



PHARMACEUTICAL & NUTRACEUTICAL METAL DETECTION SYSTEMS



KEY FEATURES

- SUPERIOR & CONSISTENT DETECTION
- ENHANCED PRODUCT THROUGHPUT RATE
- MAXIMUM CONFIGURABILITY / INTEGRATION
- FDA 21 CFR PART 11 COMPLIANT
 - ▶ Data Security
 - ▶ Data Integrity
 - ▶ Data Traceability
- Design and Construction
COMPLIANT with **GMP CRITERIA**
- **AISI 316L** stainless steel construction
- **THS ANYWHERE** remote support
(available with IXC module)



✓ TABLETS

✓ CAPSULES

✓ GEL CAPS

✓ POWDERS

✓ GRANULAR

✓ LIQUIDS

✓ SYRUPS



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QUALITY CONTROL AT ITS FINEST



CEIA THS/PH21 Metal Detection Systems offer detection, construction quality and reliability characteristics that make them the most suitable and effective solution to automatic elimination of metal contaminants.

Validation Solutions Available:

- ✓ Calibration Standards
- ✓ Validation Manuals
- ✓ Comprehensive Service & Support
- ✓ Compliance Tools
- ✓ On-line Production Data Validation

FDA 21 PART 11 COMPLIANT

The THS/PH21 Metal Detector Series is a **high-sensitivity, high-precision measuring instrument**. The response from the device is used to directly command ejection of the contaminated product and to verify that it has in fact been eliminated.

FDA Code Title 21 Part 11 prescribes rigorous criteria for access to programming and computer data protection, which have been fully adopted in the CEIA THS/PH21 Series firmware. User access is only possible via a User Name and Password login under the control of the System Administrator, who programs and manages individual user profiles and user functions. As a result, the requirements for security, integrity and traceability are satisfied.

All events performed by the THS/PH21 Metal Detector are recorded in a data log to comply with FDA Part 11 protocol and assist in root cause analysis. The events include detection, ejection, program operations, passwords and periodic functional test phases using standard test samples.



CONTINUOUS AUTO-TEST FUNCTION
ensuring maximum Production Safety

FDA 21 Part 11 Compliant

**Exclusive Global
AUTO-LEARN SYSTEM**

METAL DETECTOR TEST PROCEDURE
after critical setup change

**Real-time embedded
SELF-CALIBRATION CONTROL**

**Modern, rugged and
USER FRIENDLY INTERFACE**



IXC module advanced connectivity

CEIA Metal Detectors are specially engineered so that **no manual calibration or tuning is needed**.

CEIA Metal Detectors have an **internal Auto-diagnosis** for automatic balancing of the antenna with continuous embedded **Self-Calibration control**.



REAL-TIME EMBEDDED SELF-CALIBRATION CONTROL

The Self-Calibration control allows **maximum repeatability and performance consistency over time and with environmental changes**. By means of specific signals sent to the transmission and reception chain of the Metal Detector, constant monitoring of the detection characteristics is carried out, with consequent constant compensation for any variations caused by environmental factors. The result is system **stability and constancy in detection performance and product effect neutralization**.

EXCLUSIVE AUTO-LEARN SYSTEM

The Auto-Learn System provides **simultaneous maximum sensitivity to all metals starting from a single learning transit**. The THS/PH21 Series employs an exclusive Auto-Learn system for pharmaceutical products, which allows optimization of the detection sensitivity to all metals with the maximum speed and precision, equivalent to hundreds of conventional learning transits. This results in levels of precision and efficiency never before obtained.

CONTINUOUS AUTO-TEST FUNCTION

Special electronic stimuli are sent to the transmission and reception chain of the THS/PH21 Series Metal Detector, causing variations in the detection signals which provide checks on detection characteristics. These variations are compared with the reference values stored in the memory of the metal detector at the time of the factory calibration test. This produces an automatic certified check of the system's sensitivity.

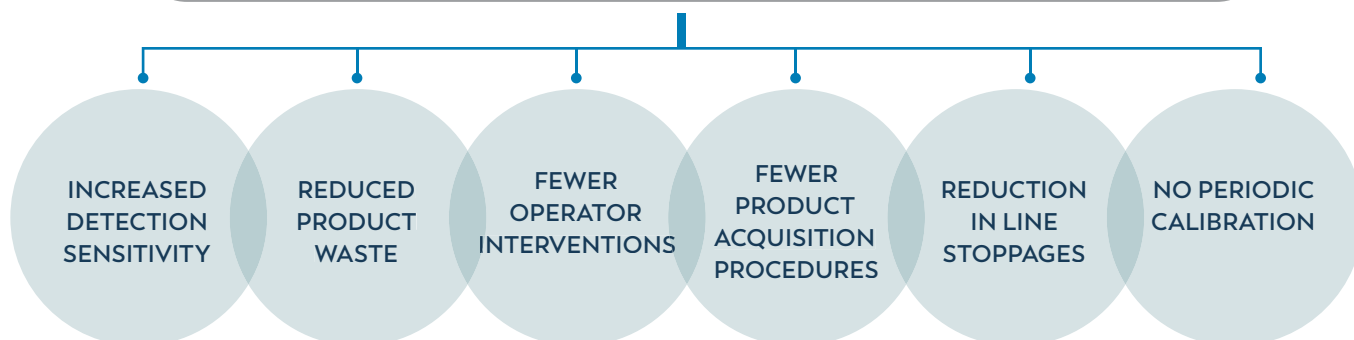
CEIA AUTOMATIC CALIBRATION TEST

To comply with the daily Metal detection and ejection verification requirements, the CEIA Metal Detectors THS 21 Series provide:

- ✓ **A full digital internal structure**, completely free from internal trimmers to be calibrated, as the analog processing has been replaced by digital numerical analysis.
- ✓ **An automatic, wide dynamics, antenna balance tracking system** to maintain in-range performances in all installation environments.
- ✓ **A continuous embedded Self-Calibration control**.
- ✓ **A continuous Auto-Test function** which generates stimuli corresponding to the manual metal samples transits.
- ✓ **A calibration test in automatic mode**.
During the automatic test, the Metal Detector generates a stimulus equivalent to the same excitation signal of the last manual test, verifying the correct activation of the alarm and the ejector.

All test results are recorded into the Events buffer and are available for data traceability. The THS 21 Series provides the possibility to determine and program the mix of manual and automatic test operation in a wide ratio range, depending on the User Quality procedures, through the MTI parameter.

INCREASES IN PRODUCTIVITY AND COST SAVINGS




HIGH PERFORMANCE PHARMACEUTICAL METAL DETECTION SYSTEMS



THS/PH21N

ULTRA HIGH SENSITIVITY METAL DETECTOR


- Ultra high sensitivity to all magnetic and non-magnetic metals, including stainless steel
- AISI 316L stainless steel construction
- Control Power Box available according to UL 508A and CSA-C22.2 No. 286 
- 500 product profiles, selectable by local programming or network software
- 10,000 storable events
- High-contrast graphic display
- Local programming: 16 stainless steel keys, 3 with double function
- Quick Access key for fast programming of user parameters
- Automatic Calibration Test





THS/PH21N model

THS/PH21E

HIGH SENSITIVITY METAL DETECTOR

- High sensitivity to all magnetic and non-magnetic metals, including stainless steel
- AISI 316L stainless steel construction
- Control Power Box available according to UL 508A and CSA-C22.2 No. 286 
- 250 product profiles, selectable by local programming or network software
- 1,000 storable events
- 4 x 20 character alphanumeric display
- Local programming: 4 stainless steel keys, 3 with double function

PRODUCT		VERIFIED THROUGHPUT (items / h)
		THS/PH21N - THS/PH21E (100 mm x 40 mm)
	19 mm x 10.3 mm x 7.88 mm	1 200 000
	ø6.6 mm x 19 mm	800 000

- ▶ Tilt Angle: 35°
- ▶ Max throughput rates are related to the shape and the size of the tablets

DUST TIGHT & WASH-IN-PLACE METAL DETECTION SYSTEMS



THS/PH21N-DT

DUST TIGHT METAL DETECTION SYSTEM

Dust tight transit pipe and ejection system prevents dispersion of the product

- Transit tunnel and ejection system completely sealed
- Easy integration with tablet press and deduster from the leading manufacturers
- Rapid maintenance does not require the employment of tools to assemble and disassemble the components
- Automatic Calibration Test



THS/PH21N-WIP

WASH-IN-PLACE METAL DETECTION SYSTEM


A special built-in washing system allows complete cleaning of the conduits after completion of each production batch

- Transit tunnel and ejection system completely sealed
- Fitted with nozzles for washing water injection and decontamination
- Easy integration with tablet press and deduster from the leading manufacturers
- Antistatic, Jamming Sensor and Bin full Kits [available on demand]
- Automatic Calibration Test

INTEGRATED SYSTEMS

THS/PH21N-FFV


FOR **GRANULAR** AND **POWDER** PRODUCTS

- Ultra High Sensitivity to all metals
- Very compact size
- AISI 316L stainless steel construction
- Control Power Box available according to UL 508A and CSA-C22.2 No. 286
- ATEX ZONE 21 version [available on demand] 
- Automatic Calibration Test



THS/FFV21SG

FOR **GRANULAR** AND **POWDER** PRODUCTS

- Superior and consistent detection
- Ultra High Sensitivity to all metals
- FDA 21 CFR part 11 compliant
- Control Power Box available according to UL 508A and CSA-C22.2 No. 286
- ATEX ZONE 22 version [available on demand] 
- Automatic Calibration Test

NEW



BENEFITS

- Increase productivity
- Ensure compliance
- Enhance operator safety

THS/PLV 21 SERIES

FOR **LIQUID** AND **VISCOUS** PRODUCTS

- Wide range of standard pipe sizes available to suit all applications
- Full compliance with HACCP criteria
- AISI 316L stainless steel construction
- Fast acting reject device for a limited quantity of rejected product
- Easy to clean and inspect



