

画像処理用コントローラー

FV2340-C7e32

FV2340-C10e64

FV2340-C

取扱説明書

☆第 4 版☆

東京エレクトロン デバイス株式会社

ご注意

- (1) 本書の内容の一部または全部を転載することは固くお断りします。
- (2) 本書の内容については将来予告なしに変更することがあります。
- (3) 本書の内容については万全を期して作成いたしましたですが、万一ご不審な点や誤り、記載もれなどお気づきの点がありましたらご連絡ください。
- (4) 運用した結果の影響については、(2) (3) 項にかかわらず責任を負いかねますのでご了承ください。
- (5) 本製品がお客さまにより不適當に使用されたり、本書の内容に従わずに取り扱われたりしたこと等に起因して生じた損害等については責任を負いかねますのでご了承ください。

Before using the FV2340, please read this page carefully.



Warning

Power Source

Make sure that the source voltage matches the power supply voltage of the system before turning on the power.

Power Cable and Plug

Use the power cable (when use in Japan) supplied by TOKYO ELECTRON DEVICE LIMITED, to prevent electrical shock and fire.

Connect the main plug to the AC outlet with a protective earth terminal. Do not use a cable extension without the protective earth cables. If such a cable extension is used, the protective operation will be disabled.

Protective Earth

Be sure to ground the protective earth terminal before turning on power to the system to prevent electrical shock. The power cable for the system is a 3P power cable with a grounding conductor. Connect it to a 3P outlet with a protective earth terminal.

Necessity of Protective Earth

Do not cut-off the protective earth conductor inside or outside the system or disconnect the protective earth wiring, to avoid hazards.

Be sure to observe the following to prevent damage to the machine, electrical shock or fire.

- Be sure to disconnect the power cable and connection cables before connecting or disconnecting the earth conductor.
- Observe the following when handling the power cable.
 - (1) Do not use a damaged power cable.
 - (2) Do not modify the power cable or the plug.
 - (3) Do not place a heavy object on the power cable.
 - (4) Do not bend, twist or pull the cable by force.
 - (5) Do not place the cable near a heating apparatus.
 - (6) Do not connect the cable to an outlet extension to which other heat producing devices are connected.
- When the TV camera connected to the system is to be mounted on a robot arm, be careful with the earth connection so that there is no potential difference of the GND level.
- When the coaxial cable used for video transmission is to be relayed using a relay connector, the GND side will be exposed at the relay. This GND side has the same potential as that of the SG of the machine. Be careful not to let it touch a high voltage source.



Caution

- Do not use the system when the filter is clogged. Doing so will cause heat to build up inside the machine, resulting in damage to the machine or fire.
- If there is an abnormal sound, smell, heat or any other sign of danger, turn off the power immediately and disconnect the power plug from the outlet. Otherwise, electrical shock or fire may result. If a problem is determined, please contact our sales office or agent.
- There must be a space of at least 100mm for the FV2340.
Do not block the inlet. If the air inlet is blocked, the internal temperature will rise excessively, resulting in thermal runaway damage, or fire. Also, do not put metallic, flammable or any other foreign material through the inlet.

English manuals are available for download from this page.
<https://www.inrevium.com>

本機器を安全にご使用いただくために

本機器を正しく安全に使用していただくため、本機器の操作にあたっては下記の安全注意事項を必ずお守りください。この取扱説明書で指定していない方法で使用すると、本機器の保護機能が損なわれることがあります。なお、これらの注意に反したご使用により生じた損害については、東京エレクトロニクス(株)は責任と保証を負いかねます。

本機器には、次の様なシンボルマークを使用しています。



装置を安全にお使いいただくために“取扱注意”



機能接地端子(保護接地端子として使用しないでください)



交流



ON(電源)



OFF(電源)

輸出管理規制について

本製品を輸出される場合は、外国為替および外国貿易管理法の規制をご確認の上、必要な手続きをお取りください。なお、ご不明な点は、弊社担当営業にお問い合わせください。

この説明書で使われるマークについて



警告

取り扱いを誤った場合に、使用者が死亡または重傷を負う危険があるときに、その危険を避けるための注意事項が記載されています。



注意

取り扱いを誤った場合に、使用者が軽傷を負うか、または物的損害のみが発生する危険があるときに、それを避けるための注意事項が記載されています。



装置が故障しないようにするための注意、正しく動作させるための注意等を記載しました。

Note

機器を取り扱う上で重要な情報が記載されています。

はじめに

このたびは弊社の画像処理用コントローラー『FV2340-C』シリーズをお買い上げいただき、誠にありがとうございます。

『FV2340-C』シリーズは、PC 技術を画像処理用ベースマシンとしてカスタマイズしたハードウェアプラットフォームをもつ汎用コントローラーです。画像処理にはもちろん、制御用 PC などとして多目的利用ができる装置です。

以下の製品をご用意しております。

FV2340-C7e32 : Windows Embedded Standard 7 32bit を搭載した装置

FV2340-C10e64 : Windows 10 IoT Enterprise 64bit を搭載した装置

本説明書には、上記製品の基本ユニットの説明が書かれています。製品固有の機能等につきましては、該当するページにその旨記述されています。特に記述のない箇所については FV2340-C 共通の記述です。

なお、画像入力等の仕様は、基本ユニットに搭載する各種製品ボードによって機能が異なります。詳細は各ボードの取扱説明書をご覧ください。

製品名(型番)は下記で表現し、装置銘板及び銘板補助ラベルが装置前面に貼られます。

FV2340-Env

- Env(ironment) : ソフトウェア動作環境
FV2340-C7e32 をご購入の場合、表記は、“C7e32” となります。
FV2340-C10e64 をご購入の場合、表記は、“C10e64” となります。

——商標について——

「Microsoft」「Windows」「Windows Embedded Standard 7」
「Windows 10 IoT Enterprise」は Microsoft Corporation の登録商標です。
「IBM」、「PS/2」は International Business Machines の登録商標です。
その他、各会社名、各製品名は各社の商標または登録商標です。

ご使用になる前にご確認ください

(1) 本装置に付随するソフトウェア商品の使用許諾について

【 FV2340-C7e32 】

2. 「Microsoft Software License Terms」をお読みください。

-重要-



FV2340-C7e32 システム SSD には、Microsoft Corporation の基本ソフト (OS) Windows Embedded Standard 7 が組込まれています。本説明書の最後に「Microsoft Software License Terms」原文が添付されています。装置を使用する前に契約内容をよく読み、同意される場合のみ本製品をお使いになることができます。装置を使用した場合、契約内容に承諾されたものといたします。

なお、FV2340-C7e32 の再販や装置に組み込んだの販売により使用ユーザが変わる場合、この「Microsoft Software License Terms」を必ず添付し、契約内容の同意時にのみ本製品の販売及び使用が可能である事を明記してください。

【 FV2340-C10e64 】

3. 「Microsoft Software License Terms」をお読みください。

-重要-



FV2340-C10e64 システム SSD には、Microsoft Corporation の基本ソフト (OS) Windows 10 IoT Enterprise が組込まれています。本説明書の最後に「Microsoft Software License Terms」原文が添付されています。装置を使用する前に契約内容をよく読み、同意される場合のみ本製品をお使いになることができます。装置を使用した場合、契約内容に承諾されたものといたします。

なお、FV2340-C10e64 の再販や装置に組み込んだの販売により使用ユーザが変わる場合、この「Microsoft Software License Terms」を必ず添付し、契約内容の同意時にのみ本製品の販売及び使用が可能である事を明記してください。

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1. 商品の確認

商品がお手元に届きましたら、下記のとおり揃っているかどうかご確認願います。
万一足りない場合や破損していた場合は、ただちに弊社営業までお申し出ください。

1.1 FV2340-C

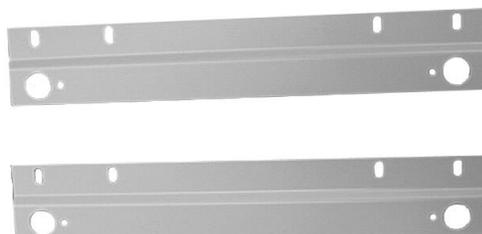
FV2340-C 本体 (1 台)



3P 電源ケーブル (1 本・約 3m・125V・7A)



取付金具 (2 枚、3mm ネジ×4 ヶ)



1.2 オプション品および別売品、購入品等のご案内

標準別売品

CPU (選択必須)

CPU は以下の 2 種類から選択可能です。

Core i5-6500 3.2GHz / Core i7-6700 3.5GHz / Pentium G4400 3.3GHz(※)

※FV2340-C7e32 のみ選択可

メモリ (選択必須)

メインメモリは以下の 3 種類から選択可能です。

DDR4-2400 4GB / 8GB / 16GB

システム SSD (必須)

システム SSD は起動ディスクで、製品ごとに以下の OS がインストールされています。

また、製品ごとにディスクの残容量が異なりますのでご注意ください。

出荷時期により SSD の容量が変わる場合があります。

①FV2340-C7e32 : Windows Embedded Standard 7 32bit

C ドライブと D ドライブに分かれています。

②FV2340-C10e64 : Windows 10 IoT Enterprise 64bit

C ドライブと D ドライブに分かれています。



不測の事態によりシステム SSD が破損しても、予備の SSD があれば迅速に復旧することができます。バックアップ目的でシステム SSD を販売しております。弊社営業にお問い合わせ下さい。

データ SSD, データ HDD (オプション)

データ用として SSD、HDD を用意しております。追加ドライブとしてお客様のアプリケーションやデータを格納することができます。用途に合わせて、容量を選定して頂けるよう別売品にしています。



不測の事態によりデータ SSD またはデータ HDD が破損しても、予備があれば迅速に復旧することができます。バックアップ目的でデータ SSD およびデータ HDD を販売しております。弊社営業にお問い合わせ下さい

PS/2 スプリッタケーブル (オプション)

基本的には USB キーボードと USB トラックボールの使用を推奨しますが、PS/2 ポートに PS/2 キーボードと PS/2 マウスを接続して使用する場合にスプリッタケーブルをオプションとして用意しています。PS/2 マウスはスプリッタケーブルが無いと使用できません。

COM2 用ブラケットケーブル (オプション)

FV2340 に搭載されている COM ポートは 1 ポートですが、オプションの COM2 用ブラケットケーブルを追加することで、2 ポートに増設することが可能です。増設にあたり、PCI/PCIe 拡張スロットを 1 スロット使用します。

準標準別売品

お客様が選定して購入する事が可能です。
選定の手間を省くため弊社でも商品として準備しております。

USB トラックボール

USB 接続タイプのみ使用可能です。
ケーブル長：約 1,500mm(予告なく仕様が変更される場合があります)



