

PIXY-1000

HMI / DMI FOR RAILWAY APPLICATIONS



HMI AND VISUALISATION SYSTEM SOLUTIONS

HMI / DMI FOR RAILWAY APPLICATIONS



PIXY Human / Driver Machine Interfaces (HMI / DMI) for railway applications are the optimal products for on-board railway visualization and data entry solutions.

With the highly modern 8.4" to 12.1" HMI / DMI product portfolio all type of driver's desk visualization and data entry applications, such as visualization for TCMS, ETCS, CBTC, PIES, CCTV and other systems can easily be implemented.

All products can be delivered with PIXY Linux operating system and with PIXY application designer (PAD) to easily and efficiently design new or port existing visualization applications.

GENERAL INFORMATION

The PIXY-1000 is a highly modern HMI portfolio for use in all type of on-board railway applications. It is especially suited for on-board visualization of TCMS, ETCS, PIES, CCTV and other similar systems, typically in the driver's desks of the trains.

The portfolio is a very lean, high performance solution for new build trains. It is also very flexible for the refurbishment and after sales market. High reliability electronics are built into a compact housing, the glass front panel with PCAP touch and key technology gives a modern elegant look. Thanks to optical bonding and the use of best in class TFT displays, the data is always perfectly legible in all conditions. Force sensing prevents unintentional touch and key inputs and makes PCAP technology a good choice for all types of applications.

The PIXY-1000 HMIs are available in sizes of 8.4", 8.4" double, 10.4" and 12.1". The HMIs will be extendable with safety-critical visualization, touch and key input, communication and vital computing at SIL-2 level.

PIXY-1104-S0.xx HMI / DMI



The PIXY-1000 features a lean, slim and compact design, the durability is guaranteed.

MAIN BENEFITS

- ✓ High performance, lean and flexible product
- ✓ Optimal use for all type of railway applications
- ✓ Compact design, with compact housing and integrated touchscreen and display
- ✓ Extra rugged and robust design
- ✓ Scratch-, detergent-resistant surface and durable PCAP touchscreen
- ✓ No moving parts, varnished PCBs and no batteries
- ✓ Maintenance free
- ✓ RoHS and REACH compliant

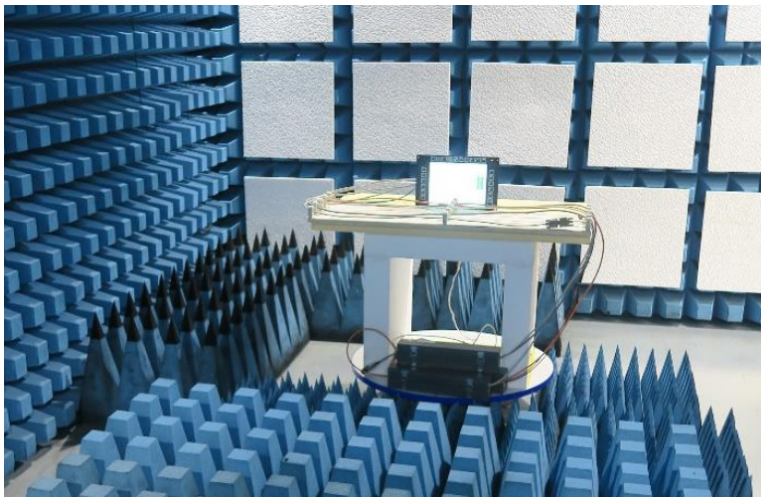
MAIN CHARACTERISTICS

Standard product range	Unit	Values
Display Sizes	[inch]	8.4" ,8.4" double, 10.4" and 12.1"
Front configurations	[type]	Touch+Key , Touch and Key
Interfaces	[type]	Ethernet , MVB , CAN , Serial Digital I/O , Audio Output , PC104 extension boards
CPU	[type]	Intel Atom Apollo Lake E3930 , 2 cores , 1.30 GHz Intel Atom Apollo Lake E3940 , 4 cores , 1.60GHz
RAM	[GB]	4
Mass Storage	[GB]	8-16
Input Voltage Range	[VDC]	24 - 110
Typical Power Consumption	[W]	20 - 30
Operating Temperature Range	[C]	-40° to +85°
Protection Class	[IP]	65 (front) 42 or 54 (optional) (Back)
Reliability	[h]	MTBF > 150'000

STANDARDS

Our products are fully compliant and type tested according to the following standards:

- **EN 50155:2021** | Electronic equipment used on rolling stock
- **EN 50121-3-2:2016** | Railway applications - Electromagnetic compatibility
- **EN 60529:1991 + A1:2000 + A2:2013** | Degrees of protection provided by enclosures (IP Code)
- **EN 61373:2010** | Shock / Vibration
- **EN 45545-2:2020** | Railway applications - Fire protection railway
- **EN 50124-1:2017** | Railway applications - Insulation coordination
- **EN 50153:2014 + A1:2017** | Railway applications -Protective provisions related to electrical hazards



Product Type Tests

The products go through an extensive type test, in which the products are tested concerning all relevant aspects, in order to meet the requirements to be used for operation in tough on-board railways environment. The picture shows a real test in electromagnetic radiated emission.