CONVEYOR INSPECTION SYSTEMS

THS/FBB THS/MBB

FLAT AND MODULAR CONVEYOR INSPECTION SYSTEMS

- High Sensitivity to all metals
- Integrated controls for line speed and rejection
- High immunity to environmental interference
- Automatic learning & tracking of product effect
- Easy to maintain and inspect
- Digitally adjustable belt speed
- Control Power Box available according to UL 508A and CSA-C22.2 No. 286
- Applications:
 - ✓ Flacons ✓ Bottles ✓ Packaging
 - ✓ Loose product

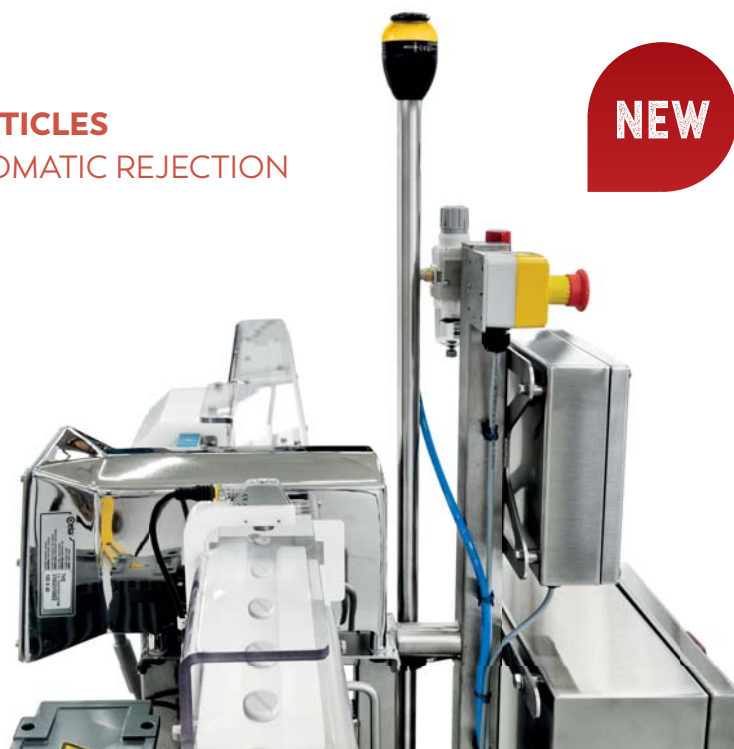


THS/PH21N-FB

DETECTION OF VERY TINY METAL PARTICLES ON EFFERVESCENT TABLETS WITH AUTOMATIC REJECTION

NEW

- Ultra high sensitivity to all magnetic and non-magnetic metals, including stainless steel
- AISI 316L stainless steel construction
- Integrated controls for line speed and rejection
- High immunity to environmental interference
- Automatic learning & tracking of product effect
- Easy to maintain and inspect
- Digitally adjustable belt speed
- Automatic ejection management with synchronization of the product transit
- Verification of the successful ejection of the contaminated product

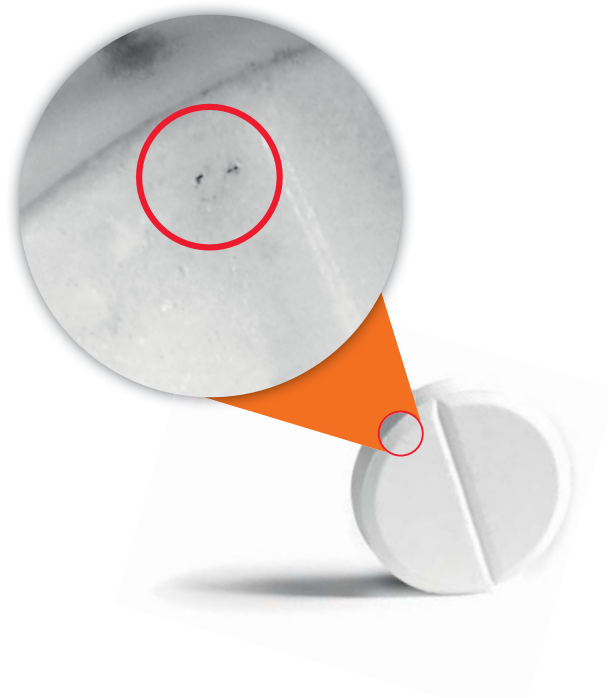



SPECIFIC INSPECTION AGAINST TINY METAL PARTICLE CONTAMINATION

THS/PH21N-D25

ULTRA HIGH SENSITIVITY METAL DETECTOR

- Unsurpassed Detection
- Best Product Quality
- Round aperture
- Automatic Calibration Test
- Applications:
 - ✓ R&D analysis
 - ✓ Rework confirmation
 - ✓ Root cause analysis assistance
 - ✓ New product specification



