



OPERATING INSTRUCTIONS

EN

Translation of the original instructions

37 PIN I/O BOARD

Communication interface

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1 About this manual

1.1 Validity

This operating manual is for customers of Pfeiffer Vacuum. It describes the functioning of the designated product and provides the most important information for safe use of the unit. The description follows applicable EU guidelines. All information provided in this operating manual refers to the current state of the product's development. The documentation remains valid as long as the customer does not make any changes to the product.

Up-to-date operating instructions can also be downloaded from www.pfeiffer-vacuum.com.

This manual covers products with the following part numbers:

Part number	Description
JSVA00A2Mx9x	ASM 340 Wet - 37 pin I/O - USB
JSVA00A3Mx9x	ASM 340 Wet - 37 pin I/O - USB - Wi-Fi
JSVA00A4Mx9x	ASM 340 Wet - 37 pin I/O - USB - Ethernet
JSVA00A5Mx9x	ASM 340 Wet - 37 pin I/O - USB - Bluetooth
KSBA00A2MM9A	ASM 340 Dry - 37 pin I/O - USB
KSBA00A3MM9A	ASM 340 Dry - 37 pin I/O - USB - Wi-Fi
KSBA00A4MM9A	ASM 340 Dry - 37 pin I/O - USB - Ethernet
KSBA00A5MM9A	ASM 340 Dry - 37 pin I/O - USB - Bluetooth
MSXA00A2MM9A	ASM 340 Integrable - 37 pin I/O - USB
MSXA00A3MM9A	ASM 340 Integrable - 37 pin I/O - USB - Wi-Fi
MSXA00A4MM9A	ASM 340 Integrable - 37 pin I/O - USB - Ethernet
MSXA00A5MM9A	ASM 340 Integrable - 37 pin I/O - USB - Bluetooth
121350S	37 pin I/O board accessory - ASM 340
121351S	37 pin I/O board accessory - Wi-Fi - ASM 340
121352S	37 pin I/O board accessory - Ethernet - ASM 340

Part number	Description
PSGB00B2MM9A	ASM 380 - 37 pin I/O - USB
PSGB00B3MM9A	ASM 380 - 37 pin I/O - USB - Wi-Fi
PSGB00B4MM9A	ASM 380 - 37 pin I/O - USB - Ethernet
PSGB00B5MM9A	ASM 380 - 37 pin I/O - USB - Bluetooth
118088	37 pin I/O board accessory - ASM 380
118089	37 pin I/O board accessory - Wi-Fi - ASM 380
118090	37 pin I/O board accessory - Ethernet - ASM 380

Part number	Description
CSGB01G2MM9x	ASM 390 - 37 pin I/O - USB
CSGB01G4MM9x	ASM 390 - 37 pin I/O - USB - Ethernet
ESGB02G2MM9X	ASM 392 - 37 pin I/O - USB
ESGB02G4MM9X	ASM 392 - 37 pin I/O - USB - Ethernet
126254	37 pin I/O board accessory - ASM 390/392
126255	37 pin I/O board accessory - Ethernet - ASM 390/392

Part number	Description
Sxxx0x02MM9A	ASI 35 - 37 pin I/O - USB
Sxxx0x04MM9A	ASI 35 - 37 pin I/O - USB - Ethernet

1.2 Applicable documents

Documents relevant for the use of options and/or accessories, and for product maintenance are the following:

37 pin I/O board	Operating instructions
Operating instructions for the 37 pin I/O board	P/n 123894*
Installation instructions for the 37 pin I/O board	P/n 123895*
ASM 340 Operating instructions	P/n 121762*
ASM 380 Operating instructions	P/n 118427*
ASM 390/392 Operating instructions	P/n 126348*

37 pin I/O board	Operating instructions
ASI 35 Operating instructions	P/n 123356*
*also available at www.pfeiffer-vacuum.com	

1.3 Conventions

1.3.1 Safety instructions

Operating manual safety instructions Pfeiffer Vacuum are based on the UL, CSA, ANSI Z-535, SEMI S2, ISO 3864 and DIN 4844 certification standards. This document describes the following information and danger levels:

WARNING
Possibly imminent danger Indicates an imminent hazardous situation that can result in death or serious injury.
NOTICE
Command or note Command to perform an action or information about properties, the disregarding of which may result in damage to the product.

1.3.2 Pictographs



Warning of a displayed source of danger in connection with operation of the unit or equipment



Command to perform an action or task associated with a source of danger, the disregarding of which may result in serious accidents

1.3.3 Instructions in the text

⇒ or ➔

Work instruction: you must perform an operation here.