USB キーボード

日本語キーボード

シリアルケーブル

シリアルケーブルは豊富に市販されておりますが、弊社でも従来通りシリアルケーブルの販売をしております。
(本説明書の 6.1 シリアルケーブル(オプション))

2. 仕 様

2.1 一般仕様

	仕 様
外形寸法(注1)	(横幅)145mm×(奥行き)311.5mm×(高さ)275mm
ゴム足(高さ)	6mm
重量	約 5.0kg(取付金具は含まず)
電源	AC100～240V
電源周波数	50/60Hz
消費電力	480VA 以下
動作周囲温度	0～40℃
動作周囲湿度	30～85%RH(結露の無いこと)
保存周囲温度	-20～60℃
保存周囲湿度	95%RH 以下
適合規格(注2)	低電圧指令:EN 60950-1 EMC 指令:EN55022/EN55024

(注1) 取付金具やコネクタ等の突起部は含んでおりません。

(注2) 本装置単体でこれらの規格に適合できるよう設計されています。ただし、お客様が製作される装置、機械、設備については、セットした状態での適合性の確認が必要です。ご注意ください。
また、本装置への配線はシールドケーブルを使用し、30mを超えない配線としてください。

交換用フィルタはブリヂストン ポリウレタンフォーム製「エバーライト SF」材質：HR-13 105mm×95mm
をご使用下さい。

- この装置は、カレンダー情報を保持するためにリチウム1次電池を使用しています。電池の寿命は約15年です。お客様による電池の交換は出来ません。電池の交換は有償にて承りますので弊社営業にご用命下さい。
- FV2340に取り付けられているユニットは、使用により劣化、摩耗しますので、一定周期で交換する必要があります。詳しくは『7. 有寿命部品』を参照してください。これらのユニットは有償にて交換致します。詳しくは、弊社営業へお問い合わせ下さい。なお、出張でのメンテナンスサービスは行っておりません。あらかじめご了承下さい。

2.2 機能仕様

CPU	Core i5-6500 3.2GHz (4Core 4Thread) Core i7-6700 3.5GHz (4Core 8Thread) Pentium G4400 3.3GHz (2Core 2Thread)
メモリ	DDR4-2400 4GB / 8GB / 16GB (※1)
チップセット	Intel Q170
PCI スロット	2 スロット
PCI Express×4 スロット	1 スロット (B) Gen3
PCI Express×16 スロット	1 スロット (A) Gen3
アナログ VGA	初期設定 800x600 16bit 最大 1920x1200 32bit
DVI-I (DVI-D signal)	初期設定 800x600 16bit 最大 1920x1200 32bit
Displayport++	初期設定 800x600 16bit 最大 4096x2304 32bit
LAN	オンボード (10BASE-T/100BASE-TX/1000BASE-T) 2 ポート ※LNX の場合は 1 ポート (LAN1) のみ使用可
シリアル	1 ポート (※2)
PS/2 キーボードコネクタ (マウス)	1 (※3)
USB (USB2.0)	背面 2 ポート、正面 1 ポート
USB (USB3.0)	背面 4 ポート
ファイル装置	システム SSD
	データ SSD・データ HDD (オプション)

[※1] 市場動向により、メモリ標準容量および最大容量が変更される場合があります。

[※2] オプションの COM2 用ブラケットケーブルを追加することで、2 ポートに増設することが可能です。増設にあたり、PCI/PCIe 拡張スロットを 1 スロット使用します。

[※3] PS/2 マウスを使用するにはオプションの PS/2 スプリッターケーブルが必要です。



本装置が FVC05a/FVC05a-S0, FV-GP440a を通してカメラへ供給できる+12V は、4A (48W) までです。

Note FV2340-C に使われている PC 部品について

FV2340-C には、比較的長期安定供給が期待できる工業用パーソナルコンピュータ (以下、工業用 PC と略す) 部品を採用していますが、万が一工業用 PC 部品の入手が困難になった場合、代替の PC 部品に切り換えて製造する可能性があります。

2.3 電源の切り方について

1. 電源の切り方

Windows のシャットダウン機能を使用することで、安全に電源を切る事が出来ます。

1. キーボードの[Ctrl]+[Alt]+[Delete]キーを同時に押します。
2. 表示された画面右下に表示されるシャットダウンを選択してください。シャットダウンが完了すると自動的に電源がOFFになります。

2. 電源の再投入

電源スイッチを一旦 OFF にし、再度 ON にすることで電源の再投入ができます。
電源を再投入にする場合は、30 秒以上の時間をおいてから行ってください。



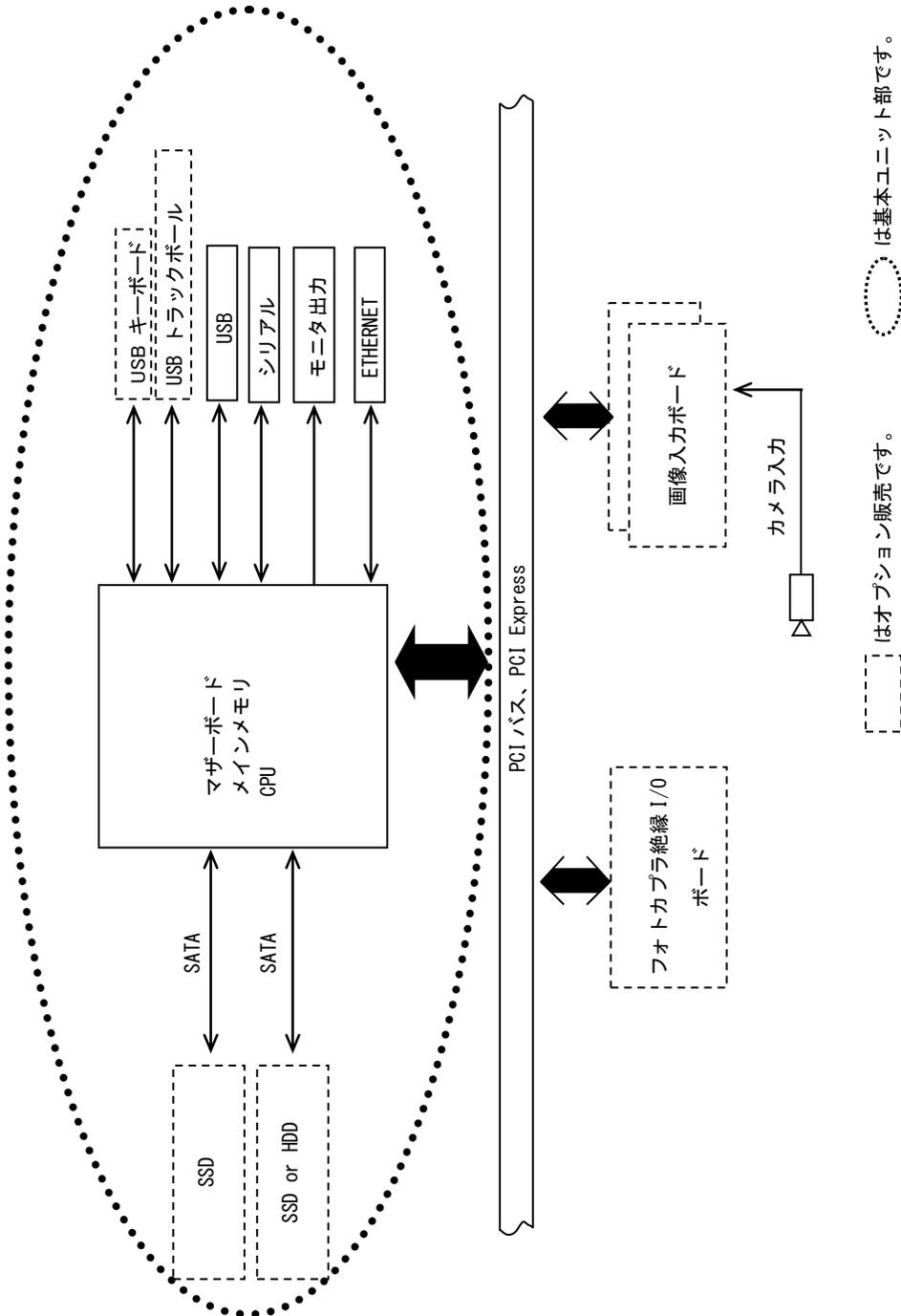
基本的には、シャットダウンプロセスを実行後、電源スイッチを OFF にしてください。
ファイル装置にアクセスしている状態(装置全面の HDD ランプ点灯中)や、Windows が起動しアプリケーションが実行できる状態になる前に電源を切ったり RESET スイッチを押すとファイル装置の内容に致命的な損傷を与える恐れがあります。

Note ファイルのバックアップ

万が一、ファイル装置の内容が破壊された場合の復旧が出来るよう、お客様が担当されたファイルをバックアップしておくことをお勧めいたします。システム SSD のシステム領域を破壊した場合は、弊社工場での再書込みが必要になります。

2.4 ブロック図

(注) 画像入力ボードに関する仕様は、装置本体に搭載されるボードによって異なります。



3. 設置と点検



注意

この章では装置を設置するにあたり、安全上の非常に重要な内容が書かれています。
また、システムの信頼性を高め、その機能を十分発揮させるために以下の内容を考慮して設置してください。

3.1 安全にご使用いただくために

- 不安定な場所(ぐらついた台の上や傾いた所など)に置かないでください。落ちたり、倒れたりして、装置を破壊または人が怪我をする恐れがあります。本体の自重は必ず本体底板(ゴム足)で保持し水平に設置してください。又、付属の取付金具により床面での固定が可能です(『3.2 取付金具の付け方』を参照してください)。
- 装置の吸気口/排気口は内部の温度上昇を防ぐための通風口です。
通風口をふさぐと火災の原因になりますので、通風口から 100mm 以上の空間を設けて設置してください。



注意

次のような場所は避けて設置してください。

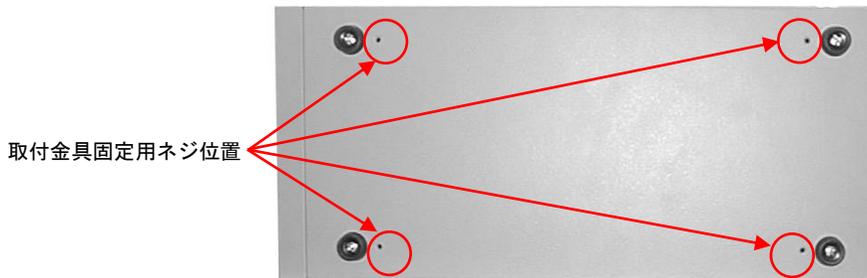
- 周囲温度が 0~40°C の範囲を超える場所
- 温度変化が急激で結露するような場所(結露した場合は乾燥させてから電源を投入してください)
- 相対湿度が 30~85% の範囲を超える場所
- 強力な電界、磁界の発生している場所
- 発熱源に近い場所
- 本体に直接振動や衝撃がかかる場所
- 直射日光の当たる場所
- 塵、埃の多い場所
- 水、油、薬品等の飛沫のある場所

