THE VINCI
EXPERT

www.the-vinci.com

Copyrights and trademarks

Declaration of Conformity

(in accordance with ISO / IEC Guide 22 and EN Section 45014)
Manufacturer: UAB "Aedilis"
Address of the manufacturer L. Zamenhofo st. 5 LT Vilnius, Lithuania

We claim that:
The Vinci Expert

Conforms to the following standards:
EMC:
Radiation EN 55022 (Class A)
1 emitted radiation (30-1000MHz)
Second radiation conductors (0.15-30MHz)
EN 50082-1 immunity test
1 IEC 801-3: Radio-frequency electromagnetic field
2 IEC 801-2: Electrostatic discharge.
3 IEC 801-4: Quick periodic electrostatic discharges

Additional information:
The device complies with the Low Voltage Directive 73/23 / EEC and EMC Directive 89/336 / EEC.
Device assembly complies with the RoHS Directive.

Manufacturer contact:
Equipment quality controller
UAB "Aedilis"
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Phone: +370 5 2742707
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NOTES

SAFETY REQUIREMENTS

This equipment operating notes, which must be met for your personal safety, as well as to avoid damage to the equipment. These notes are marked with a warning triangle symbol and the various degrees of risk of falling within signs. All work related to electronic systems design, installation, commissioning, adjustment and maintenance should be carried out in accordance with the safety requirements.

EQUIPMENT'S MANUAL USES SYMBOLS

Danger - important notice, which may affect the safety of the user or device.

Attention - notice on possible problems that may arise in individual cases.

Information Notice - the information that is useful advice or special places.

Warning of the danger. The work may be performed only by a qualified professional. Equipment installation, commissioning and maintenance may only be performed by a qualified professional. If the safety notes in this manual, the term refers to persons qualified specialists authorized to perform commissioning, grounding and labeling devices, systems and circuits. The person must: Be aware of occupational safety in the workplace. Need to understand the equipment components. Electrical equipment. Have the knowledge and skills to identify a component beneath the voltage.

To maintain the equipment necessary to always turn off the power supply before installing or dismantling works. It must be in mind that even though alone equipment, but can have a common ground connection. Always before connecting the power supply, cables and interconnect components must be inspected.

This product can not be implemented, or resold to install in areas that are high-security as nuclear power plants, aircraft navigation, military equipment, transport traffic in management. In areas where equipment failure can result in of nature and human injury.

Do not operate the equipment in extreme weather conditions, as they may affect the operation of the equipment.
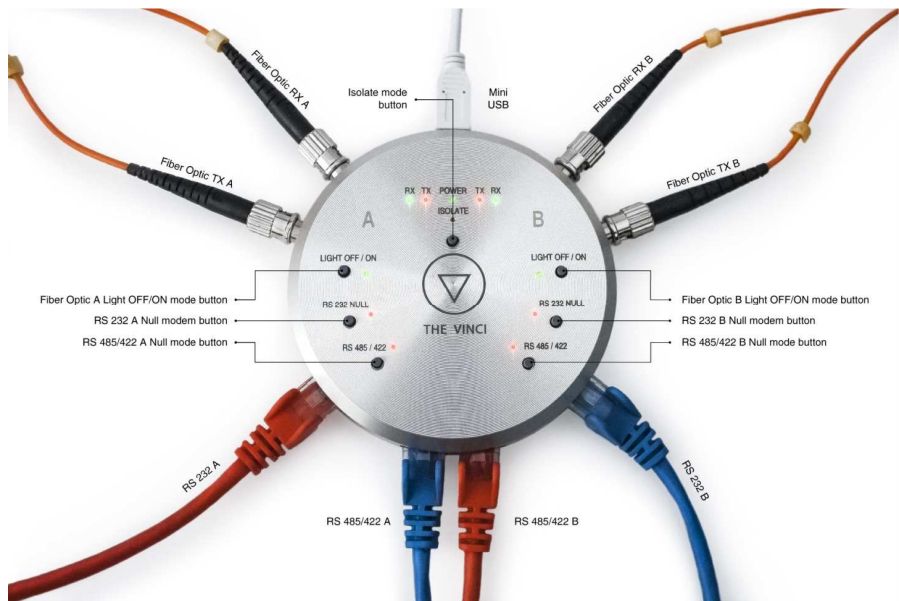
OVERVIEW