[XXXX]

You must press the **XXXX** key on the control panel.

I/O

Inputs/Outputs

Screenshots are given as examples only. They can therefore vary depending on the operator's settings.

2 Safety precautions



Obligation to inform

Any person responsible for installing, using or maintaining the product must first read the security instructions in this operating manual and comply with them.

→ It is the operating customer's responsibility to protect all operators against the dangers associated with the product, with the media pumped and with the entire installation.



WARNING

Electric shock hazard in case of contact

When the product's circuit breaker is set at **O**, some internal components still have an electrical charge.

→ Make sure that the mains connection is always visible and accessible so that it can be unplugged at any time.
→ Disconnect the power cable from all power sources before starting any work on the product.

- Only qualified personnel trained in safety rules (EMC, electrical safety, chemical pollution) may carry out the installation and maintenance described in this manual. Our service centers can provide the necessary training.
- Do not turn on the product if the covers are not in place.

3 Installation of the accessory

Accessory not available for ASI 25 leak detector.

Please refer to the ***Operating instructions*** delivered with the accessory.

4 Command via 37 pin I/O interface

Available on any detector equipped with the 37 pin I/O board.



WARNING

Risk of electromagnetic disturbance

The product's EMC behavior is guaranteed only if the relevant EMC standards are followed during installation.

→ Use shielded cables and connections for the interfaces in interference-prone environments.



NOTICE

Extra low voltage circuit

The remote control circuits are equipped with dry contact outputs (30 V - 1 A max.). Any overvoltage or overcurrent can result in internal electrical damage. The installer must:

→ Connect these outputs in accordance with the rules and protection of safety extra low voltage (SELV) circuits,
→ Supply these contacts with voltage of less than 30 V and current of less than 1 A.

4.1 Cable

- 37 pins male connector and its cover delivered with the leak detector.
- Cable at customer's expense.

4.2 Detector connector

Digital	Inputs	11 - 12 - 13 - 30 - 31 - 32
	Accessory	34 - 35 - 15 - 16: saved
Digital	Outputs	1 to 9 - 20 to 28
	Analog	19 - 36 - 37 (ground: 17 - 18)
	Others	29: +24 V internal or external ⁽¹⁾ 10: internal or external ground ⁽¹⁾ 33 - 14: headphones (8 Ω) ⁽²⁾

⁽¹⁾ Depending on SW1 switch configuration

⁽²⁾ To activate audio/headphone output, the "= HPD" RS-232 command must be sent to the detector: this command deactivates loudspeaker.
To deactivate audio/headphone output, the "= HPE" RS-232 command must be sent to the detector: this command reactivates the loudspeaker.

4.3 Localization

To locate the connector, please refer to the **Connection interface** chapter of the leak detector operating instructions.

4.4 37 pin I/O interface

From the "Settings" screen, press [Advanced] [Input/Output] [I/O Connector].

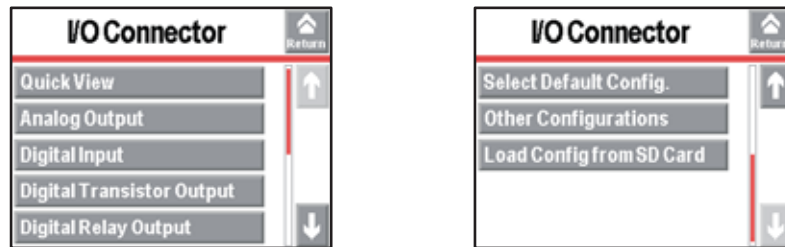


Fig. 1: I/O connector menu

4.4.1 Save

A save of all the set I/O is automatically proposed at the menu exit if a parameter has been modified.

→ Enter the file name and valid the save (".IOP" file).

4.4.2 Quick View

These screens help view, for each output:

- its connection pins,
- its allocation (function, setting, order),
- its status (allocation and contact),
- its activation mode.