3.2 取付金具の付け方

付属の取付金具を使用することによって縦置き/横置きでの固定が可能です。

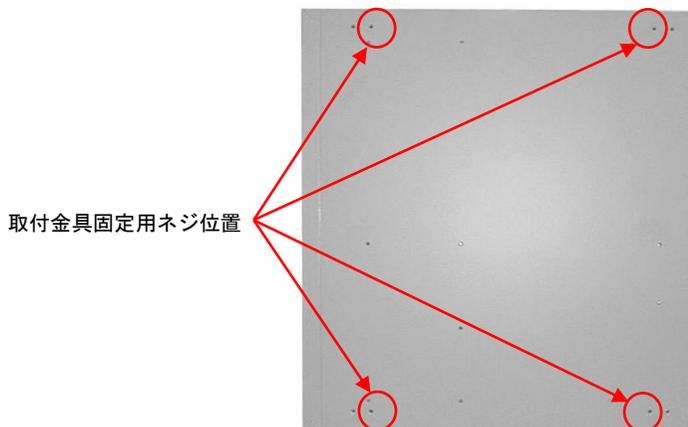
<縦置きにするとき> (出荷設定)

- (1) 本体の電源スイッチを OFF にします。
- (2) 本体に接続されているケーブル類はすべて外します。
- (3) 本体を裏返し、ゴム足のある側を上 にします。
- (4) 取付金具を添付ネジでしっかりと固定します。



<横置きにするとき>

- (1) 本体の電源スイッチを OFF にします。
- (2) 本体に接続されているケーブル類はすべて外します。
- (3) 本体を裏返し、ゴム足中央にあるネジをドライバで取り外してからゴム足を外します。
- (4) 本体正面向かって右側の側面にあるゴム足用の穴にゴム足を取り付け、ネジで固定します。
- (5) ゴム足を取り付けた側面を上 にします。
- (6) 取付金具を添付ネジでしっかりと固定します。



注意

本体を固定しないと、誤って落下して装置を壊す事があります。
取付金具を利用して設置してください。

3.3 電源の配線



警告

電源

機器の電源電圧が供給電源の電圧に合っているか必ず確認したうえで、本体の電源を入れてください。

電源コードとプラグ

入力電圧 125V までは感電や火災防止のため、電源コード(日本国内でのみ使用可能)は、弊社から供給されたものを必ずご使用ください。主プラグは、保護接地端子を備えた電源コンセントにだけ接続してください。保護接地を備えていない延長用コードを使用すると、保護動作が無効になります。

保護接地

感電防止のため、本機器の電源を入れる前には、必ず保護接地をして下さい。本機器に付属の電源コードは接地線のある3極電源コードです。したがって、保護接地端子のある3極電源コンセントを使用してください。

保護接地の必要性

本機器の内部または外部の保護接地線を切断したり、保護接地端子の結線を外さないでください。いずれの場合も本機器が危険な状態になります。

入力電圧波形

本機器の電源装置には PFC(力率改善回路)が搭載されています。UPS 等で矩形波を入力すると故障する恐れがありますのでおやめください。



警告

装置の破壊や感電、火災の事故を防ぐために次のことを必ず守ってください。

- アース線の接続、取り外しは電源ケーブルや接続ケーブルを抜いてから行ってください。
- 電源ケーブルを取り扱う際は次の点を守ってください。
 - (1) 破損した電源ケーブルを使用しない。
 - (2) 電源ケーブル、電源プラグを加工しない。
 - (3) 電源ケーブルの上に重いものを載せない。
 - (4) 無理に曲げたり、ねじったり、引っ張ったりしない。
 - (5) 熱器具の近くに配線しない。
 - (6) たこ足配線をしない。
- 装置に接続された TV カメラをロボット・アーム等に取り付ける際には、GND レベルの電位差がないように接地線の接続に注意してください。
- ビデオ伝送に使用する同軸ケーブルを中継コネクタで中継する場合、中継部で GND 側が露出しますが、この GND 側は装置の SG と同電位です。高電圧に接触させる事のないように注意してください。

3.4 日常点検

熱、湿気、ホコリなどの影響や使用の度合いにより、部品が劣化し、時には安全性を損なって事故につながる場合があります。下記の項目は日常点検で確認してください。



注意

- 吸気力の大きいファンを使用していますので半年に一度は点検をし、防塵フィルタが汚れていたり、目詰まりがある場合は清掃又は交換を行ってください。
- 交換用フィルタはブリヂストン ポリウレタンフォーム製「エバーライト SF」材質：HR-13 105mm×95mm をご使用下さい。

フィルタの清掃方法

- (1) 本体の電源を切ってください。
- (2) 本体前面の吸気口にあるネジ(1ヶ)を外すと金具が外れ、フィルタが取り出せます。
- (3) フィルタのゴミを、掃除機で吸い取るかエアードスター(圧縮空気)などでゴミを吹き飛ばします。
- (4) きれいにしたフィルタを(2)の逆の手順で元に戻してください。



吸気口金具取付ネジ



注意

- フィルタが目詰まりしたまま使用を継続しないでください。装置内部の温度が異常上昇し装置を破壊したり、火災を引き起こす原因となります。
- 異常な音や臭気がしたり、異常に熱くなる等の危険な兆候を発見したら、すぐに電源を切り、電源プラグをコンセントから抜いてください。そうしないと感電や火災の原因となります。原因がわからない場合は弊社にご相談ください。

3.5 データの保存

SSD は、ハードディスク (HDD) と比べて機構部がなく、非常に信頼性の高いデバイスですが、アクセス中の電源 OFF、故障により大切なプログラム/データ・ファイルを失う恐れがあります。

SSD のデータはパソコン等に必ずバックアップを取るよう to してください。

Note 保守用として SSD や HDD のご購入を推奨します

何らかの原因で SSD のファイルが壊れた場合、バックアップがあればアプリケーションプログラム等は復旧可能ですが、システム領域等に問題があった場合は弊社工場での再書込みや SSD の交換が必要です。

保守用としてシステム SSD やデータ SSD、データ HDD を購入しておけば、復旧時間を短縮することができます。

3.6 Windows のライセンス認証の方法

【 FV2340-C7e32 】

Windows のライセンス認証(アクティベーション)は必要ありません。

【 FV2340-C10e64 】

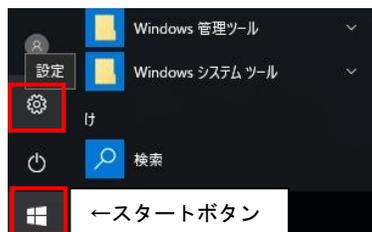
万が一、システム用の SSD が破損して装置が起動しなくなった時、予備のシステム SSD で復旧させることができます。FV2340-C10e64 用の予備のシステム SSD をご使用される際には、Windows のライセンス認証(アクティベーション)をして下さい。

インターネットを使用したライセンス認証の方法

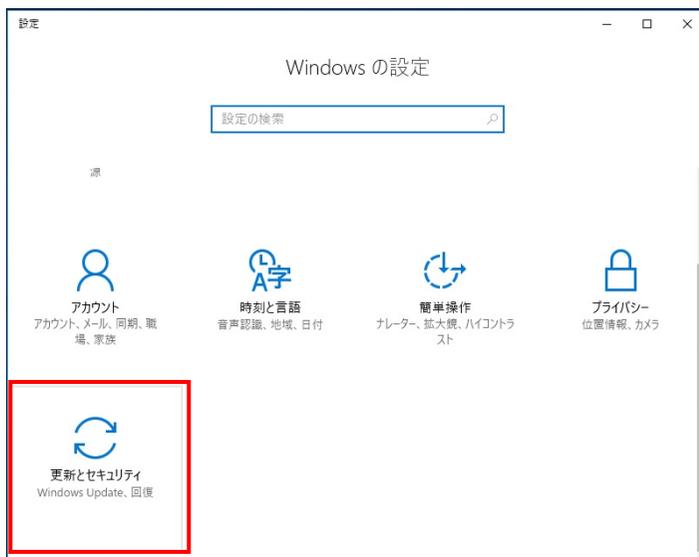
ライセンス認証は装置をインターネットに接続すると自動的に行われます。
装置の Ethernet コネクタに LAN ケーブルを接続してインターネット接続して下さい。

ライセンス認証されていることの確認方法

- ① 「スタート」 ボタンを左クリックして「設定」を選択します。



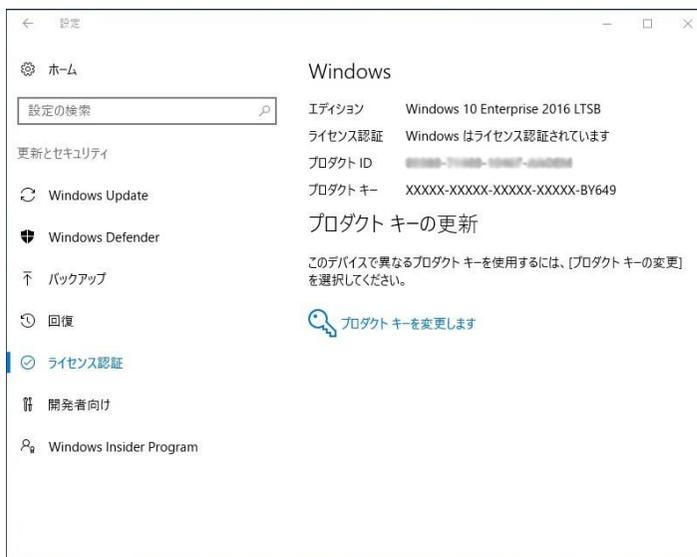
- ② Windows の設定画面の「更新とセキュリティ」をクリックします。



- ③ 更新とセキュリティ画面の「ライセンス認証」をクリックします。



- ④ ライセンス認証画面に「Windows はライセンス認証されています」と表示されていることをご確認ください。



- ※ インターネットに接続されていない等の理由でライセンス認証されていない場合は、「Windows ライセンス認証サーバーに到達できません」等のメッセージが表示されます。

Windows

エディション	Windows 10 Enterprise 2016 LTSC
ライセンス認証	Windows ライセンス認証サーバーに到達できません 詳細情報
プロダクト キー	XXXXX-XXXXX-XXXXX-XXXXX-BY649

