-Engine Forum on behalf of the copyright holder thereof.
2. "Source Code" means a source program, including related comments and documentations, for the T-Kernel and the Ported Source Code defined in Article 2.8 which is registered with T-Engine Forum.
3. "Hardware-dependent Part" means the part of the Source Code which depends on hardware and needs to be changed when the Source Code is ported and operated on the target hardware, and is designated and separated as such part.
4. "Compiler-dependent Part" means the part of the Source Code which depends on compiler and needs to be changed when the Source Code is ported and operated on the target hardware, and is designated and separated as such part.
5. "Header File" means the part of the Source Code which contains definitions necessary to develop application programs.
6. "T-Engine Hardware" means the hardware which is manufactured in accordance with the T-Engine Hardware specifications or the  $\mu$ T-Engine Hardware specifications issued by T-Engine Forum, and registered with T-Engine Forum.
7. "Similar Hardware to T-Engine Hardware" means any hardware (including software which emulates hardware) other than that defined in Article 2.6 above, on which the T-Kernel can be operated.
8. "Ported Source Code" means a source program produced from the Source Code by modifying only its Hardware-dependent Part and/or Compiler-dependent Part to enable it to be operated on the T-Engine Hardware or the Similar Hardware to T-Engine Hardware. The Ported Source Code which is registered with T-Engine Forum shall be included in the Source Code.
9. "Modified Source Code" means a source program modified from the Source Code for the purpose of improving its performance, increasing or decreasing its function, and the like. The Ported Source Code shall not be included in the Modified Source Code.
10. "Binary Code" means an executable code form which is created by compiling programs, which include all or part of the Source Code or the Modified Source Code.
11. "Derivative Work" means the Modified Source Code or the Binary Code.
12. "Embedded Product" means any product which operates with executable code form of the Source Code, the Modified Source Code or the Binary Code loaded on its hardware.
13. "End User" means a consumer who uses the Embedded Product.
14. "System Developer" means any person who develops the Embedded Product by itself or has a third party develop the same, and provides, whether with or without payment, the End User with the Embedded Product.
15. "Distributor of Modification" means any person who produces the Modified Source Code and, whether with or without payment, distributes the same to any third party.
16. "Patch for Modification" means a difference, program, system, or the like in order to create the Modified Source Code from the Source Code or the Binary

Code thereof.

17. "Vicarious Execution of Patch Processing" means vicarious execution service to create the Modified Source Code applying the Patch for Modification to the Source Code or the Binary Code thereof.

18. "Source Code User" means a person who uses the Source Code.

19. "Distribution" means any of the following acts:

1. to transmit a work to a large number of specific persons through the Internet communication, broadcasting, and the like;
2. to transmit a work to the general public through the Internet communication, broadcasting, and the like automatically in response to a request from the public; and
3. to distribute a copy of a work to the general public or a large number of specific persons.

#### Article 3. Copyright

1. The copyrights of the Source Code shall be owned by Ken Sakamura.

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1. As provided for in this Article, T-Engine Forum shall provide, and grant a license to use, the Source Code free of charge to any person who has taken the necessary procedure for registration as prescribed by T-Engine Forum and agreed to the T-License.

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3. to run the Source Code modified in accordance with the provision of Article 4.3 (1) above for its own research, development and the like.
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4. In accordance with the license granted under Article 4.1 above, the System Developer may perform the following acts:

1. to perform any and all acts set forth in the Article 4.3 above.
2. to develop and manufacture the Embedded Product containing the Binary Code, and, whether with or without payment, provide the End User with the same and make the Binary Code available to the End User on the Embedded Product.

5. The Source Code User and the System Developer shall be obligated to give a notice that the Source Code is used, in such a way as separately specified by T-Engine Forum, when they use the Source Code or the Binary Code, or make the Binary Code available for the End User on the Embedded Product.

#### Article 5. Distribution of Modified Source Code

1. Any of A- members of T-Engine Forum may become the Distributor of Modification by obtaining the approval of T-Engine Forum through the registration procedure as prescribed by the Forum provided that only the department of the A- member which has taken the registration procedure may distribute the Modified Source Code in such a way as provided for in this Article as long as it holds the Amembership.

2. The Distributor of Modification may create the Modified Source Code based on the Source Code provided by T-Engine Forum and the Patch for Modification to be applied to create such Modified Source Code from the Source Code.

3. The Distributor of Modification shall, prior to the distribution, inform T-Engine Forum of and register a name and description of the Modified Source Code in such a way as specified by T-Engine Forum.