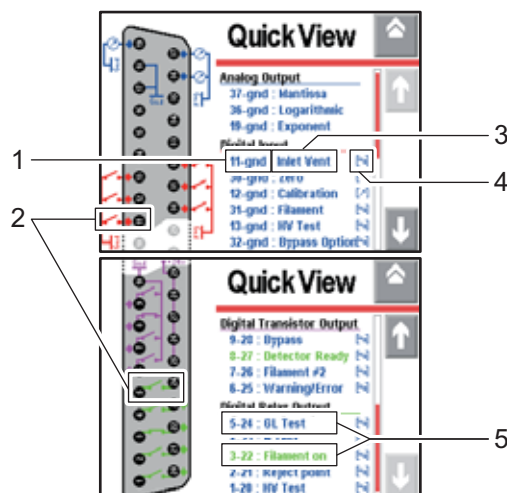


Fig. 2: Quick View screen description

1	Connection pins
2	Contact dynamic status
3	Allocated value
4	Activation mode
5	Allocation status
	• Blue = not active • Green = active

4.4.3 Analog Output



Fig. 3: Analog output menu

Configuration

37-gnd	⇒ Select the value to be allocated: see table below. ⇒ Depending on the value, configure the low decade.
36-gnd	⇒ Select the value to be allocated: see table below. ⇒ Depending on the value, configure the low decade.
19-gnd	Output allocated to «Exponent»

The low decade is the decade corresponding with 0 V.

Value	Function
Mantissa	1/10 V ⁽⁴⁾
Exponent	0/10 V ⁽⁴⁾
Logarithmic	0/10 V ⁽⁴⁾
Inlet pressure	See detail below
He compound	0/10 V (compound exponent, mantissa) ⁽⁴⁾
Ext. pressure	0/10 V External gauge pressure Formula: see connected gauge operating instructions

Detail: analog output = 'Inlet pressure'

Connected gauge(s)	Detector	Detector control
None	ASI 35	No gauge to control the detector Inlet pressure = 1000 hPa = 8.5 V
Internal gauge	ASM 340 ⁽¹⁾ ASM 380 ⁽¹⁾ ASM 390 ⁽¹⁾	Detector control with the detector inlet gauge • Range: 2,5 V/8,5 V (10⁻³ to 10⁺³ hPa) • Formula ⁽⁴⁾ Setting: see below according to detector
	ASM 3920 ⁽¹⁾	ASM 340 - ASM 380 - ASM 390 - ASM 392
	ASI 35 ⁽²⁾	No setting ASI 35 See Advanced Menu - Leak Detection - Detector pressure gauge in the detector Operating instructions: • Pirani gauge connected – Gauge = 'TPR/PCR' • Linear gauge connected – Gauge = 'Linear' – Full scale: to set

Detail: analog output = 'Inlet pressure'		
Connected gauge(s)	Detector	Detector control
Internal gauge + External gauge	ASM 340 ⁽¹⁾⁽³⁾ ASM 390 ⁽¹⁾⁽³⁾ ASM 392 ⁽¹⁾⁽³⁾ ASI 35 ⁽²⁾⁽³⁾	Detector control with the detector inlet gauge - Range: 2,5 V/8,5 V (10^{-3} to 10^{+3} hPa) - Formula ⁽⁴⁾ Setting: See Advanced Menu - Leak Detection - External gauge in the detector Operating instructions: - Inlet pressure source = 'Internal' Detector control with an external gauge (at the customer's expense) - Range: 0 V/10 V - Formula: see connected gauge operating instructions Setting: See Advanced Menu - Leak Detection - External gauge in the detector Operating instructions: - Pirani gauge connected - Gauge = 'TPR/PCR' - Inlet pressure source = 'External' - Linear gauge connected - Gauge = 'Linear' - Inlet pressure source = 'External' - Full scale: to set
External gauge	ASI 35 ⁽³⁾	Detector control with an external gauge (at the customer's expense) - Range: 0 V/10 V - Formula: see connected gauge operating instructions Setting: See Advanced Menu - Leak Detection - External gauge in the detector Operating instructions: - Pirani gauge connected - Gauge = 'TPR/PCR' - Inlet pressure source = 'External' - Linear gauge connected - Gauge = 'Linear' - Inlet pressure source = 'External' - Full scale: to set

(1) Internal gauge PI1/PI3

(2) Gauge at the customers's expense: See **Advanced Menu - Leak Detection - Detector pressure gauge** in the detector Operating instructions.

(3) Gauge at the customers's expense: See **Advanced Menu - Leak Detection - External gauge** in the detector Operating instructions.

(4) (see 4.4.4)

4.4.4 Formulas

Mantissa (1/10 V)

The "Mantissa" output corresponds with the leak rate mantissa:

Formula

U = Voltage measured (V) on analog output

Mantissa= U

Examples

- U = 3.5 V -> Mantissa = 3.5
- U = 6.9 V -> Mantissa = 6.9

Exponent (0/10 V)

The "Exponent" output corresponds with the leak rate exponent:

- it increases by 1 V per decade,
- the starting decade corresponds with 10 V.