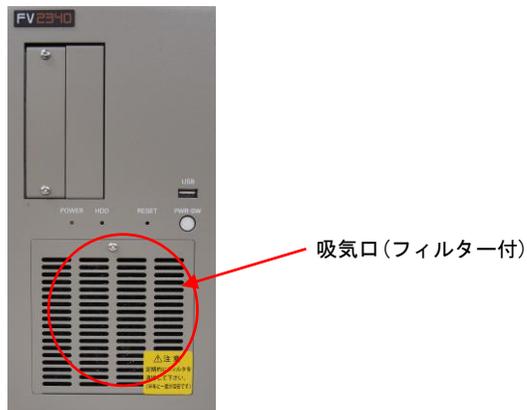
Windows を今すぐライセンス認証する

新しいプロダクト キーをインストールするには、[プロダクト キーの変更] を選択してください。

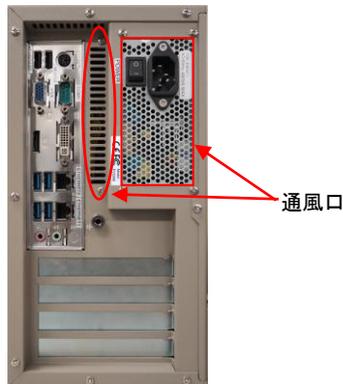
4. 本体各部の名称と取扱い

4.1 本体外観

本体前面



本体背面



4.1.1 吸気口・通風口

内部の発熱部品を空冷するための通気口です。

特に CPU、画像入力ボードの発熱量は膨大ですから、ファンが止まっていないことを確認してください。

また、防塵フィルタの交換時以外は開けないでください。

注意

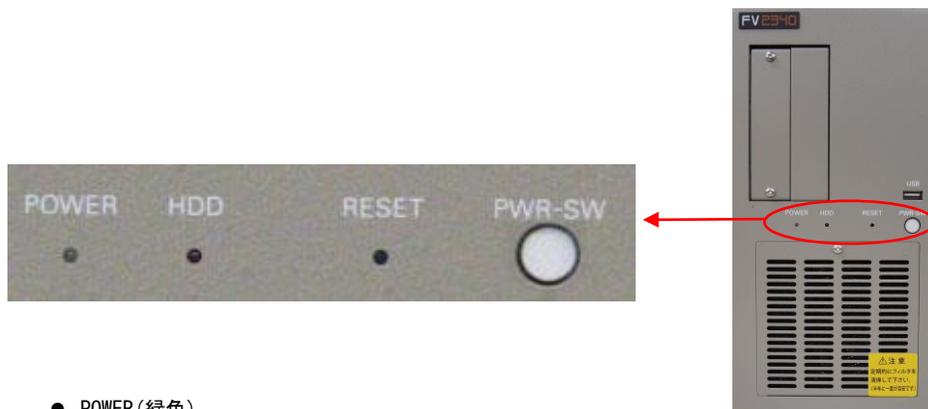
吸気口は周囲と 100mm 以上離し、絶対に通風口をふさがないでください。

通風口をふさいでしまうと内部温度が異常上昇し、装置の暴走、破壊、火災の危険があります。

また、通風口から金属類や燃えやすいものなど異物を入れないでください。

4.2 前面各部

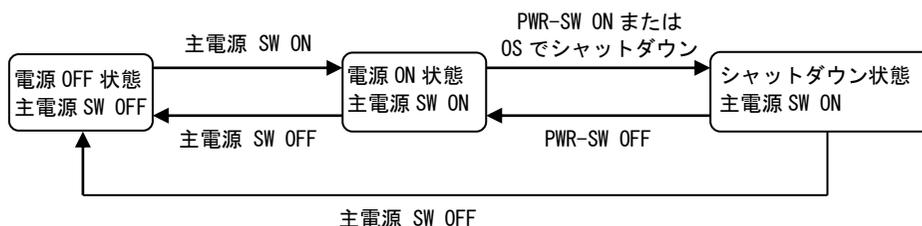
4.2.1 POWER/HDD/RESET/PWR-SW



- POWER (緑色)
電源スイッチを ON にすると点灯し、装置が通電状態であることを示します。
- HDD (赤色)
ファイル装置のアクセス中に点灯します。
- RESET (スイッチ)
装置をリセットします。操作は細い棒などを用いてスイッチを押して下さい。
- PWR-SW (丸ボタンスイッチ)
詳しくは下記の『PWR-SW の機能』を参照下さい。

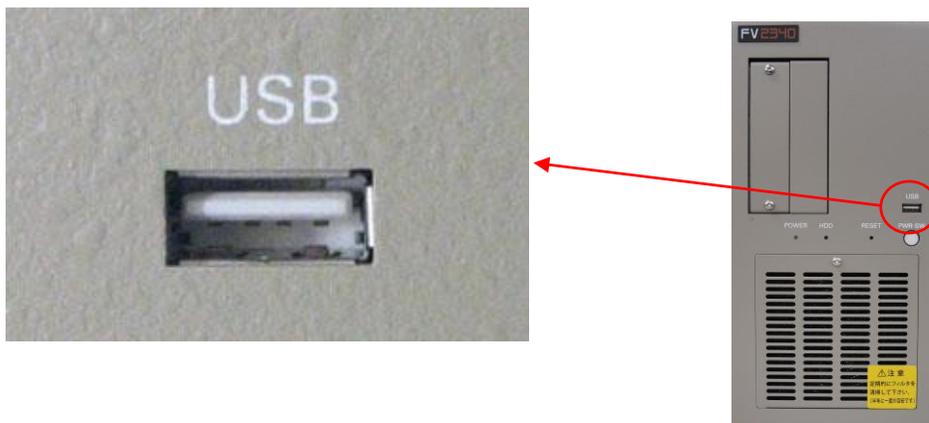
! PWR-SW の機能

PWR-SW は、一般的なコンピュータの電源スイッチに相当します。稼働中に本スイッチを押すとシャットダウンします。シャットダウン後は、本スイッチを押すと本体が起動します。本体背面の主電源スイッチを ON にしても起動しない場合やシャットダウン後、本体背面の主電源スイッチを ON にしたまま再び起動する場合に使用します。

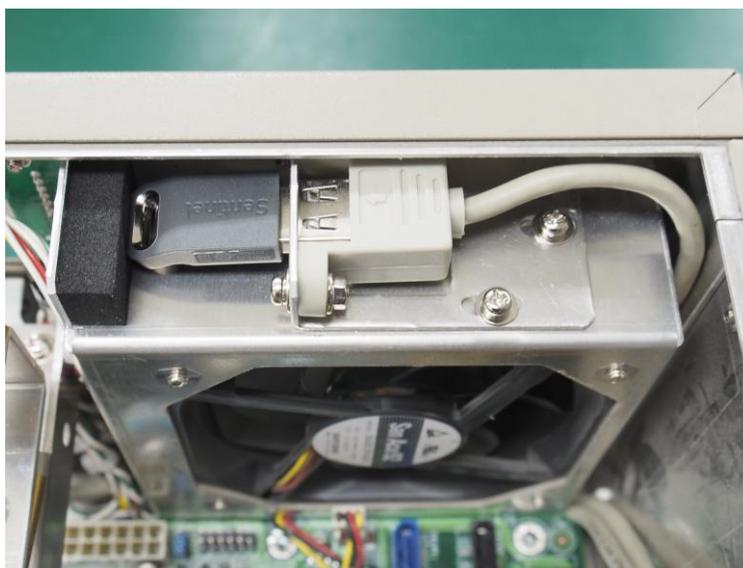


! システムの起動中や HDD 表示が点灯中は絶対に RESET スイッチや主電源スイッチを操作しないでください。ファイル内容を破壊する場合があります。

4.2.2 正面 USB および内蔵 USB コネクタ



正面 USB コネクタ



USB ライセンスキー内蔵用 USB コネクタ

Note

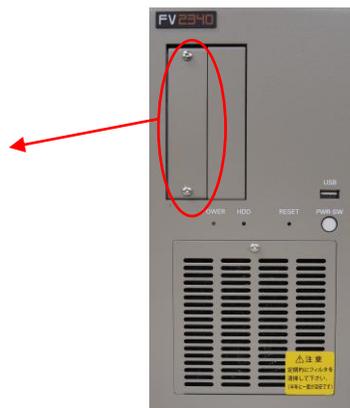
本製品には USB のドライバがインストールされています。しかし、お客様がご利用になる USB 機器の動作を保証するものではありません。

USB 機器をご使用になる際にはその点をご了承ください。

4.2.3 2.5 インチリムーバブルユニット



DATA SYSTEM



●SSD の取り外し



蓋を取り外します



指でつまんで引き抜きます

●SSD の取り付け



縦置きの場合は、SSD のラベルが左に、横置きの場合は上になります。



奥に突き当たるまで押し込み、蓋を取り付けます。

● SYSTEM

システム SSD が搭載されています。



FV2340-C7e32 システム SSD を他の FV2340-C7e32 装置へ載せ替えた際には、ETHERNET コネクタ 1 のドライバが再インストールされます。

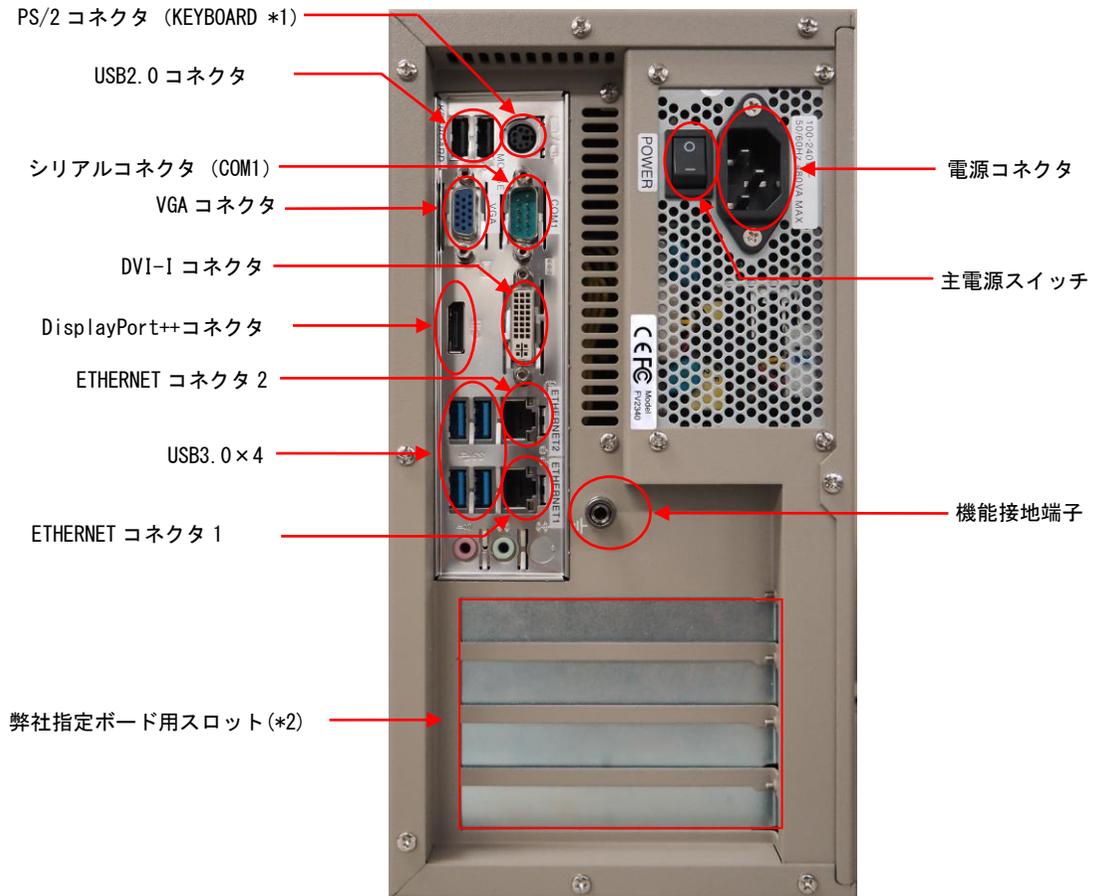
● DATA

オプションとして、データ SSD、データ HDD が搭載可能です。



2.5 インチリムーバブルユニットから SSD, HDD を取り出す前には、必ず装置の電源をお切りください。電源を切らずに取り出すとファイル等が破壊され正常に動作しなくなる恐れがあります。