THE VINCI EXPERT is the best choice for applications requiring the highest versatility of physical serial communication interfaces. Commissioning engineers, system integrators and product developers will especially appreciate the possibility to perform wiring and plausibility checks of serial interface wires and convert physical interface from one to another.

- Lightweight anodized 6-series Aluminum alloy body
- Magnetic bottom side which sticks on metal surfaces
- Semi-soft case which includes all necessary adapters and wires
- Auto-save setting function
- Through-software setting management
- Fiber optics power measurement
- Custom RS232 pinout configuration. 8x8 pin selection.

FEATURES

Front face	Back face
Power power on indicator. Default / Custom settings indicator	**Side A**
Isolate indicator	**Fiber optic A** *Multi-mode Fiber Media Optic*
Light OFF/ON light on indicator	**TX A** Fiber Media Optic TX port
RS 232 NULL null modem mode indicator	**RX A** Fiber Media Optic RX port
RS 485/422 selection indicator	**RS232 A** Serial interface RS232 Side A
	RS485/422 A Serial interface Side A
	Side B
	Fiber optic B *Multi-mode Fiber Media Optic*
	TX B Fiber Media Optic TX port
	RX B Fiber Media Optic RX port
	RS232 B Serial interface RS232 Side B
	RS485/422 B Serial interface Side B

CONNECTION TO PC

When you connect **THE VINCI EXPERT** to a computer a normally operating system in hardware should find 4 Virtual Com Ports (VCP). First Com port for communication with SIDE A and Second for communication with SIDE B, as described in the Function scheme. Other VCP's are reserved. All serial interfaces RS232, RS485 and Fiber Optic supports baud rates up to 115200 bps.

The drivers of newer versions of Windows (starting from Windows XP), Linux and Mac OS are detected automatically; if you use older versions or other type of OS, please visit our webpage: www.the-vinci.com

FUNCTIONALITY

Fiber Optic LIGHT ON/OFF mode button – by pressing this button you can easily convert Fiber Optical channel from Light Off mode to Light On mode. The Light On mode is indicated by a Light On indicator. Fiber optic power can be measured in software.

⚠ Laser radiation hazard. Avoid eye exposure to direct or scattered radiation.

ISOLATE button – (1) by pressing this button once you can isolate serial interface A side from B side. That means **THE VINCI EXPERT** works like protocol master / slave. Everything that comes to A side, comes out of A side and in reverse – what comes in B side, goes to B side.

(2) by holding this button for 4 seconds, **THE VINCI EXPERT** resets to default settings. This means all previous settings, including software defined, will be set to defaults. When defaults is activated all buttons flashes clockwise once and power indication stays green. When custom configuration is applied through **THE VINCI SOFTWARE**, power indication stays red.

RS485/422 button - by pressing this button you can switch from RS485 to RS422 mode. When RS422 mode is activated it will be indicated by a RS485/422 indicator. Both interfaces supports baudrates up to 115200.

For custom settings configuration you can use **THE VINCI SOFTWARE**, which allows you to:

- Enable / disable Termination resistors
- Select termination resistor: 100 or 120 ohm.
- Invert Y Z lines; Invert A B lines;
- Enable / Disable Slew rate.*

*feature reduced slew-rate drivers that minimize EMI and reduce reflections caused by improperly terminated cables, allowing error-free data transmission up to 500kbps.