Formula

U = Voltage measured (V) on analog output

D₀ = Low decade for 0 V

Exponent = 10 - U + D ₀

Example 1

Low decade at 10^{-12} ($10 \text{ V} = -12$) $\rightarrow D_0 = -12$

- $U = 7 \text{ V} \rightarrow \text{Exponent} = 10 - 7 - 12 \rightarrow \text{Exponent} = -9$
- $U = 2 \text{ V} \rightarrow \text{Exponent} = 10 - 2 - 12 \rightarrow \text{Exponent} = -4$

Example 2

Low decade at 10^{-10} ($10 \text{ V} = -10$) $\rightarrow D_0 = -10$

- $U = 7 \text{ V} \rightarrow \text{Exponent} = 10 - 7 - 10 \rightarrow \text{Exponent} = -7$
- $U = 2 \text{ V} \rightarrow \text{Exponent} = 10 - 2 - 10 \rightarrow \text{Exponent} = -2$

Logarithmic (0/10 V)

The "Logarithmic" output corresponds with the leak rate value:

- it increases by 1 V per decade,
- the starting decade corresponds with 0 V.

Formulas

U = Voltage measured (V) on analog output

D_0 = Low decade for 0 V

Mantissa = $10^{(U - \text{Integer value (U)})}$
--

Exponent = Integer value (U) + D_0

Leak rate = Mantissa $\times 10^{\text{Exponent}}$
--

Example 1

Low decade at 10^{-12} ($0 \text{ V} = 1 \cdot 10^{-12}$) $\rightarrow D_0 = -12$

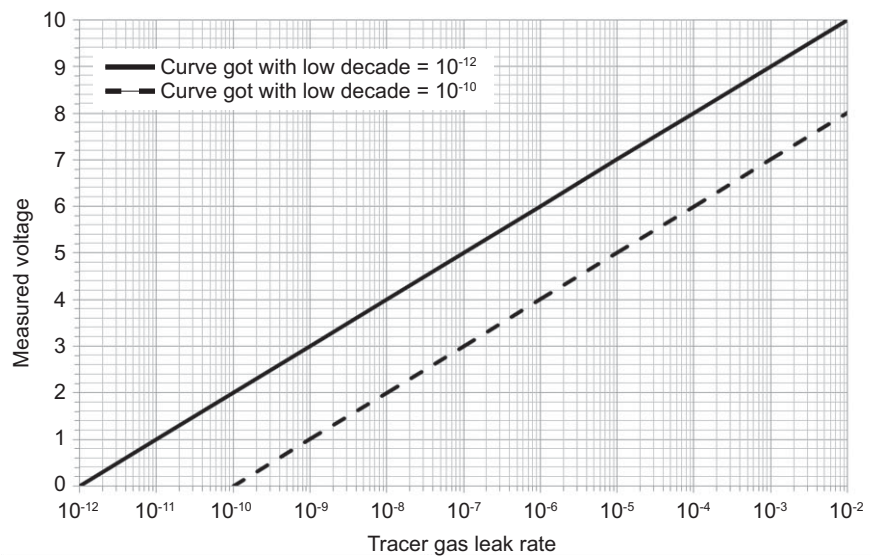
- $V = 3.91 \text{ V} \rightarrow \text{Leak rate} = 10^{(3.91-3)} \times 10^{(3-12)} = 8.13 \cdot 10^{-9}$
- $V = 8.25 \text{ V} \rightarrow \text{Leak rate} = 10^{(8.25-8)} \times 10^{(8-12)} = 1.78 \cdot 10^{-4}$

Example 2

Low decade at 10^{-10} ($0 \text{ V} = 1 \cdot 10^{-10}$) $\rightarrow D_0 = -10$

- $V = 3.91 \text{ V} \rightarrow \text{Leak rate} = 10^{(3.91-3)} \times 10^{(3-10)} = 8.13 \cdot 10^{-7}$
- $V = 8.25 \text{ V} \rightarrow \text{Leak rate} = 10^{(8.25-8)} \times 10^{(8-10)} = 1.78 \cdot 10^{-2}$

Graphs



Inlet pressure

The "Inlet Pressure" output corresponds with the inlet pressure source:

- ASM 340/380/390/392: leak detector inlet gauge
- ASI 35: external gauge (at the customer's charge)

Formula

- ASM 340/380/390/392 (2.5 V/8.5 V):