PRODUCT		VERIFIED THROUGHPUT (items / h)
	Diameter: Ø 8,5 mm Thickness: 4,5 mm	30,000

EXAMPLES OF THROUGHPUT

- Tilt Angle: 35°
- Max Throughput Rates are related to the shape and to the size of the tablets



THS PRODUCTION 4.0 ENABLING INDUSTRY 4.0

SMART FACTORY

- ✓ CEIA-ERP API interface for communication to the factory management software (Microsoft Dynamics NAV, SAP, ORACLE ERP)
- ✓ OPC-UA protocol API for Metal Detector Monitor and Control
- ✓ Connection to an External Database and Definition of a Programmable Block of SQL Instructions for each Metal Detector Event
- ✓ Compatible with standard SCADA Systems
- ✓ E-mail sender for Metal Detector events
- ✓ Integrated Web-Server Appliance for real-time monitoring for HMI and touch panel

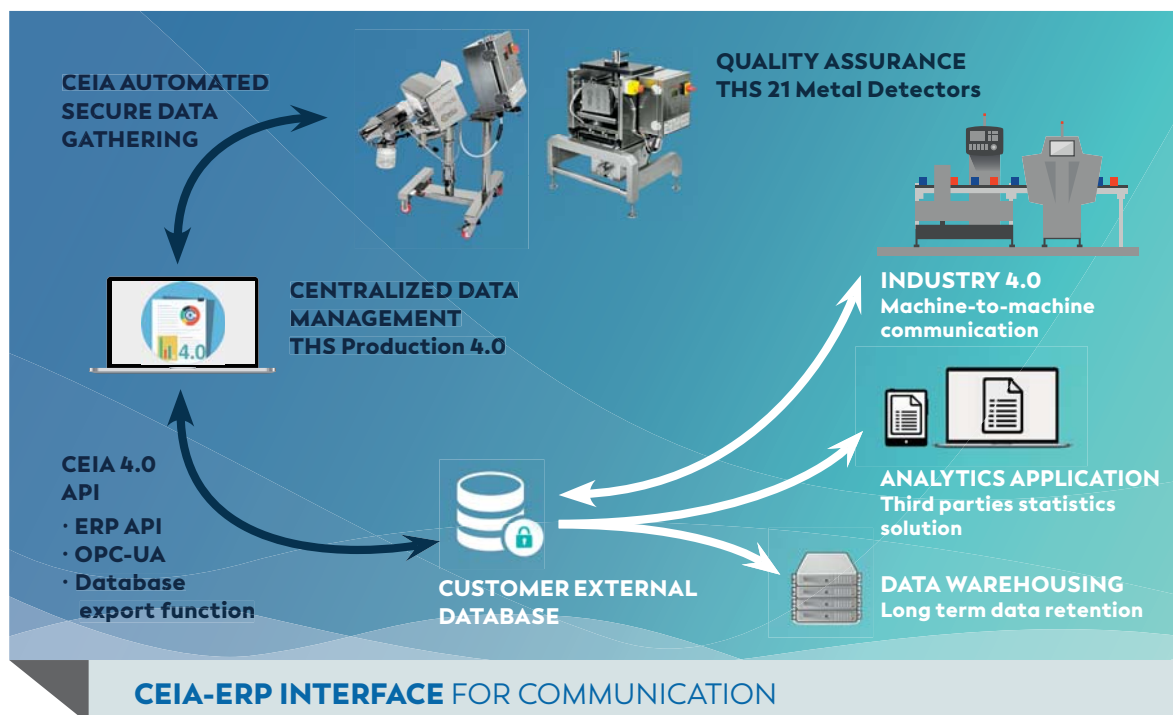
PREDICTIVE MAINTENANCE

- ✓ Data Inspector Tool for signal and production analysis (enhanced option)
- ✓ Early Metal Explosion identification
- ✓ Batch management for defective product traceability



THS PRODUCTION 4.0 HIGHLIGHTS

- ✓ Connects and Acquires Data from Multiple THS Detectors via wired or wireless LAN (requires IXC module)
- ✓ Enables Data Base Management and Back-Up of Metal Detector events
- ✓ Report Data Exportable in HTML, CSV and PDF formats
- ✓ Provides User Authentication and Manages Electronic Signatures and Records
- ✓ Allows Data Integrity and Operator Auditing
- ✓ FDA Requirements Compliant, Title 21 of the Code of Federal Regulations (CFR)
- ✓ High performance 64-bit database that handles more than 500 millions events



SOPHISTICATED INTERFACE CAPABILITIES

NETWORK COMMUNICATION

The Metal Detector can be linked to an Ethernet network (optional IXC module required).

In association with the THS Production Plus Software it enables remote management of production, collection of all technical and operational events, generation of statistical and traceability reports in compliance with FDA 21 CFR part 11 requirements.

BT CONNECTIVITY



In the THS/21 Series, local connection to the maintenance technician's computer no longer requires physical access to the interior of the detector or the use of unwieldy connection cables.