4.3 背面各部



Note

(*1) PS/2 コネクタへ PS/2 マウスを接続するにはオプションの PS/2 スプリッターケーブルが必要です。

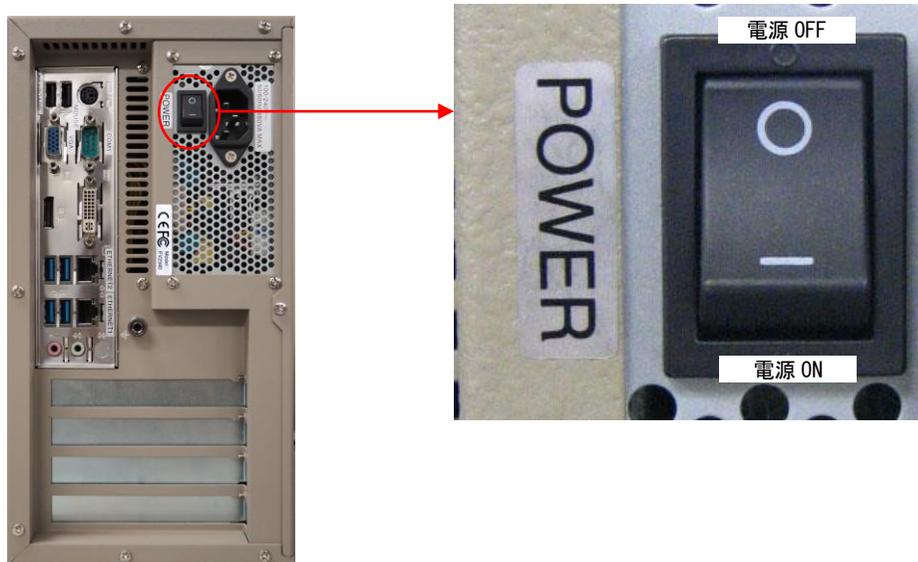
(*2) 弊社指定ボード用スロットには、画像入力ボード、DIO ボードが搭載されます。

※ボードの搭載位置に関しては『5.5 ボード搭載ルール』をご覧ください。

※本製品には USB のドライバがインストールされております。しかし、お客様がご利用になる USB 機器の動作を保証するものではありません。

USB 機器をご使用になる際にはその点をご了承ください。

4.3.1 主電源スイッチ

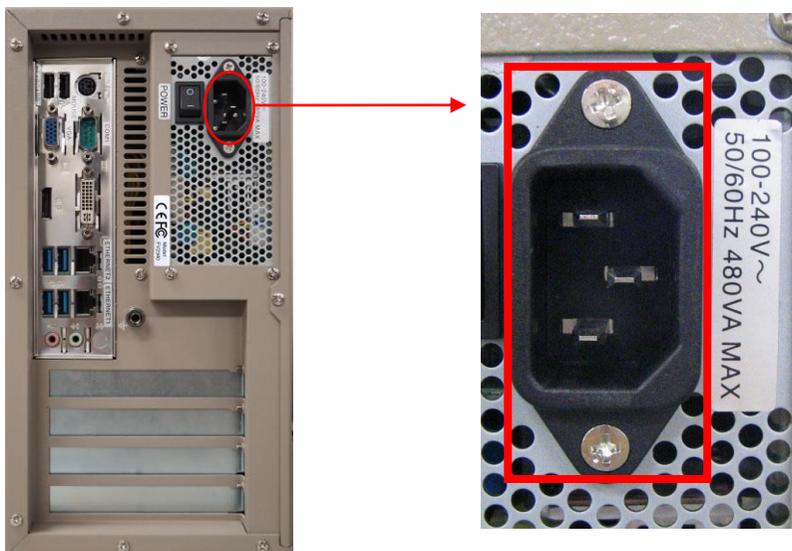


- 一側を押すと ON になります。○側を押すと OFF になります。
各種ケーブル等の接続完了後に主電源スイッチを ON にして装置を使用してください。
- 主電源スイッチを ON にすることにより、システムが起動します。



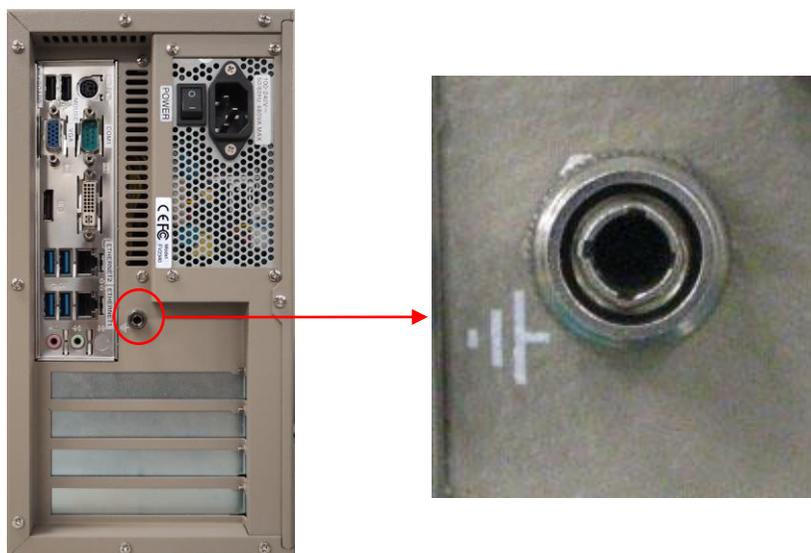
システムの起動中やファイル装置アクセス中 (HDD 表示点灯中) は、絶対に電源を切らないでください。ファイルの内容を破壊する場合があります。

4.3.2 電源コネクタ



- 入力電圧・周波数・最大消費電力は、100-240V～ 50-60Hz 480VA MAX です。
- 入力電圧 125V までは添付の 3P 電源ケーブルを接続して電源を供給してください。125V を超える電圧でお使いになる場合は、別途電源ケーブルをご用意下さい。
- 主電源スイッチの OFF は『2.3 電源の切り方について』を参照ください。
- 電源ケーブルの配線の詳細については『3.3 電源の配線』の章をご覧ください。
- 電源装置には PFC(力率改善回路)が搭載されています。UPS 等で矩形波を入力すると故障する恐れがありますのでおやめください。

4.3.3 機能接地端子

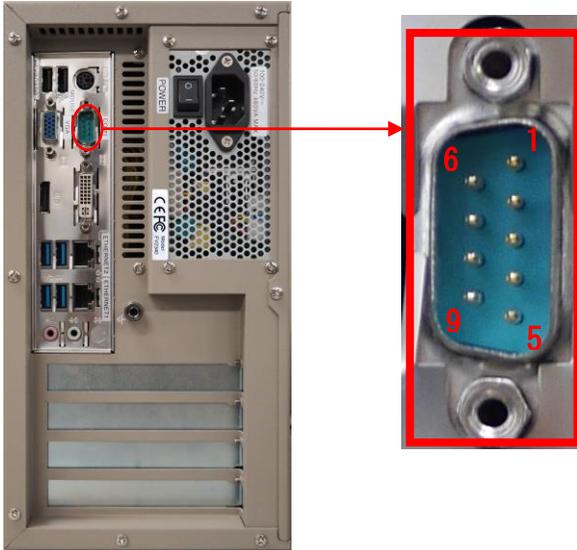


本装置と床面やラック等とのグラウンドレベルを合わせるときに使用します。
本装置筐体の SG (シグナル・グラウンド) と FG (フレーム・グラウンド)、機能接地端子は接続されています。
一般にビデオ機器 (TV カメラ等) の SG とフレームは接続されています。



ツマミ部は取外し可能な構造になっていますので、設置時にはしっかり締めてください。

4.3.4 シリアルコネクタ (COM1)



調歩同期式シリアル通信仕様

- ボーレート…………… 1,200~115,200bps
- データ長…………… 6~8ビット
- ストップビット…………… 1、2ビット
- パリティ・ビット…………… 無し/奇数/偶数
- フロー制御…………… 無し/Xon-off/RS-CS
- 全二重通信(割込処理)

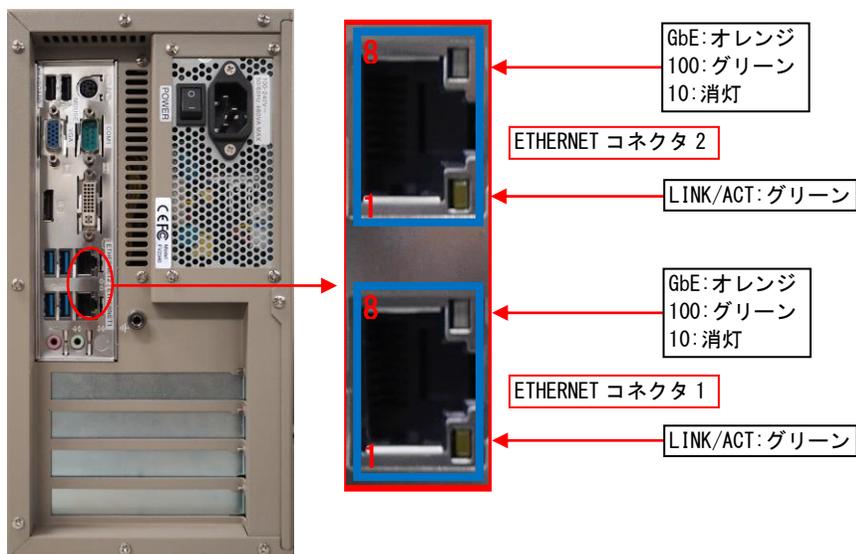
シリアルコネクタ (COM1) 勘合固定ネジ : インチ (#4-40UNC)