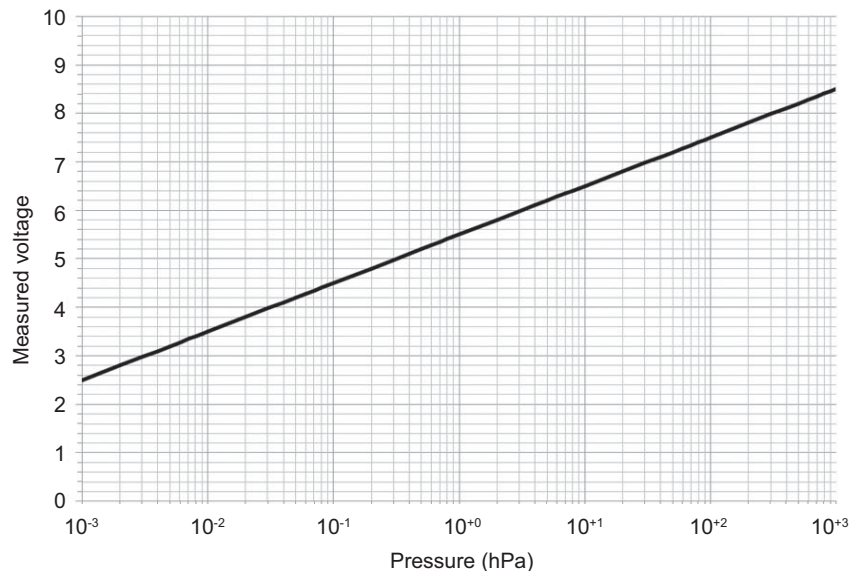
U = Voltage measured (V) on analog output

$$\text{Inlet pressure} = 10^{(U-5.5)} \text{ hPa}$$

- ASI 35 (0/10 V): see **Operating instructions of the gauge.**

Graphs

- ASM 340/380/390/392 (2.5 V/8.5 V):



- ASI 35 (0/10 V): see **Operating instructions of the gauge.**

He Compound (0/10 V)

The "He Compound" output is a combination of mantissa and exponent:

- the integer part represents the exponent
- the decimal part represents the mantissa.

Formulas

U = Voltage measured (V) on analog output

$$\text{Mantissa} = 10 \times (U - \text{Integer value (U)})$$

$$\text{Exponent} = \text{Integer value (U)} - 12$$

$$\text{He Compound} = \text{Mantissa} \times 10^{\text{Exponent}}$$

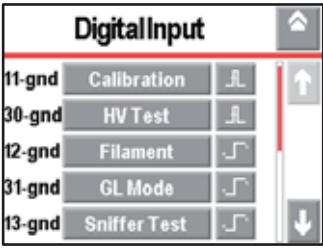
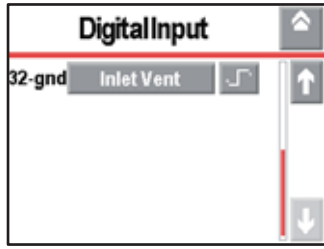
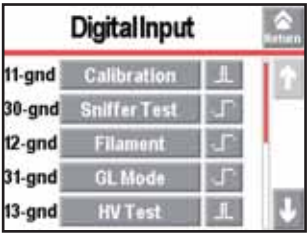
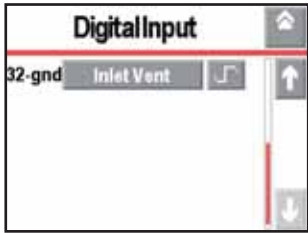
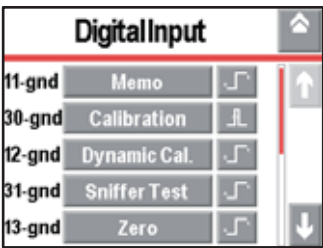
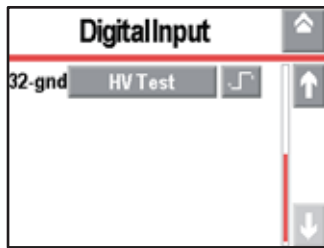
Examples

- U = 3.91 V → He Compound = $10 \times (3.91 - 3) \times 10^{(3-12)} = 9 \cdot 10 \cdot 10^{-9}$
- U = 8.25 V → He Compound = $10 \times (8.25 - 8) \times 10^{(8-12)} = 2.50 \cdot 10^{-4}$

4.4.5 Digital Input

6 optocoupled digital inputs.