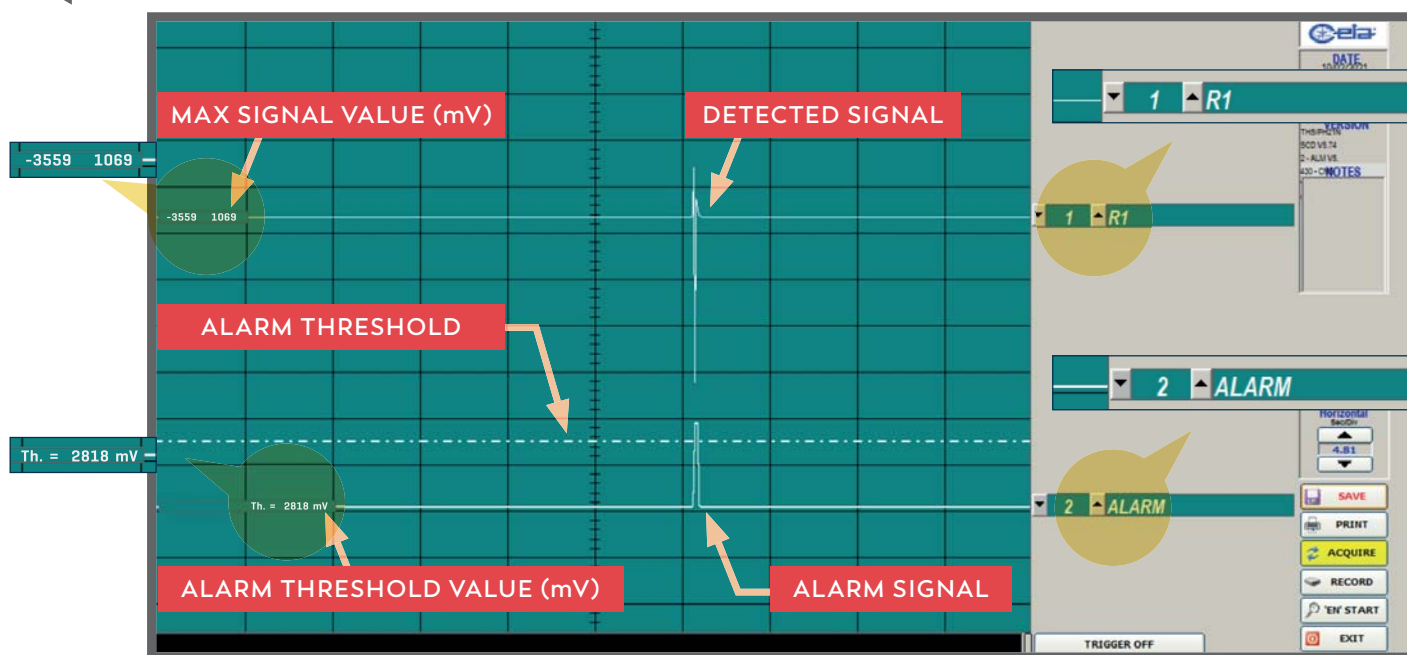
The BT connection can be used for programming, monitoring of the signals via the CEIA MD-Scope program and the transfer of the data contained in the Metal Detector's events memory.

MD-SCOPE

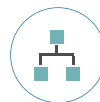
Software Diagnostic Package complete with connector cable and hardware key:

- REMOTE PROGRAMMING
- INPUT/OUTPUT SIGNALS
- DETECTED AND ALARM SIGNALS
- OSCILLOSCOPE FUNCTIONALITIES

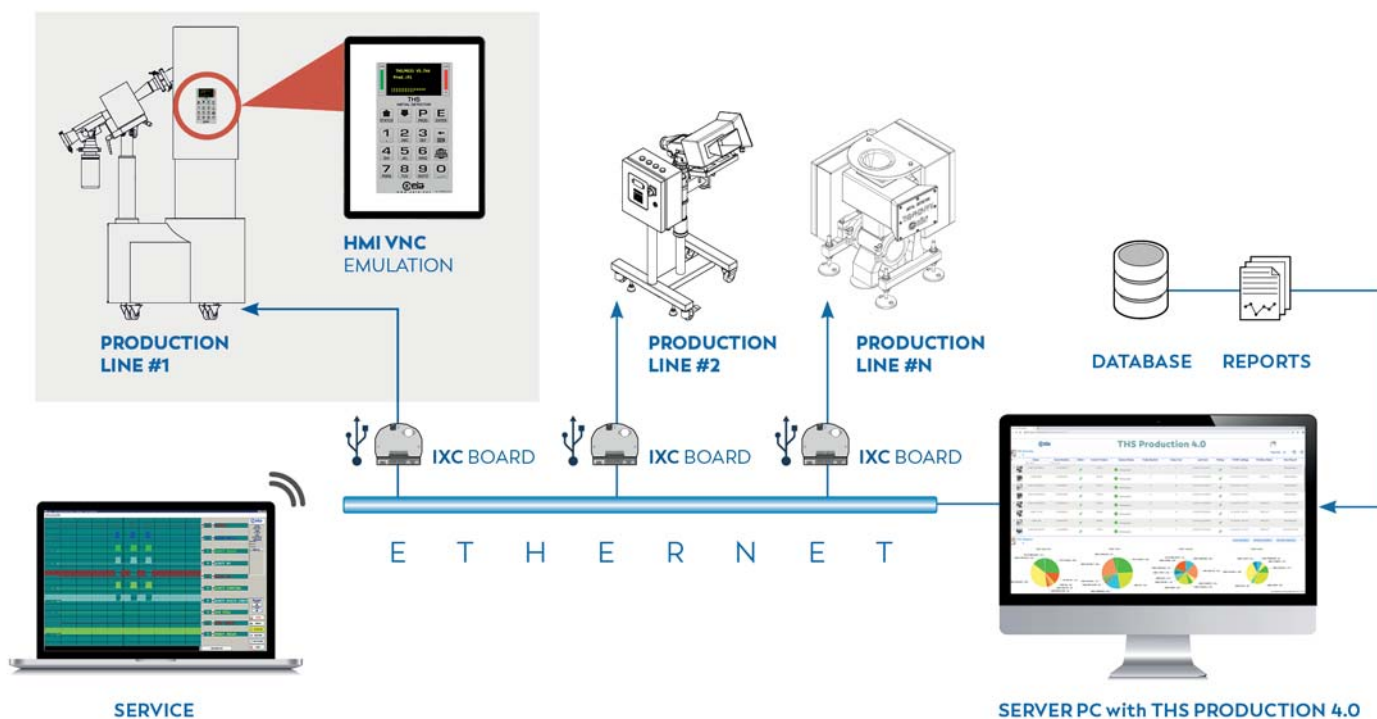
EXAMPLE OF SIGNAL GENERATING ALARM



IXC MODULE ADVANCED CONNECTIVITY








ETH / WI-FI	USB	INTERFACES
✓		BUILT-IN MD SCOPE - Metal Detector signal and remote programming terminal
✓		STATUS - Replicates every message displayed by the THS (updated each 5 s)
✓		PRODUCTS Displays the list of products stored into the THS memory, the selected product is shown in green. This page allows the product to be changed
✓	✓	PRODUCTS EXPORT Allows selection of all or part of the products stored in the THS memory in order to export them
✓	✓	PRODUCTS IMPORT - Allows importation of all or part of the products exported
✓	✓	BUFFER EXPORT - Allows exportation of events occurred in a selected time frame
✓	✓	CONFIGURATION BACKUP/RESTORE Backup and restoring of the Metal Detector configuration
✓	✓	CONFIGURATION EXPORT/IMPORT Allows the configuration to be exported or imported from other Metal Detectors of the same model, installed on the same line
✓		THS ANYWHERE cloud based Assistance reserved to CEIA Authorized Service Engineer
✓		HMI emulation by VNC client
✓		EtherNet/IP interface (optional)



OPTIONS





PART	DESCRIPTION	APPLICABLE MODELS	CODE
	IXC CARD WITH INTERNAL USB KEY Additional card that provides the detector a network Interface, [Ethernet or WiFi], integrated Webserver and a USB interface to save or load data relevant to the products, configuration, and events. This option also includes internal memory up to 100,000 events.	<ul style="list-style-type: none"> • THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV 	106898
	EXTERNAL USB PLUG KIT Allows USB connector of the IXC card to be mounted outside of the Power Control Box.	<ul style="list-style-type: none"> • THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV 	55613
	ANTISTATIC INFEED CONVEYOR KIT Eliminates electrostatic charges during the product's passage. Particularly efficient in case of tablets and capsules' inspection.	<ul style="list-style-type: none"> • THS/PH21E • THS/PH21N 	64270 [90x25*] 60214 [100x40*]
	ANTISTATIC INFEED CONVEYOR KIT FOR DUST TIGHT (DT) VERSION Dust Tight Infeed conveyor eliminates electrostatic charges during the product's passage. Particularly efficient in case of tablets and capsules' inspection.	<ul style="list-style-type: none"> • THS/PH21E • THS/PH21N 	68105 [100x40*]
	ANTISTATIC INFEED CONVEYOR KIT FOR WASH IN PLACE (WIP) VERSION Wash In Place Infeed Conveyor with nozzles eliminates electrostatic charges during the product's passage. Particularly efficient in case of tablets and capsules' inspection	<ul style="list-style-type: none"> • THS/PH21E • THS/PH21N 	70744 [100x40*]