4. The Distributor of Modification shall determine the name of the Modified Source Code subject to the rules separately established by T-Engine Forum and publish an appropriate notice as required by the rules on the Patch for Modification and the Modified Source Code.

5. The Distributor of Modification may distribute the Modified Source Code to a third party, whether with or without payment, provided that the Distributor of Modification shall take the necessary measures to prohibit the third party from making the re-Distribution of the Modified Source Code.

6. Developer with the Patch for Modification, Provided, however, that the Distributor of Modification shall be obligated to confirm that the System Developer is the Source Code User duly licensed under Article 4.1.

7. The Distributor of Modification may perform the Vicarious Execution of Patch Processing for the System Developer.

8. The System Developer shall not distribute the Modified Source Code in further modified form to any third party as a stand-alone software product.

9. The System Developer may, under the same obligation as imposed in Article 4.5, make the Embedded Product available for the End User through use of the Patch for Modification distributed by the Distributor of Modification or the Derivative Works obtained through the Vicarious Execution of Patch Processing.

#### Article 6. Distribution and Registration of the Ported Source Code

1. The Source Code User and the System Developer may, whether with or without charge, distribute to any third party only the following parts of the Ported Source Code on the T-Engine Hardware or the Similar Hardware to T-Engine Hardware:

1. The Hardware-dependent Part and/or Compiler-dependent Part; provided that the Source Code User and the System Developer shall inform T-Engine Forum of, and T-Engine Forum may publish, a method for distributing said Part(s) to third parties.

2. The Header File; provided that the Header File shall be distributed together with the Binary Code of the Ported Source Code.

2. Any member of T-Engine Forum may request T-Engine Forum to register and distribute, as an original source code for T-Kernel, the Ported Source Code on the T-Engine Hardware or the Similar Hardware to T-Engine Hardware.

3. Any member of T-Engine Forum who requests the distribution mentioned in the preceding paragraph shall accede to the following conditions:

1. The member shall confirm that the object hardware is the T-Engine Hardware or the Similar Hardware to T-Engine Hardware.
2. The member shall provide T-Engine Forum with a complete set of operational environment for the object hardware and T-Kernel free of charge when requesting the distribution.
3. The member shall submit test results of the Ported Source Code to T-Engine Forum when requesting the distribution.

4. In the event that T-Engine Forum accepts the request mentioned in Article 6.2, T-Engine Forum shall register and distribute the Ported Source Code as the Source Code for T-Kernel. Provided, however, that the Ported Source Code may be treated in the same way as the Modified Source Code until the time of registration hereunder.

5. The provision set forth in Article 3 shall apply to the Ported Source Code registered in accordance with this Article.

#### Article 7. Use for Other Purpose

1. Any use of the Source Code, the Modified Source Code or the Ported Source Code other than those stipulated in Articles 4, 5 and 6 shall be subject to the prior approval of T-Engine Forum.

#### Article 8. Limited Warranty

1. T-Engine Forum and the copyright holder of the Source Code warrant that the Source Code does not infringe third party's copyrights. Provided, however, that T-Engine Forum and the copyright holder of the Source Code make no warranty as to the Hardware-dependent Part and/or Compiler- dependent Part set forth in Article 6.2 in the Ported Source Code by any third party.

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2. In case of breach of this License Agreement by a member of T-Engine Forum, T-Engine Forum may take appropriate measures against the member; for example, the member is disqualified from membership, depending on what kind of breach has been committed by it.

3. Any legal dispute which may arise in relation to any breach of this License Agreement shall be subject to the exclusive jurisdiction of the Tokyo District Court.

#### Article 11. Governing Law and Language

1. This License Agreement shall be governed by and interpreted under the laws of Japan.

2. This License Agreement is executed in both Japanese text and English text provided that the Japanese text shall govern the interpretation and performance of this License Agreement.

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Julian Seward, [jseward@bzip.org](mailto:jseward@bzip.org)

bzip2/libbzip2 version 1.0.5 of 10 December 2007

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iperf performance test

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Jean-loup Gailly Mark Adler

[jloup@gzip.org](mailto:jloup@gzip.org) [madler@alummi.caltech.edu](mailto:madler@alummi.caltech.edu)

The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files <http://www.ietf.org/rfc/rfc1950.txt> (zlib format), [rfc1951.txt](http://www.ietf.org/rfc/rfc1951.txt) (deflate format) and [rfc1952.txt](http://www.ietf.org/rfc/rfc1952.txt) (gzip format).

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