Detector	Digital input menu
ASM 340	

Detector	Digital input menu
ASM 380	 
ASM 390 ASM 392	 
ASI 35	 

Setting

xx-gnd	⇒ Select the value to be allocated: see table below. ⇒ Select the activation mode: see table below.
Value	Function
None	Not allocated
HV test	Start/Stop a hard vacuum test
Calibration	Start an autocalibration
Zero	Activate/Deactivate Zero function
He memo	Activate/Deactivate Memo function
Dynamic cal.	Start a dynamic calibration ⁽²⁾
Sniffer test	Start/Stop a sniffer test
Filament	Force stop/start filament
GL mode	Force detector in Gross Leak test mode ⁽¹⁾
NR mode	Force detector in Normal test mode ⁽¹⁾
HS mode	Force detector in High Sensitivity test mode ⁽¹⁾
Inlet vent	Opening/closing of the inlet vent valve ⁽¹⁾
Rec. Graph	Start/stop data recording
Save Graph	Save recorded data on a SD card
Bypass	Activate/Deactivate Bypass (accessory)
HLT Calib	Calibration for HLT 5xx/HLT 2xx compatibility ⁽¹⁾
Check Cal	Start a calibration checking
Internal Cal	Start an internal calibration ⁽¹⁾
External Cal	Start an external calibration
Machine Cal	Start a machine calibration ⁽¹⁾
Clear	Reset warning and error message
Sniff./Vac.	Test method selection
Start/Stop	Start/Stop a test (hard vacuum or sniffing)

⁽¹⁾ Function available depending on leak detector option



Activation on rising edge
Deactivation on falling edge



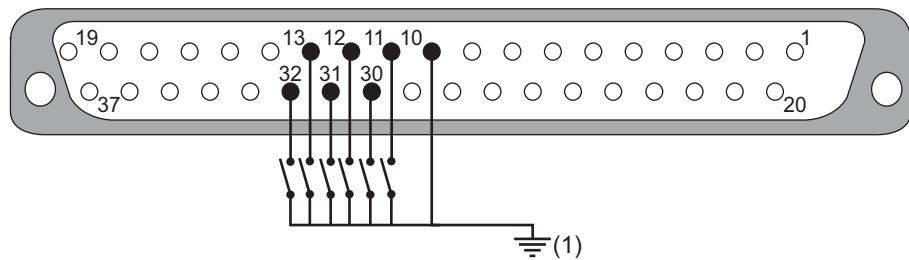
Activation on falling edge
Deactivation on rising edge



Activation/Deactivation by impulse

- Activation on rising edge is generally recommended.
- Activation on falling edge is recommended for a function which must be activated on positive security.
- Activation by impulse is recommended for a test start/stop by the operator, an external pushbutton or a test pedal.

Diagram



(1) Internal ground: SW1 = ON
External ground: SW1 = OFF

Example

The examples given below illustrate 3 standard uses of digital inputs for which we recommend configuring the 24 V and mode described in the example (e.g.: pushbutton with internal 24 V and impulsion mode).

However, as 24 V and modes are adjustable, you can configure them differently.