RS485/422 pinout table:

RJ-45 PIN	Default	INVERTED	RS485 mode differential pair function	RS422 mode differential pair function
1	A	B	RX/TX	RX
2	B	A		
3	-	-	-	-
4	GND	GND	GND	-
5	GND	GND	GND	-
6	-	-	-	-
7	Y	Z	-	-
8	Z	Y	-	TX

RS232 NULL button – by pressing this button you can easily switch to null modem cable mode. That means **THE VINCI EXPERT** automatically changes RX to TX and TX to RX without any additional cable or adapters. When null cable function is activated it will be indicated by a RS232 NULL indicator. If Custom pinout is configured through software, this button changes between custom and NULL pinouts.

For custom settings configuration you can use **THE VINCI SOFTWARE**, which allows you to:

- Select Custom pinout for A and B side
- Save/Load settings file in computer
- Full control of **THE VINCI EXPERT** settings

RS232 pinout table:

RJ-45 PIN	Custom MODE	Default MODE (DTE)	RS232 NULL MODE (DCE)
1	x	DCD (INPUT)	DCD (INPUT)
2	x	RX (INPUT)	TX (OUTPUT)
3	x	TX (OUTPUT)	RX (INPUT)
4	x	DTR (OUTPUT)	DSR (INPUT)
5	x	GND	GND
6	x	DSR (INPUT)	DTR (OUTPUT)
7	x	RTS (OUTPUT)	CTS (INPUT)
8	x	CTS (INPUT)	RTS (OUTPUT)

THE VINCI EXPERT can be used in two different modes: Isolated and Non-Isolated.

ISOLATE MODE ON

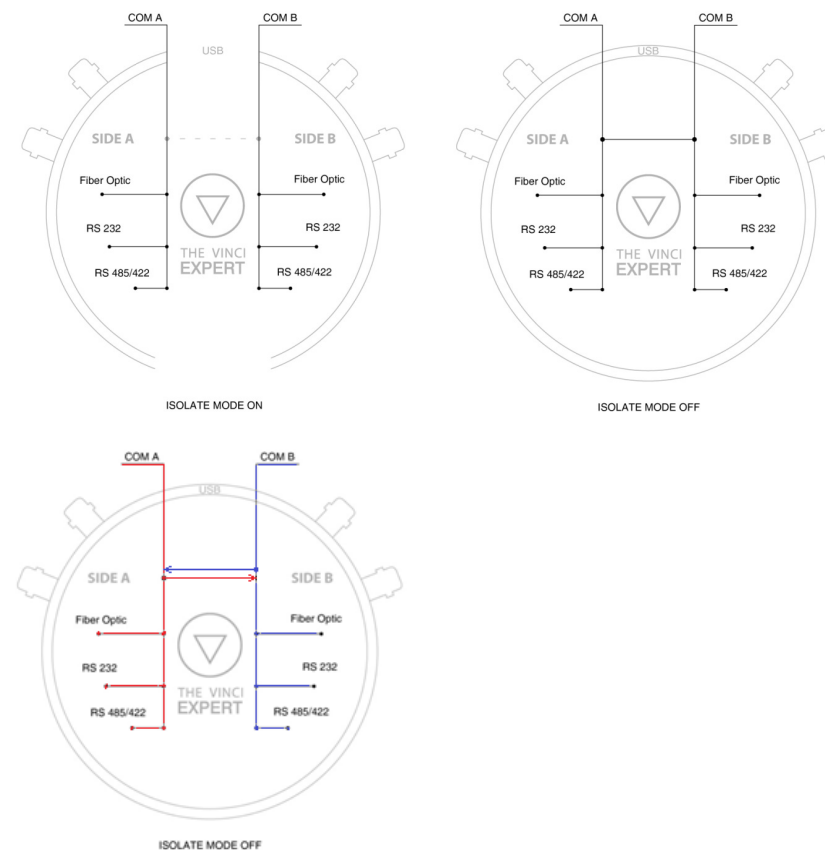ISOLATE MODE OFF

ISOLATE MODE OFF

Fig.1.1.

