MADE IN USA

TRACEABILITY V4.0 INDUSTRY

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SAFETY INSTRUCTIONS

Follow the advertences and warnings of the present manual preceded by the following signs.

	**WARNING:** Indicates that the user must pay special attention

	Improper connection, tampering or handling can cause serious injury or fire hazard. Maintenance of this equipment. Avoid tampering with the equipment while it is connected to supply. Read the manual before connecting the equipment. Follow all instructions for installation and maintenance of equipment throughout its life. In particular, observe the installation regulations specified in the National Electrical Code of your country. If the installation of the equipment is carried out in areas where there is high voltage equipment (HV), the personnel who manipulate equipment in the area must be trained and authorized to carry out actions in facilities.
	To use this equipment safely, it is essential to follow the recommendations contained in the electrical codes and regulations of the country in which you are installing the equipment. If the instructions preceded by this WARNING symbol are not followed.

LIABILITY LIMITATIONS

Reserves the right to make changes, without prior notice, to the devices or equipment specifications shown in this manual.

RECOMMENDATIONS PRIOR TO USE

It is important to only use the original cables and connection accessories that are delivered together with the equipment. These products are specially designed for use with this equipment and comply with current standards, safety standards.

The equipment manufacturer is not responsible for any damage resulting from failure by the user or installer to heed the warnings and/or recommendations established in this manual, nor for damage resulting from the use of non-original products or accessories or those from other manufacturers.

Inspect work area before installation. Avoid using the device in humid areas.

INDICE

INDICE FIGURAS

1. TRACEABILITY

It is an intelligent system that transforms any production machine into a manufacturing 4.0 system, powered by embedded Artificial Intelligence. This enhances productivity, quality, calibration, energy savings, and user control in production without the need to replace PLCs or controls, and is also applicable to manual operations. It includes a cybersecurity protection system.

Figure 1 Traceability

1.1 CALIBRATION

Prevents the expiration of calibration for the components of my workstations.

1.2 OEE (OVERALL EQUIPMENT EFFECTIVENESS)

Automatically calculates and provides real-time data collection on production, helping to improve productivity and reduce downtime.

1.3 MAINTENACE

Supports the maintenance department with MP2 alerts and documentation for troubleshooting.

1.4 PRODUCTION

Detects the first piece and monitors the production Flow.

1.5 TRACEABILITY

Product traceability throughout the production process.

1.6 ENERGY SAVINGS

Saves up to 30% of energy on machines connected to the Traceability System.

1.7 USER CONTROLLER

Only trained users for specific production processes are authorized to operate the equipment. This generates production and quality logs while ensuring user authentication.

2. ELECTRICAL AND COMMUNICATION FEATURES

- 24V DC/IN adapter.
- Current consumption (Traceability): 0.5 A.
- Voltage - Output: 24V.
- Communications: Ethernet IP (LAN connection RJ45).
- Standard: 10/100BASE-TX.
- Digital inputs and outputs: 4 inputs at 24VDC and 4 outputs at 24VDC@15mA.

Figure 2 Traceability Features

The Traceability system includes:

- GPIO's Cable Connector, 3m Long
- GPIO's Cable Connector, 1.5m Long
- RS485 Cable Connector
- Adapter Power Supply 120V to 24V

These cables are available exclusively on the official website: https://traceab.com/.

3. DATA STORAGE

Ensuring the security, integrity, and availability of data is a top priority. To optimize production, maintenance, calibration, user control, energy savings, OEE, and analytics, a data storage system will be implemented within a private network.

This private network will be specifically designed to centralize the management of data generated at every stage of the production and operational cycle. The key benefits include:

3.1 Security and information protection

La red privada proporcionará un entorno controlado que limita el acceso a usuarios autorizados, reduciendo riesgos de ciberataques o accesos no deseados. Los datos serán encriptados tanto en tránsito como en reposo, cumpliendo con los estándares más altos de seguridad en la industria médica.