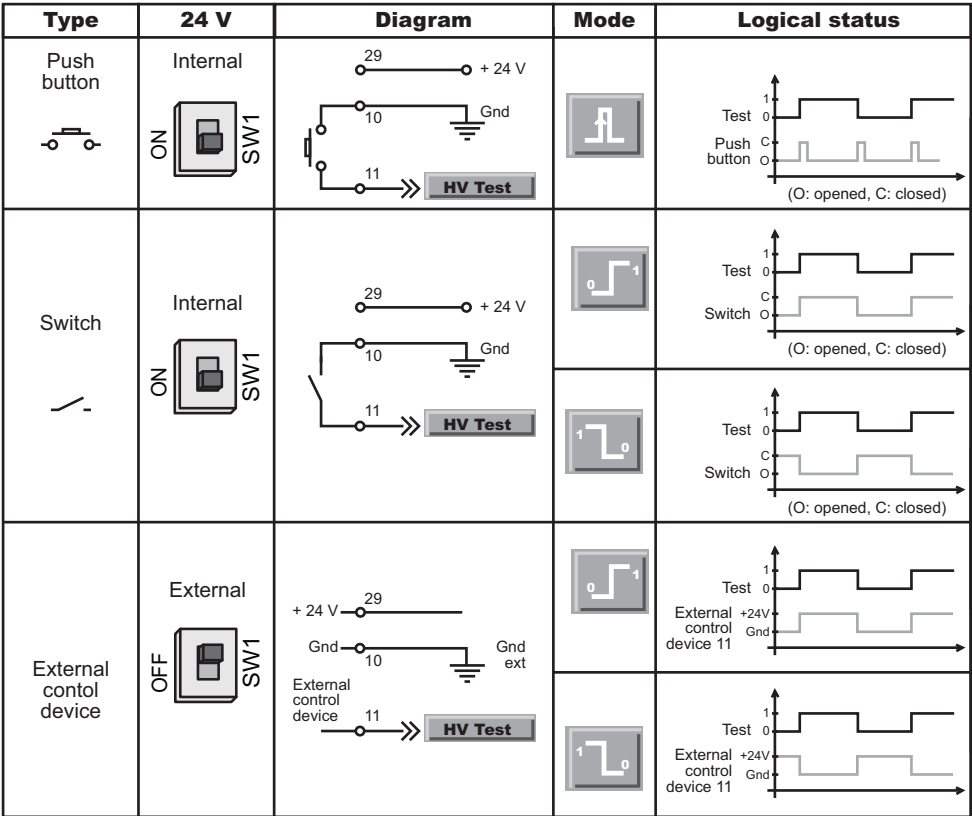


Fig. 4: Examples of digital input use

4.4.6 Digital Output

- 4 MOSFET digital transistor outputs.
- 5 digital relay outputs: 2 DS-P relays + 3 TX relays

Detector	Digital output menus	
ASM 340	Digital Transistor Outp.. 9-28 Bypass NO 8-27 Detector Ready NO 7-26 Filament #2 NO 6-25 Warning/Error NO	Digital Relay Output 5-24 GL Test NO 4-23 N Test NO 3-22 Filament on NO 2-21 Reject point NO 1-20 HV Test NO
	Digital Transistor Outp.. 9-28 Filament on NO 8-27 Warning/Error NO 7-26 Detector Ready NO 6-25 Filament #2 NO	Digital Relay Output 5-24 Sniffing Test NO 4-23 GL Test NO 3-22 HS Test NO 2-21 HV Test NO 1-20 Reject point NO
ASM 380 ASM390 ASM392		

Detector	Digital output menus
ASI 35	Digital Transistor Outp.. 9-28 Detector Ready NO 8-27 Reject point NC 7-26 Calibration Fail NO 6-25 Detector Busy NO Digital Relay Output 5-24 Press. s.pt #1 NO 4-23 Set point #4 NC 3-22 Set point #3 NC 2-21 Set point #5 NC 1-20 General Failure NC

Configuration

x-xx	⇒ Select the value to be allocated: see table below. ⇒ Select the activation mode: see table below.
------	--

Value	Function	Configuration	
		NO	NC
		Active status	Active status
None	Not allocated		
Stand-by	Detector in Stand-by mode	C	O
HLT Stand-by	Detector in Standby awaiting calibration acquittal for the HLT compatibility ⁽⁴⁾	C	O
Test	Detector in test mode	C	O
Temp limit	Detector near max. functioning temperature	C	O
Reject point	Detector reject set point ⁽¹⁾	C	O
Set point #2	Leak rate # 2 set point ⁽¹⁾	C	O
Set point #3	Leak rate # 3 set point ⁽¹⁾	C	O
Set point #4	Leak rate # 4 set point ⁽¹⁾	C	O
Set point #5	Leak rate # 5 set point ⁽¹⁾	C	O
Warning/Error	Warning/error message	C	O
HV test	Detector in hard vacuum test	C	O
Sniffing test	Detector in sniffing test	C	O
Detector ready	Detector ready to perform a test	C	O
Calibration fail	Calibration failure	C	O
Detector busy	Detector in switching on, test or calibration mode	C	O
Filament #2 on	Filament # 2 selected	C	O
TMP synchro	Hard vacuum pump synchronized	C	O
Filament on	Selected filament ON	C	O
Snif. Clogged	Sniffer probe clogged	C	O
Press s. pt #1	Pressure # 1 set point ⁽²⁾⁽³⁾	O	C
Press s. pt #2	Pressure # 2 set point ⁽²⁾⁽³⁾	O	C
Press s. pt #3	Pressure # 3 set point ⁽²⁾⁽³⁾	O	C
HV Cor	Corrected hard vacuum leak rate	C	O
Maint. Required	Maintenance required	C	O
Sniffer valve	Sniffing valve management	C	O
GL test	Detector in Gross Leak test mode ⁽⁴⁾	C	O
N test	Detector in Normal test mode ⁽⁴⁾	C	O
HS test	Detector in High Sensitivity test mode ⁽⁴⁾	C	O
General failure	Critical failure on the detector	C	O
Test mode ok	Target test mode achieved ⁽⁴⁾	C	O
Zero	Function zero activated	C	O
Bypass	By-pass valve opening command	C	O
Calib. ack.	Validation request of a calibration step	C	O
Roughing valve	Roughing mode crossover	O	C

O = Open C = Closed

(1) Leak rate measured > rejection set point / leak value set.