* Aperture size

OPTIONS



PART	DESCRIPTION	APPLICABLE MODELS	CODE
	ANTISTATIC KIT <i>Infeed chute kit eliminates electrostatic charges during the product's passage. Particularly efficient for powder and granular inspection.</i>	• THS/PH21E-FFV	64865
		• THS/PH21N-FFV	[90x25*] 65504 [100x40*]
	INFEEED JAM SENSOR <i>Added sensor installed between the infeed conveyor and the probe. Provides alarm message in case of product jamming.</i>	• THS/PH21N-D25	63773
	JAM SENSOR <i>Added sensor installed between the probe and the ejection carter. Provides alarm message in case of product jamming.</i>	• THS/PH21E-FFV • THS/PH21N-FFV	63774 [90x25*] 63774 [100x40*]
	TSDU (TEST SAMPLE DISTRIBUTOR UNIT) <i>When installed to a THS/PH21 Metal Detector equipped with double reject, it allows a safe mode test with no interference to product flow.</i> <i>9 test samples per unit are included in the price (3 of each type: Ferrous, Non Ferrous and Stainless AISI316)</i>	• THS/PH21E • THS/PH21N	89810 [DT version] 85619 [WIP version]
	BIN FULL SENSOR <i>Added sensor that activates when the reject bin is full with rejected products. When activated, an alarm message on the detector's display warns the operator of the full condition.</i>	• THS/PH21E • THS/PH21N • THS/PH21N-D25	86905

* Aperture size

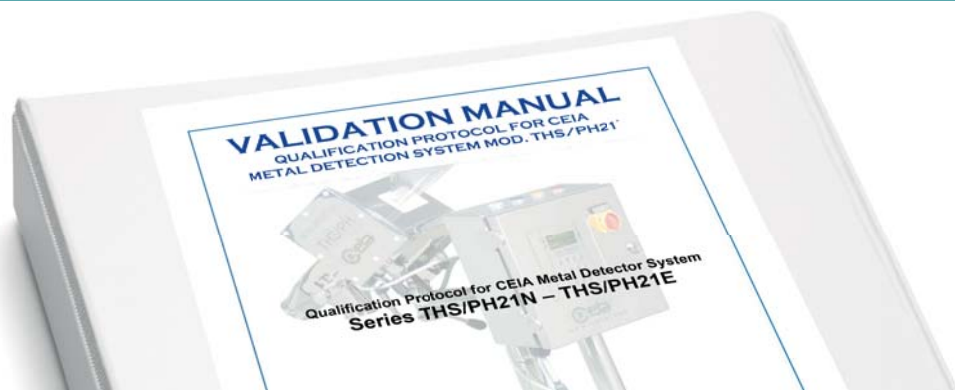
ACCESSORIES








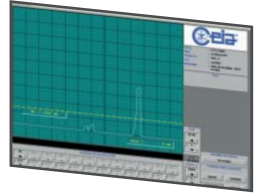


PART	DESCRIPTION	APPLICABLE MODELS	CODE
	SET-ASIDE MATERIAL CONTAINERS	• THS/PH21E	38699
	500 ml - STANDARD 950 ml - STANDARD	• THS/PH21N • THS/PH21N-D25	38700
	SET-ASIDE MATERIAL CONTAINERS	• THS/PH21E	38110
	500 ml - TRICLAMP/DT/WIP 950 ml - TRICLAMP/DT/WIP	• THS/PH21N • THS/PH21N-D25	38113
	PERIODIC MAINTENANCE KIT	• THS/PH21E	48967
	Kit includes: 1. One [1] lift flap bearing support 2. One [1] Infeed Conveyor 3. One [1] Intermediate Conveyor	• THS/PH21N	[90x25*] 48966 [100x40*]
	PERIODIC MAINTENANCE KIT	• THS/PH21E-FFV	49035
	Kit includes: 1. One [1] rejector Valve Bushing 2. One [1] Infeed Conveyor 3. One [1] Infeed Valve O-ring	• THS/PH21N-FFV	[90x25*] 49034 [100x40*]
	PERIODIC MAINTENANCE KIT	• THS/PH21N-D25	58761
	Kit includes: 1. One [1] lift flap bearing support 2. One [1] Infeed Conveyor 3. One [1] Intermediate Conveyor		
	WRENCH Wrench for adjusting the height of the probe	• THS/PH21E • THS/PH21N • THS/PH21N-D25	30190