3.2 Centralization of Critical Data

Production, maintenance, calibration, and analysis data will be stored in a single, structured repository. This will streamline process traceability and ensure the availability of information for audits, quality controls, and strategic decision-making

Figure 3 Data Storage

3.3 Scalability and Flexibility

The network infrastructure will be designed to scale as storage needs grow, allowing for the seamless integration of new equipment and processes without interruptions.

3.4 Optimization of Analytical Processes

The collected analytical data will be processed in real-time to generate reports on production and maintenance. This will enable the identification of areas for improvement, anticipate calibration needs, and prevent potential equipment failures.

Together, the data storage within this private network will strengthen the commitment to operational excellence, technological innovation, and the security of the medical devices produced.

4. PRODUCTION MONITORING

The Traceability system implemented for production monitoring allows for detailed tracking of the entire production process, providing key real-time information. This system records the following essential variables:

- **Working Hours**: The system tracks operational hours and compares them with planned production hours, alerting you to any discrepancies.
- **Piece Production**: Traceability keeps a detailed count of the pieces produced during each shift, allowing you to quickly determine if production targets have been met.
- **Machine Performance**: Machine performance is monitored in real-time, providing data on the productivity and efficiency of each machine.

By collecting this data, you can accurately analyze production, identify patterns, and make data-driven decisions to optimize production and maximize resources

5. RADIO FREQUENCY IDENTIFICATION (RFID).

The RFID system consists of:

An RFID Reader that functions to convert the information received from the antenna into data.

RFID technology offers several advantages over traditional barcodes, including:

- Does not require a direct line of sight between the tag and the reader.
- Allows for storing more information.
- Difficult to duplicate.
- Instantaneous reading.
- Tags can be disposable or reusable.
- Data can be encrypted and locked.
- User access is controlled at different levels.

5.1 RFID CHARACTERISTICS

- Automatically reads multiple Wiegand HID Proxdata formats (26, 34, 35, 36, 37 bits).
- Output interface: TTL UART.
- Output format in 10-digit hexadecimal numbers.
- Reads facility code and card number.
- External antenna.
- Reading distance: ISO card (~3-5 cm) / Key fob (~3-4 cm).
- Size: PCB (20x30 mm) / Antenna (35x60 mm).

Figure 4 RFID CHARACTERISTICS

6. GENERAL DIMENSIONS.

This section presents a technical diagram of a device with general dimensions in inches. Below is a general description based on the observed details:

6.1 FRONT VIEW:

Dimensions: 6.39" (width) x 4.08" (height).

Highlighted elements:

- A logo that reads "4.0 Industry" in the top left corner.
- A rectangular frame in the center, likely indicating a screen or functional area.
- Text at the bottom stating "Industrial Artificial Intelligence" along with a web address "traceab.com".

6.2 SIDE VIEW:

Dimensions: 2.15" (height) x 2.39" (depth).

Highlighted elements:

- The RFID symbol and text, indicating compatibility or functionality based on radio frequency identification technology.

In summary, the device appears to be a compact industrial unit, designed for integration in applications that combine artificial intelligence and RFID identification technology