ピン番号	信号名	方向	信号説明
1	(予約)		
2	RXD	←	データ受信の信号線
3	TXD	→	データ送信の信号線
4	DTR	→	FV2340-C が活動状態であることを示す。
5	GND		信号 GND
6	DSR	←	相手側が活動状態であることを確認する。
7	RTS	→	送信要求を相手に出す
8	CTS	←	相手が送信可であることを確認する。
9	(予約)		

[注1] 方向の→は出力/←は入力/↔は双方向を示します。

[注2] 使用コネクタは、9ピンDSUBオスコネクタ (RDED-9PE-LNA ヒロセ 相当品) です。

4.3.5 ETHERNET コネクタ



ETHERNET コネクタには状態を示す 2 つの LED があります。

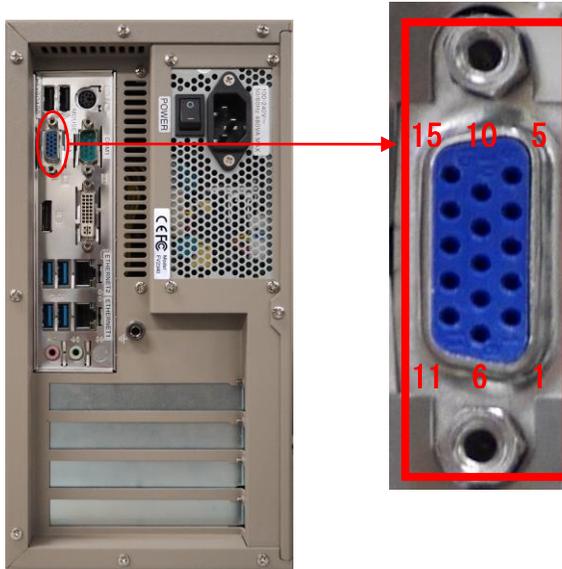
Lan Link/Act LED(緑) : 点灯時は、データリンクが存在する(ハブと適切に接続されている)ことを示します。点滅時は、データが送受信されていることを示します。
 LAN Speed LED(オレンジ/グリーン) : 1000M 時はオレンジ、100M 時はグリーン、10M 時は消灯します。

ETHERNET コネクタ (1000BASE-T 使用時)

ピン番号	信号名	信号説明
1	TP0+	データ 0 送受信 (+)
2	TP0-	データ 0 送受信 (-)
3	TP1+	データ 1 送受信 (+)
4	TP1-	データ 1 送受信 (-)
5	TP2+	データ 2 送受信 (+)
6	TP2-	データ 2 送受信 (-)
7	TP3+	データ 3 送受信 (+)
8	TP3-	データ 3 送受信 (-)

[注1] 使用コネクタは RJ45 コネクタです。

4.3.6 VGA コネクタ



- 「VGA」コネクタには、VGA 規格のアナログモニタを接続します。

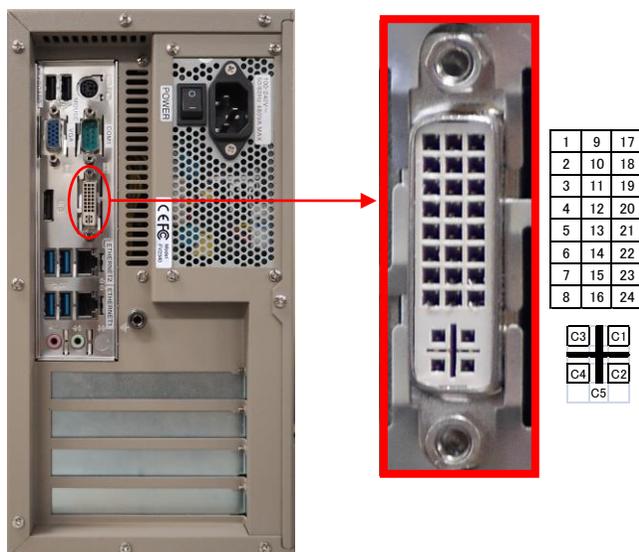
VGA コネクタ

ピン番号	方向	信号説明
1	0	Red video signal
2	0	Green video signal
3	0	Blue video signal
4	N/A	予約
5	N/A	Ground
6	N/A	Red video signal return
7	N/A	Green video signal return
8	N/A	Blue video signal return
9	N/A	予約
10	N/A	Ground
11	1	Monitor ID
12	I/O	I ² C data/Monitor ID
13	0	HSync
14	0	VSynс
15	I/O	I ² C clock/Monitor ID

[注1] 方向の“1”は入力、“0”は出力、“I/O”は入出力、“N/A”は電源または予約を示します。

[注2] 使用コネクタは高密度 15 ピン DSUB メスコネクタです。

4.3.7 DVI-I コネクタ

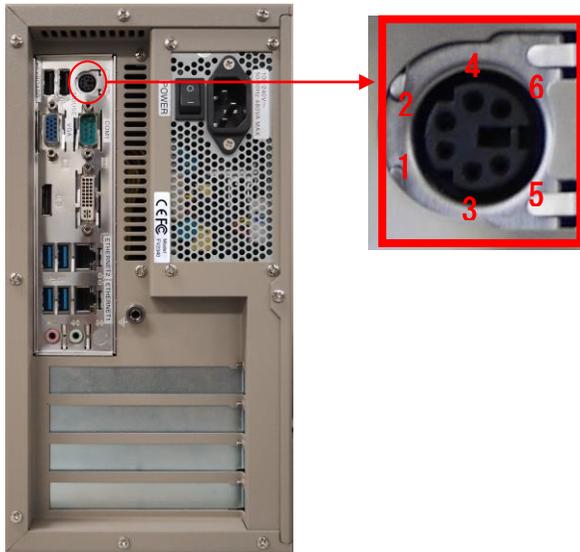


DVI-I (DVI-D signal) コネクタ

ピン番号	信号名	信号説明
1	TMDS Data 2-	Digital red -(Link 1)
2	TMDS Data 2+	Digital red +(Link 1)
3	TMDS Data 2/4 shield	
4	N.C	
5	N.C	
6	DDC clock	
7	DDC data	
8	Analog Vertical Sync	NC
9	TMDS Data 1-	Digital green -(Link 1)
10	TMDS Data 1+	Digital green +(Link 1)
11	TMDS Data 1/3 shield	
12	N.C	
13	N.C	
14	+5V	Power for monitor when in standby
15	Ground	Return for pin 14 and analog sync
16	Hot Plug Detect	
17	TMDS data 0-	Digital blue -(Link 1)and digital sync
18	TMDS data 0+	Digital blue +(Link 1)and digital sync
19	TMDS data 0/5 shield	
20	N.C	
21	N.C	
22	TMDS clock shield	
23	TMDS clock+	Digital clock +(Links 1 and 2)
24	TMDS clock-	Digital clock -(Links 1 and 2)
C1	N.C	
C2	N.C	
C3	N.C	
C4	N.C	
C5	Ground	

「DVI-I」コネクタには、DVI-D 規格のモニタを接続します。アナログ VGA への変換コネクタを使用してもアナログモニタへの映像の出力は行われません。

4. 3. 8 PS/2 コネクタ (MOUSE/KEYBOARD)



電源投入後にキーボードを接続しても動作しません。電源投入前に接続してください。

PS/2 コネクタ

ピン番号	信号名	方向	信号説明
1	KDATA	⇔	KEYBOARD 通信データ
2	MDATA	⇔	MOUSE 通信データ
3	GND		電源/信号 GND
4	+5V		電源 5V
5	KCLK	→	KEYBOARD 同期クロック
6	MCLK	→	MOUSE 同期クロック

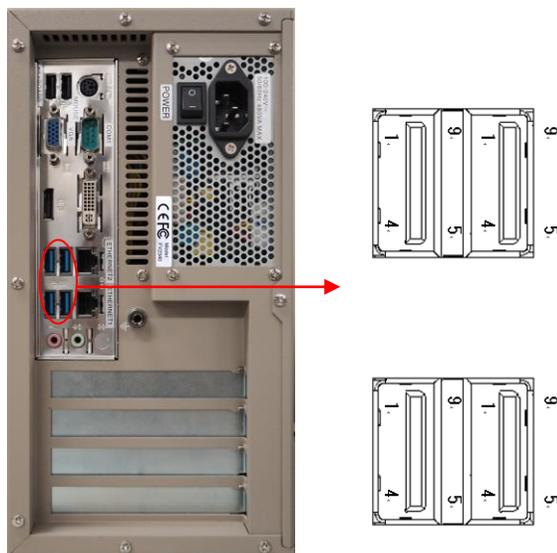
[注 1] 方向の→は出力/←は入力/⇔は双方向を示します。

[注 2] 使用コネクタは 6 ピンミニ DIN コネクタです。

[注 3] PS/2 マウスを使用する時は、オプション品の PS/2 スプリッターケーブルが必要です。

PS/2 マウスを直接コネクタへ接続しても使用できません。

4.3.9 ユニバーサル・シリアル・バスコネクタ (USB3.0)



USB3.0 コネクタ

ピン番号	方向	信号説明
1	N/A	+5V (Power 900mA MAX)
2	I/O	D- (USB 2.0 differential pair)
3	I/O	D+ (USB 2.0 differential pair)
4	N/A	GND (Ground for power return)
5	I	StdA_SSRX- (SuperSpeed receiver differential pair)
6	I	StdA_SSRX+ (SuperSpeed receiver differential pair)
7	N/A	GND_DRAIN (Ground for signal return)
8	O	StdA_SSTX- (SuperSpeed transmitter differential pair)
9	O	StdA_SSTX+ (SuperSpeed transmitter differential pair)

[注1] 方向の“I”は入力、“O”は出力、“I/O”は入出力、“N/A”は電源または予約を示す。

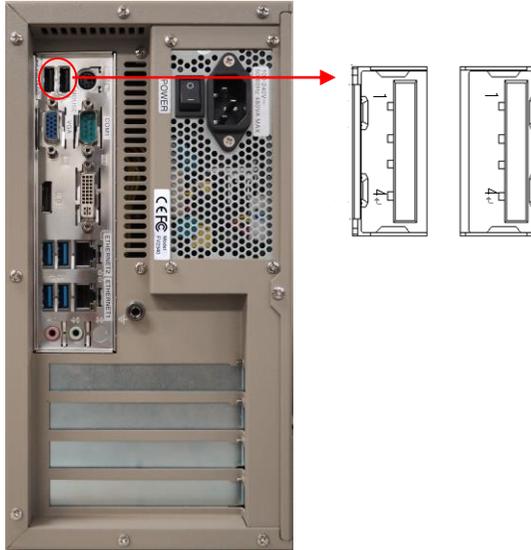
[注2] 使用コネクタはUSB3.0 Standard-A レセプタクルです。



USB3.0の規格で規定されている最大供給電力4.5W(5V 900mA)を超える消費電力の機器を接続しないで下さい。

装置の故障の原因となります。

4.3.10 ユニバーサル・シリアル・バスコネクタ (USB2.0)