* Aperture size

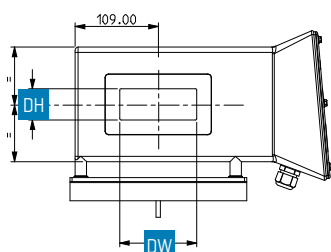
ACCESSORIES



PART	DESCRIPTION	APPLICABLE MODELS	CODE
	VALIDATION MANUAL Detailed hardcopy document for process/equipment validation of detector.	• THS/PH21E • THS/PH21N • THS/PH21N-D25	30839
		• THS/PH21E-FFV • THS/PH21N-FFV	51698
	VALIDATION MANUAL (DIGITAL DOCUMENT) Detailed electronic document that can be downloaded through a link provided by CEIA for process/equipment validation of detector. 	• THS/PH21E • THS/PH21N • THS/PH21N-D25	90673
		• THS/PH21E-FFV • THS/PH21N-FFV	90672
	TECHNICAL MANUAL Detailed hardcopy document[s] that includes: 1. Installation Manual 2. Operator Manual 3. Programming Manual		45669
		• THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV	90674
	TECHNICAL MANUAL (DIGITAL DOCUMENT) Detailed electronic document[s] that can be downloaded through a link provided by CEIA. Package includes: 1. Installation Manual 2. Operator Manual 3. Programming Manual 		
		• THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV	33908
	THS PRODUCTION Software for the data management [see page 9]. Requires installation of IXC option.		
		• THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV	MD-SCOPE2
	MD-SCOPE Software diagnostic tool [that can be installed on the user's PC]. Allows remote programming, signal input/output, review/analysis of alarms and amplitude of signal[s], and oscilloscope functionalities. Includes software, connector cable and a USB key.		
		• THS/PH21E • THS/PH21N • THS/PH21N-D25 • THS/PH21E-FFV • THS/PH21N-FFV	

THS/PH21[®] MECHANICAL DATA

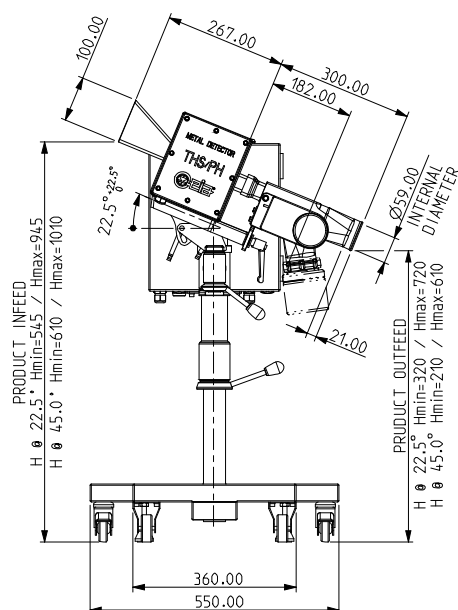
THS/PH21N • THS/PH21E



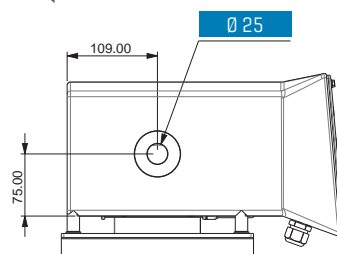
APERTURE SIZE (DW x DH)

90 x 25

100 x 40

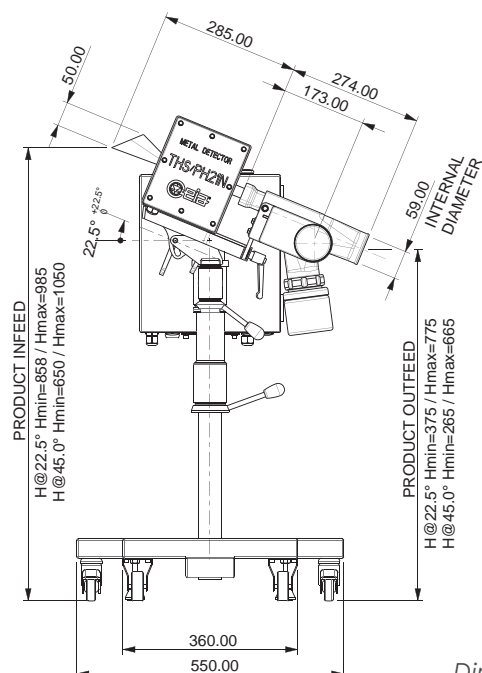


THS/PH21N-D25



APERTURE SIZE

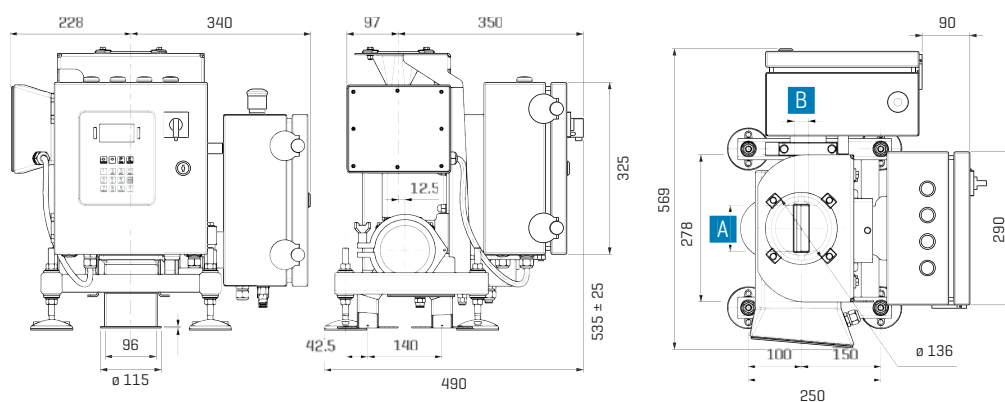
Ø 25



Dimensions in mm

THS/PH21N-FFV • THS/PH21E-FFV

APERTURE SIZE	A	B
100 x 40	90	30
90 x 25	78	13



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