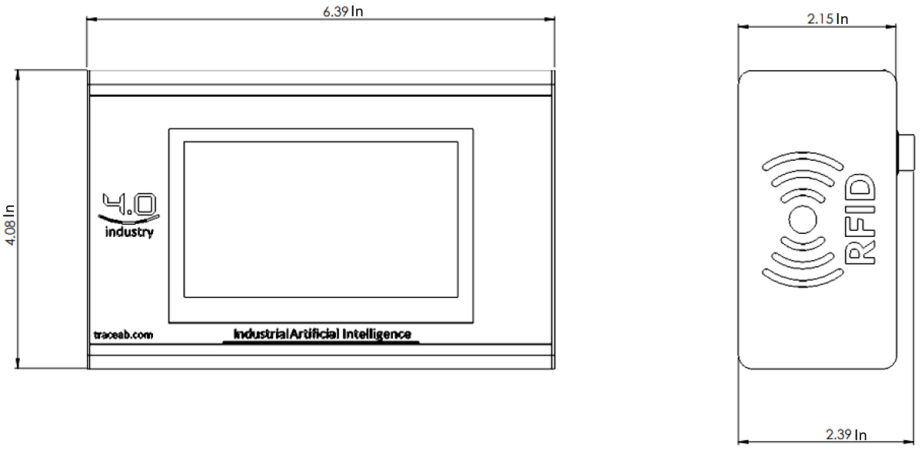

Figure 5 General dimensions

7. INPUTS AND OUTPUTS

7.1 INPUTS

1. Indicates defective part.
2. Indicates good part.
3. Indicates the machine's century.

7.2 OUTPUTS

1. Indicates that the user is fine.
2. Indicates that the user is NOT fine.
3. Work output.

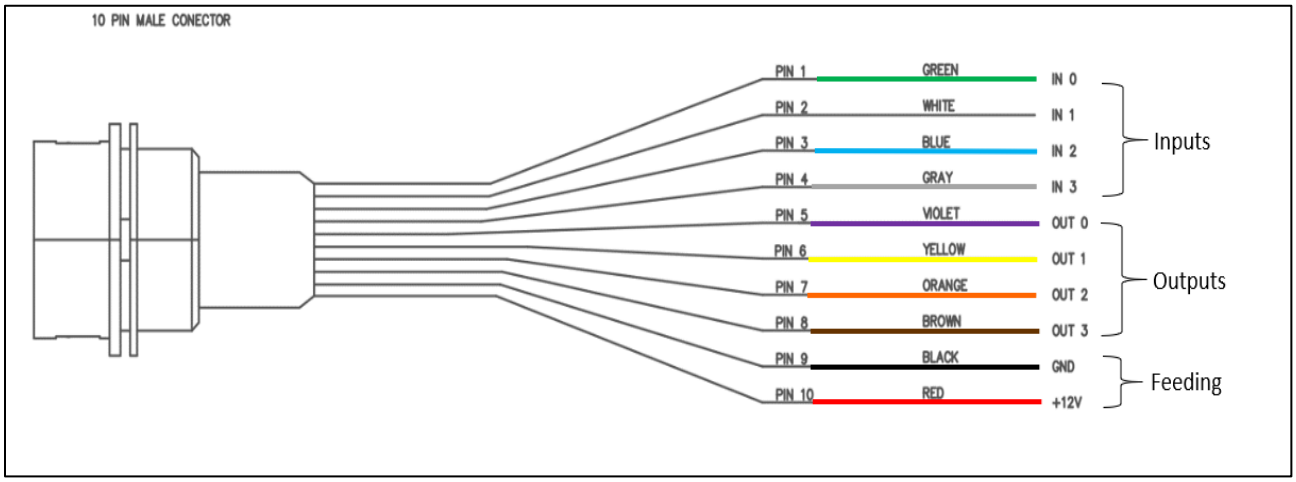

Figure 6 Inputs and outputs

8. CONFIGURATION

1. When turning on the traceability system, the following screen will appear. Please wait for it to finish loading.

Figure 7 Power-up Screen

2. Once the system finishes loading, it will display the following screen.

Figure 8 Start Screen

9. USER REGISTRATION

1. To register a user, select the configuration in Figure 7. Once selected, the following screen will appear.
2. Select USERS.

Figure 9 Settings

3. To access the access control, you must enter the password.

   Password: 1234

Figure 10 Acess control

4. For quick registration, scan the RFID.
   A) Manually enter the username that scanned the RFID.
   B) Manually enter the employee number.
   C) Manually press the arrow to select the level (ASSOCIATE, TEAM LEADER, SUPERVISOR, ENGINEERING, MAINTENANCE).
   D) In Figure 11, after adding all the data, press the red SAVE button to save the registered information.

Figure 11 User registration

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TRADEMARKS