PRODUCT HIGHLIGHTS

LEAN PRODUCT WITH GREAT EXTENSION OPTIONS

The PIXY-1000 is designed in such a way, that it will fit in a very lean base product configuration basically for all new build railway applications. PIXY-1000 can be expanded with various extension options and made suitable for all type of applications related to required scope, performance, functionality and interfaces.

Optional Performance Scaling

The product's performance can be scaled as follows:

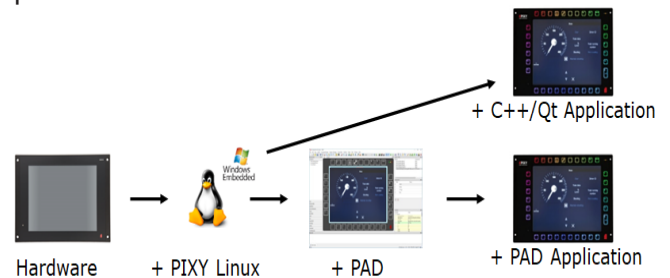
- 2 or 4 core Intel Apollo Lake CPU
- 8 or 16GB Mass Storage
- 8.4", 10.4" or 12.1" display sizes
- XGA, SVGA or VGA display resolutions
- Touch and Key, Touch only or Key only configurations
- PCAP or resistive touch front panel technology



Optional Scope Extensions

The product can be delivered as a device with System Controller Firmware only, or extended with following components:

- Operating System
- Application Design Tool (PAD)
- Visualization Application
- Customer Software image



Optional Electrical Interfaces

The product can be extended with the following electrical interfaces:

- MVB EMD and ESD+
- CAN
- Serial Interfaces (RS232, RS422 and RS485)
- PC104 type of extension boards

Optional Functionality

The product can be extended with additional features such as the following:

- Digital I/Os
- Audio Outputs
- External buzzer

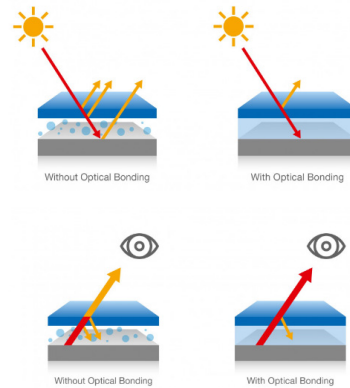
HIGHLY MODERN FRONT PANEL

Optical Bonding

The PIXY-1000 comes with a highly modern Front Panel with the latest in Display and Touch Screen technology. Optical Bonding is what is called the full-surface bonding of two surfaces. The two surfaces form a solid bond after the adhesive has hardened.

The advantages of optical bonding are the following:

- Maximum performance of the touch screen
- Reduction of reflections and thus better readability
- Higher stability of the assembly
- Protection against the ingress of dust and moisture

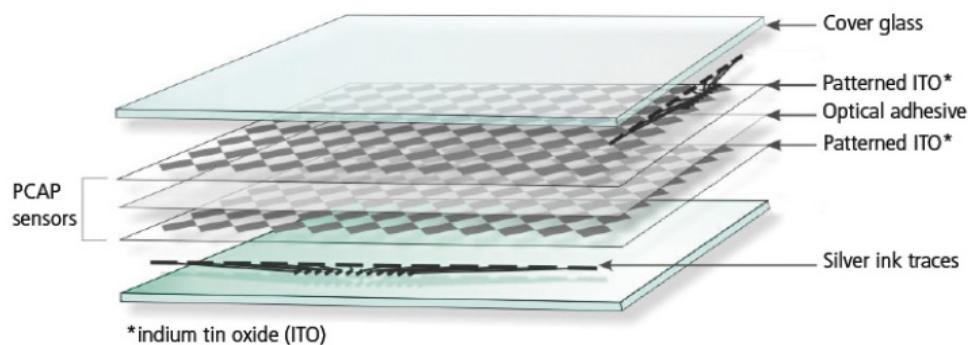


PCAP Touch Sensor with Force Sensing

PCAP touch technology is using the functional principle of capacitors. Extremely thin layers of indium tin oxide (ITO) are applied to a carrier material in rows and columns. Mutual capacitance arise at the crossing points of this grid. The charges are read by the touch controller with each scanning process and compared with target values. If a finger approaches or moves, the charges change at the crossing points, which is recognized and evaluated by the controller.

The PCAP touch solution allows operation with bare fingers or with gloves.

The solution is supplemented by a force sensor, which is used to set a specific pressing force to trigger the input.



Glass Front

The surface is finished with a thermally and chemically toughened and anti-reflective glass, which is very robust and easy to clean and gives the product an elegant design. Status LEDs and a brightness sensor are "hidden" behind the glass. Specific colours and customer logo can be customized upon customer request.

PIXY APPLICATION DESIGNER

Visualisation Application Design Tool: PAD

The PIXY Application Designer (PAD) is a designers tool, that enables the fast and intuitive creation of visualization software applications without programming knowledge. Compared to conventional programming, the customer saves time and money with PAD. With little effort, PAD applications can be modified, extended and then be deployed on the latest generation of PIXY HMIs/DMIs, this securing the investments done.

Performance, efficiency as well as flexibility in the application design are the main characteristics of PAD. The attractive and well-organized structure supports the designer to efficiently create visualization applications.

The graphical components can easily be configured and can be arranged flexibly on the screen. Colours and fonts, as well as the proportions of the graphic components can easily be customized and optimized.