USB2.0 規格のコネクタです。USB トラックボールまたは USB マウスや USB キーボードを接続します。

USB2.0 コネクタ

ピン番号	方向	信号説明
1	N/A	+5V (Power 500mA MAX)
2	I/O	D- (USB 2.0 differential pair)
3	I/O	D+ (USB 2.0 differential pair)
4	N/A	GND (Ground for power return)

[注1] 方向の“1”は入力、“0”は出力、“1/0”は入出力、“N/A”は電源または予約を示す。

[注2] 使用コネクタは USB2.0 Standard-A レセプタクルです。



USB2.0 の規格で規定されている最大供給電力 2.5W (5V 500mA) を超える消費電力の機器を接続しないで下さい。

装置の故障の原因となります。

5. ボードの搭載

各ボードはお客様にて装着や取り外しを行っていただく場合があります。その際には本章に記載してある注意事項を守ってください。また、各ボードの説明書にも搭載に関する注意事項が書かれています。

5.1 注意事項



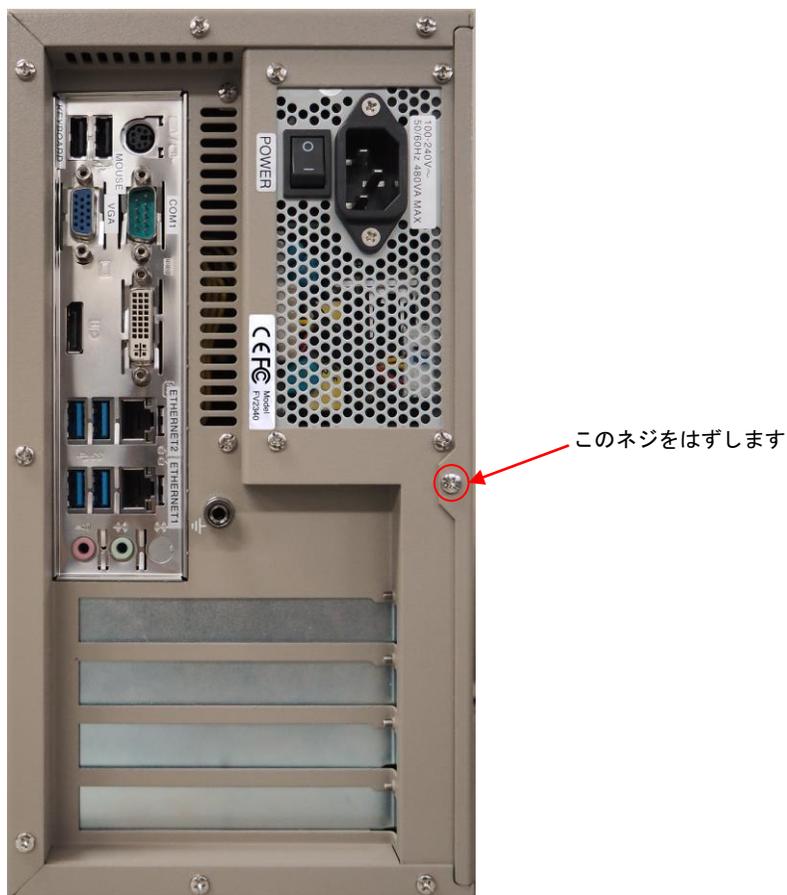
注意

- 装置に触れる前に、必ず身体の静電気を取り除いてください。
装置本体の内部基板は静電気に対して非常に敏感です。衣類や人体にたまった静電気が流れ、部品が破壊されたり、CMOS に保存されている BIOS 設定情報が破壊されるおそれがあります。
直前には、必ずスチールキャビネットなど金属製のもの、および装置本体の機能接地端子に触れて、静電気を取り除いてください。また、エッジコネクタ、部品端子、半田面には絶対に触れないでください。
- ボードを装着したり取り外したりする場合には、必ず『2.3 電源の切り方について』にしたがって本体の電源を切って下さい。
- 必ず電源ケーブルやその他外部ケーブルを全てはずしてから作業を行ってください。
電源を入れたままの作業や、電源ケーブルやその他外部ケーブルが装着されたまま作業を行うと、微弱電流の影響等で、CMOS の内容が壊れたり、ボード及び装置本体の回路を破壊する可能性があります。
- 弊社が指定するボード以外のボードを搭載すると下記の不具合が発生する場合があります。
その際は本装置の保証対象外となります。
 - 1) 装置が動作しない
 - 2) 時々異常現象が起こる
 - 3) 装置を壊す、等々
- ボードの形状によっては隣接するボード間で接触を起こしやすい可能性があります。
その場合ボード及び装置を破壊したり、感電や火災発生の原因となりますので電氣的に絶縁できるものをボードの間に挟んで搭載を行ってください。

5.2 本体カバーの開け方

背面のネジを1カ所外すだけで、カバーをスライドさせて開けることが可能です。

- (1) 本体の電源スイッチをOFFにします。
- (2) 本体に接続されているケーブル類を全て外します。
- (3) 下図に示すネジを外します。
- (4) カバーを背面方向にスライドさせて開きます。



5.3 ボード搭載方法

(1) 装置本体の電源を切り、ケーブル類を全て外して下さい。

『5.1 注意事項』の章に従って作業を行ってください。

(2) ボードの設定項目の確認をしてください。

トラブルを未然に防ぐため、ディップスイッチ等の設定を行った後設定の再確認を必ず行ってください。

(3) 本体のカバーを開けて、ボード装着可能状態にしてください。

『5.2 本体カバーの開け方』の章に従って本体カバーを開けてください。各種ケーブルが邪魔になる場合は、後で元に戻せるように記録を取りながらボードにストレスを与える事なく外してください。

(4) ボードを指定位置に装着してください。

搭載するボードの説明書に従ってボードを正しく装着し、スロットに収まったらブラケットをネジで固定してください。

(5) 装置を元の状態に戻します。

ケーブル類を元に戻してネジ固定します。本体カバーを戻し取付けてください。

5.4 組み込み可能なボード

Note

最新の対応状況は、弊社ホームページ上 (<https://www.inrevium.com>) にて、もしくは担当営業にお問い合わせの上
ご確認下さい。

【 FV2340-C7e32 】

FV2340-C7e32 に組み込み可能なボードは、以下のボードです。

商品名	ボード機能名称	バスコネクタ形状
RICE-001d	EIA 準拠カメラ用画像入力ボード	PCI
FVC05a/FVC05a-S0	高速アナログ画像入力ボード	PCI
FVC08CLB	4CH カメラリンク画像入力ボード	PCIe × 4
FVC07CLBb	カメラリンク対応画像入力ボード	PCIe × 4
FVC07CLMF	カメラリンク対応画像入力ボード	PCIe × 4
FV-GP440a	4CH アナログ画像入力ボード	PCIe × 1
FI001a	フォトカプラ絶縁 I/O ボード	PCI
FV-I1320	32 点フォトカプラ絶縁 I/O ボード	PCIe × 1

【 FV2340-C10e64 】

FV2340-C10e64 に組み込み可能なボードは、以下のボードです。

商品名	ボード機能名称	バスコネクタ形状
FVC08CLB	4CH カメラリンク画像入力ボード	PCIe × 4
FVC07CLBb	カメラリンク対応画像入力ボード	PCIe × 4
FVC07CLMF	カメラリンク対応画像入力ボード	PCIe × 4
FV-GP440a	4CH アナログ画像入力ボード	PCIe × 1
FVC10b	CoaXPress 対応画像入力ボード	PCIe × 4
FI001a	フォトカプラ絶縁 I/O ボード	PCI
FV-I1320	32 点フォトカプラ絶縁 I/O ボード	PCIe × 1

5.5 ボード搭載ルール

弊社が用意しているボードには本体に搭載するための組み合わせのルールがあります。本章は『5.4 組み込み可能なボード』の章をご覧ください。

また、ボード製品の詳細は、各ボードの取扱説明書を参照してください。

最新の対応状況につきましては、ホームページ(<https://www.inrevium.com>)上にて、もしくは営業担当にお問い合わせの上、ご確認ください。

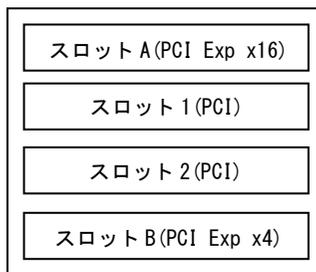
以下の図は FV2340-C 本体を縦置き (標準) した場合のもので、

【 FV2340-C7e32 】

上

PCI ボード優先順位

- ・ RICE-001d
- ・ FVC05a/FVC05a-S0
- ・ FI001a



PCIe ボード優先順位

- ・ FV-GP440a
- ・ FVC08CLB
- ・ FVC07
- ・ FV-I1320

※ PCIe ボードはスロット A から優先順位に従って搭載されます。

※ PCI ボードはスロット 1 から優先順位に従って搭載されます。

システムの仕様等により組み合わせには以下の制限があります。ご注意ください。

— ボード搭載制限 —

- ※ 同一画像入力ボードは 2 枚まで搭載できます。
- ※ PCI 用スロット 1 は、RICE-001d、FVC05a/FVC05a-S0 の搭載が優先されます。
- ※ FVC08CLB、FVC07 用のオプションブラケットケーブルを搭載する場合は 1 スロット占有します。



本装置が FVC05a/FVC05a-S0、FV-GP440a を通じてカメラへ供給できる+12V は、4A (48W) までです。

Note

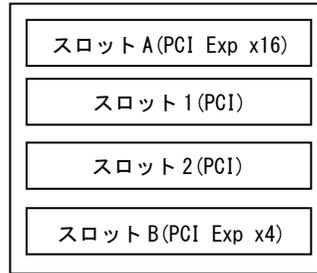
上記組み合わせには、将来対応予定のボード製品も含まれています。最新の対応状況につきましては、弊社ホームページ(<https://www.inrevium.com>)上にて、もしくは営業担当にお問い合わせの上、ご確認ください。

【 FV2340-C10e64 】

上

PCI ボード優先順位

・ FI001a



PCIe ボード優先順位

- ・ FVC10b
- ・ FV-GP440a
- ・ FVC08CLB
- ・ FVC07
- ・ FV-II320

- ※ PCIe ボードはスロット A から優先順位に従って搭載されます。
- ※ PCI ボードはスロット 1 から優先順位に従って搭載されます。

システムの仕様等により組み合わせには以下の制限があります。ご注意ください。

— ボード搭載制限 —

- ※ 同一画像入力ボードは 2 枚まで搭載できます。
- ※ FVC08CLB、FVC07 用のオプションブラケットケーブルを搭載する場合は 1 スロット占有します。