- Isolated mode allows user to virtually split device into two, and then use each side separately. This mode is useful when user communicates with devices separately and simultaneously.
- Non-isolated mode crosses A and B side communication. When user puts data into side A, **THE VINCI EXPERT** will transmit data from side B and in reverse. This mode is useful when user wants to interfere in communication line.

NON ISOLATED
MODE EXAMPLES

In this mode, **THE VINCI EXPERT** works like analyser / probe. Everything that comes to A side, comes out of B side and in reverse – what comes in B side, goes to A side.
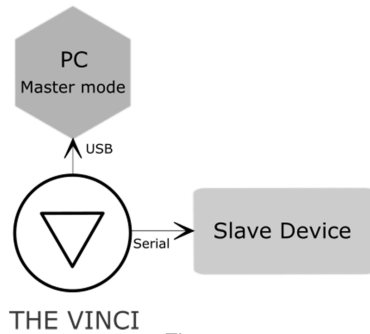

Fig.1.2.

In this example, **THE VINCI SOFTWARE** works as master
and device connected to **THE VINCI EXPERT** works as slave.
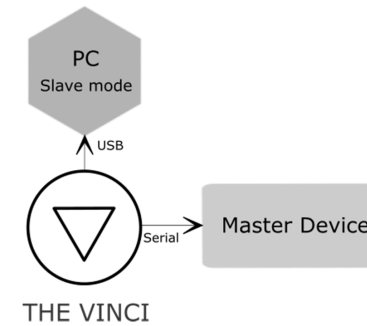They are connected in different ports (eg. Software uses A side, device uses B side).

Fig.1.3.

Also, this could be connected in reverse, as **THE VINCI SOFTWARE**
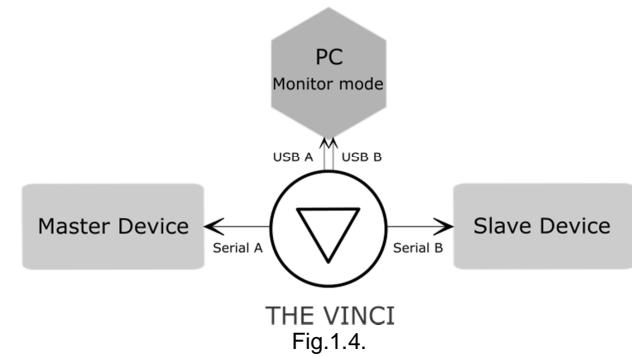works in slave mode and Device works in master mode.

Fig.1.4.

In this example, **THE VINCI SOFTWARE** works
as monitor and analizes serial messages sent through it.
Devices are connected to **THE VINCI EXPERT** in opposite ports.

ISOLATED MODE EXAMPLES

In this mode, **THE VINCI EXPERT** works as protocol master / slave. Everything that comes to A side, comes out of A side and in reverse – what comes in B side, goes to B side. A side is isolated from B side.
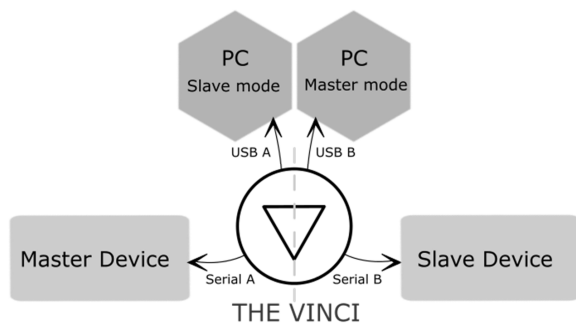

Fig.1.5.