本装置が FV-GP440a を通してカメラへ供給できる+12V は、4A (48W) までです。

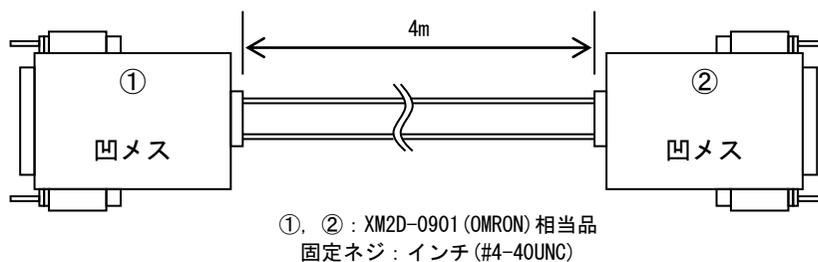
Note

上記組み合わせには、将来対応予定のボード製品も含まれています。最新の対応状況につきましては、弊社ホームページ (<https://www.inrevium.com>) 上にて、もしくは営業担当にお問い合わせの上、ご確認下さい。

6. ケーブル配線図

6.1 シリアルケーブル(オプション)

シリアルケーブル(9pinメス-9pinメス)



シリアルケーブル

①FV2340-C		②相手機器		
信号名	ピン番号		ピン番号	信号名
	1		1	
RxD	2	—————	2	RxD
TxD	3	—————	3	TxD
DTR	4	—————	4	DTR
SG	5	—————	5	SG
DSR	6	—————	6	DSR
RTS	7	—————	7	RTS
CTS	8	—————	8	CTS
	9		9	

7. 有寿命部品

FV2340-Cに取り付けられている下記のユニットは、使用により劣化、摩耗しますので、一定周期で交換する必要があります。これらのユニットは有償にて交換致します。

寿命については、周囲温度 35℃で筐体の前後を周囲から 100mm 以上離して設置した状態であり、フィルタが目詰まりしていない状態の場合を想定しています。

筐体クーリングファン	1 日 24 時間の連続通電使用を想定した時の寿命は、約 5 年です。
電源ユニット	1 日 24 時間の連続通電使用を想定した時の寿命は、約 5 年です。
リチウム電池	1 日 24 時間の連続通電使用、または全く通電されない場合を想定した時の寿命は、約 15 年です。

注意：アルミ電解コンデンサについて

装置に使用しているアルミ電解コンデンサは、有寿命部品です。設計寿命は、1 日 24 時間使用で約 5 年です。

寿命になると電解液の枯渇や漏れが生じます。特に電源回路での電解液の漏れは、発煙・感電の原因になることがあります。これらの危険を避けるために、設計寿命を越えて使用する場合は、ユニット単位で交換してください。

8. 保証について

保証の制限

保証は、明示した保証期間および条件のもとで下記に記載の保証内容をお約束するものです。従いまして明示、暗示を問わず、その他の一切の保証を行うものではありません。

また、本製品は、一般的な商業・工業用途で使用されていることを意図して設計されております。従いまして、極めて高い信頼性が要求される下記のような特定用途でご使用される場合は当保証適用外とさせていただきます。

自動車電装、列車制御、交通信号制御、燃焼制御、防火・防犯装置、航空宇宙機器、
海底中継機器、原子力制御システム、生命維持のための医療機器等

商品は、厳格な検査を経て出荷されておりますが、万一製造上の不備による故障または輸送中の事故等による故障が発生した場合には、弊社営業までご連絡ください。

保証内容

- (1) 製品の保証期間は出荷日から1年です。
取扱説明書・仕様書に従った正常な使用状態で製品が故障した場合には、保証保守条件に従い無償修理させていただきます。
- (2) 修理は、本体または部品の交換で対応させていただきます。
部品は製造中止等により、互換品を使用する場合があります。
- (3) 保証期間後は有償修理となります。
修理費は、基本修理費3万円及び交換部品費です。
- (4) 保証期間内でも次の場合は有償修理となります。
 - 火災、地震、水害、落雷、その他の天変地異、公害や異常電圧、異常周波数による故障または損害
 - お買い上げ後の輸送、移動時の落下等のお取扱いが不適切な為に生じた故障または損害
 - 取扱説明書、仕様書に記載された使用方法や注意に反するお取扱いによって生じた故障または損害
 - お客様ご自身の修理、改造による故障または損害
 - 接続している他の機器に起因する故障または損害
 - 車両や船舶等に搭載された場合による故障または損害
- (5) 修理は弊社工場のみで行い、出張修理は行いません。
- (6) 修理対応期間は、製造終了より6年間です。修理に要する期間は2~4週間程度です。
- (7) 修理部品の変更等により、修理後性能が向上する場合があります。
- (8) 弊社から提出する修理報告書は、交換した部品名を通知する程度の情報となります。
故障原因等の調査を必要とされる場合は、別途調査費用を請求させていただきます。
- (9) 弊社の指定外の部品等を搭載することによって発生した不具合修理、サポートは行いません。
- (10) 日本国外からの修理品の受領および、日本国外への修理品の発送は行いません。
- (11) 本保証は日本国内においてのみ有効です。This warranty is valid only in Japan.

8.1 サポートが必要な場合

本製品について疑問や問題が生じた場合、ファースト製品サポートデスクでは技術的なお問い合わせに関して、e-mailにて対応させていただいております。

なお、お問い合わせの際は、

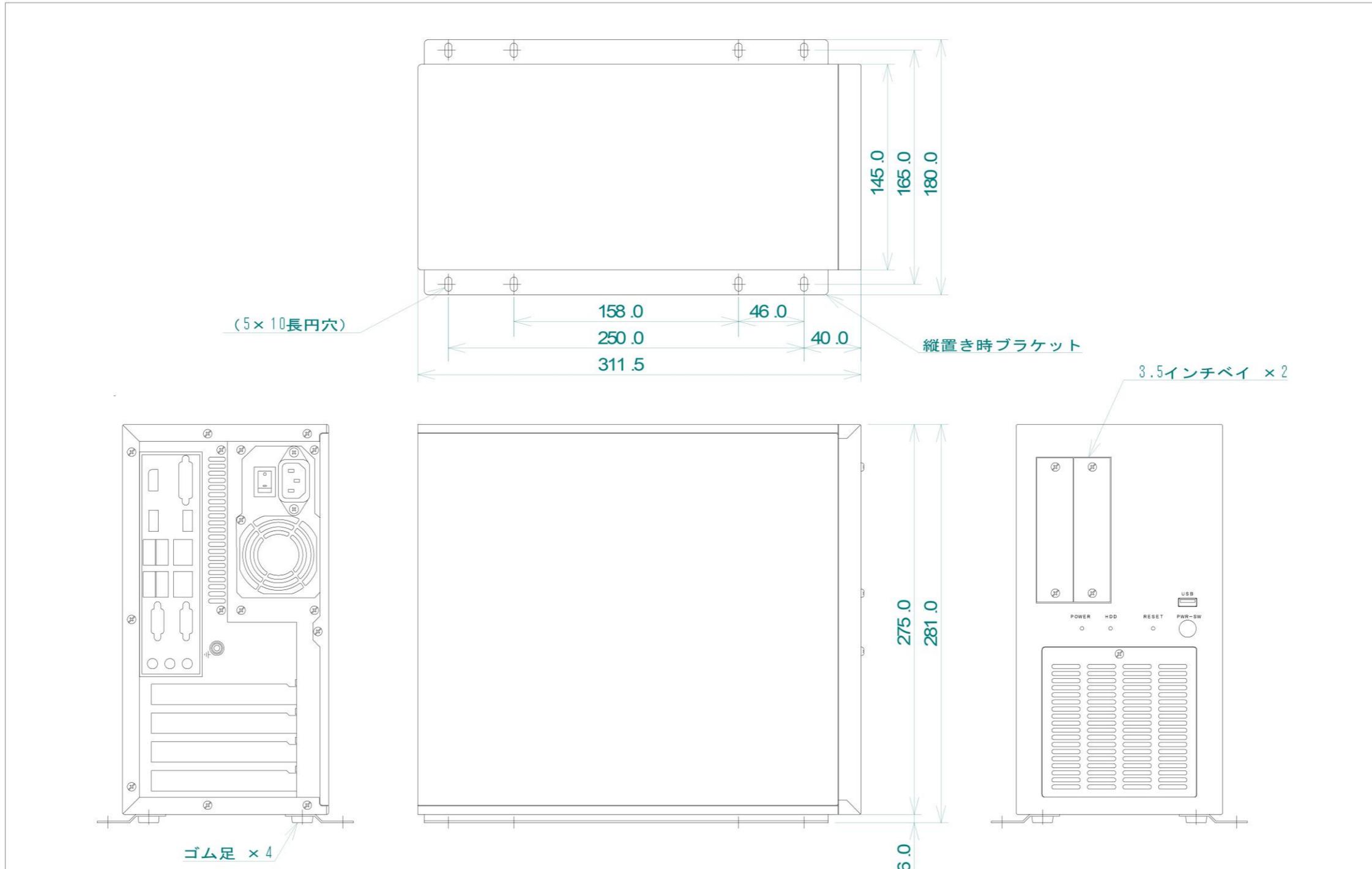
- 本装置の型番(装置前面に装置銘板、及び補助シールが貼られています)
- 本装置のシリアル番号(装置の背面に貼られています)

を必ずお知らせください。これらはサポート上、製品の構成や世代などを知るうえで大変重要な情報となります。

専門のエンジニアが折り返し、お答えいたします。
ご協力をお願いいたします。

ファースト製品サポートデスク

e-mail: fast-support@teldevice.co.jp



製図	K. IWASAKI	2023.07.26	尺度	1/2.5	(品名)
設計					FV2340外観図 (縦置き)
承認					(図番)
記号	変更内容	承認	日付	東京エレクトロン デバイス株式会社	

MICROSOFT SOFTWARE LICENSE TERMS

WINDOWS EMBEDDED STANDARD 7

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- updates,
- supplements,
- Internet-based services, and
- support services

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WINDOWS 10 IOT ENTERPRISE & MOBILE (ALL EDITIONS)

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状況
または
内容

以下、該当する項目にチェックして下さい。

パワーランプ: 点灯 消灯 つかない

ファン : 回転する 回転しない

他のシステムSSDで試したか?

試した 試していない

他のシステムSSDでは起動する 他のシステムSSDでも起動しない

再現性 常に出る 時々(頻度)

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FV2340-C シリーズ
FV2340-C 取扱説明書

2025 年 1 月 第 4 版

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