Now, there is two instances of **THE VINCI SOFTWARE** running and two devices are connected to different sides. Each side is working independently.
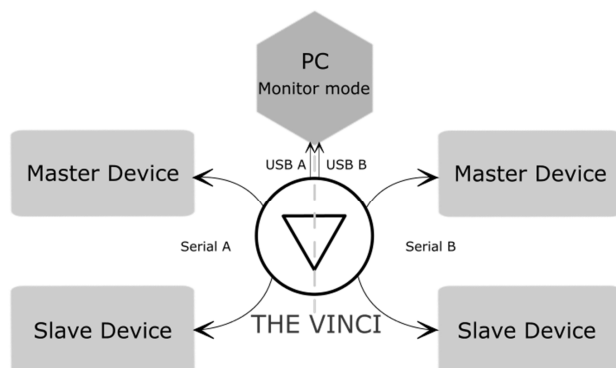

Fig.1.6.

Here **THE VINCI EXPERT** is connected to two separate pairs of devices and **THE VINCI SOFTWARE** is monitoring and analysing data on A and B sides.
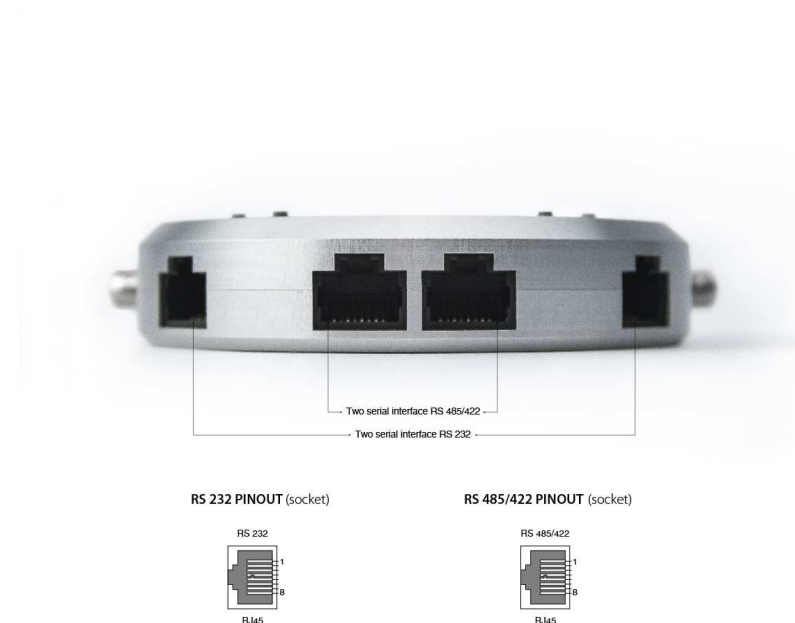
TECHNICAL DATA

Two serial interface RS 485/422

Two serial interface RS 232

RS 232 PINOUT (socket)   **RS 485/422 PINOUT** (socket)

Fig.1.7.

General	
Dimensions	D91 x 19.6 mm
Case	6-seriesAluminum
Weight	138g
PC USB connection	Mini USB
Electrical characteristics	
Power supply	via USB 5V
Max. operating current	I_{max}=460mA
Min. operating current	I_{min}=360mA
Warranty	2 years

BENEFITS OF USING SOFTWARE

- Easily change settings through software;
- Measure laser power;
- Change RS232 pinout;
- Save settings to a file;
- Analyse protocols and monitor data;
- Upload new firmware into **THE VINCI EXPERT** device.

COMPLECTATION

- **THE VINCI EXPERT** - serial interface protocol analyzer and universal serial interface converter
- Hard case with figure cut foam for connectors and a pocket for wires;

All possible connections and wires are attached:

- 2 x 1 meter long cable RJ-45 to RJ-45
- 2 x Adapters RJ-45 to DB-9 F
- 2 x DB-9 M to DB-9 M
- 2 x DB-9 M to DB-25 F
- 2 x DB-25 M to DB-25 M
- Duplex Multimode Fiber Optical cable with ST to ST connectors
- Mini USB to USB Type A Cable
- Mini power adapter (AC plug) to USB
- 2 x 0.5 meter long RJ-45 cable with loose crimped ends for RS485
- 4GB flash with user manual and software

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