(2) Measured pressure ≤ pressure set point set

(3) ASI 35 not concerned unless a pressure gauge is installed on the customer's installation.

(4) Function available depending on the leak detector model.

		Normally Open Unswitched output idle
		Normally Close Switched output idle

Digital Transistor out-puts: MOSFET transistor

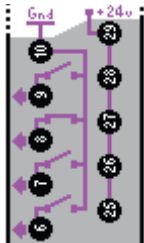


Fig. 5: MOSFET Digital Transistor outputs in the Quick View

- Characteristics
- Direct current digital outputs: MOSFET transistor.
- Quantity: 4 (6-25; 7-26; 8-27; 9-28)
 - Functions: depending on the operator's setting
 - Open collector type
 - Direct current: 30 V DC - 1 A max - 30 W

Diagram

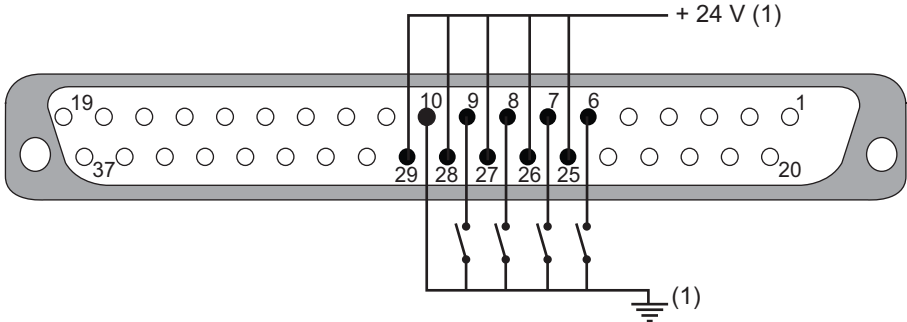


Fig. 6: Digital transistor output

- (1) Internal ground and internal + 24 V: SW1 = ON
External ground and + 24 V external: SW1 = OFF

External 24 V (± 10 %) power supply is essential to benefit from the optocoupled gate (atmosphere with interferences) and/or to supply MOSFET transistor outputs 25 to 28. In this case, the SW1 switch on the supervisor board must be in OFF position to avoid any detector deterioration.

It is possible to occasionally use leak detector internal 24 V if global power on outputs 25 to 28 is less than 2 A.



These outputs can be used to supply an electromagnetic valve (24 V DC – 24 W max).

Example The example below illustrates standard usage of digital outputs.

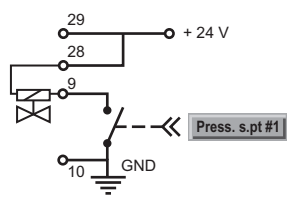
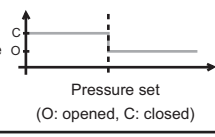
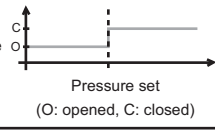
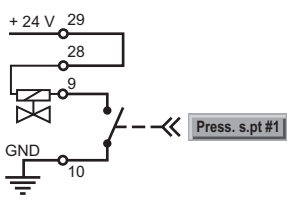
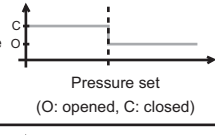
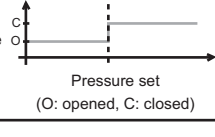
Type	24 V	Diagram	Mode	Logical status
Electrovalve 	Internal ON 		NO	
			NC	
	External OFF 		NO	
			NC	

Fig. 7: Example of digital output use

Digital Relay outputs: DS -P relay

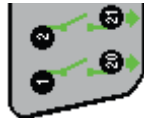


Fig. 8: DS-P digital relay output in Quick View

Characteristics

Direct/alternating current digital outputs: DS-P relay

- Quantity: 2 (1-20; 2-21)
- Functions: depending on the operator's setting
- Dry contact type
- Direct current: 60 V DC - 2.5 A max ; 30 V DC - 5 A max
- Alternating current: 60 V AC - 5 A max

Diagram

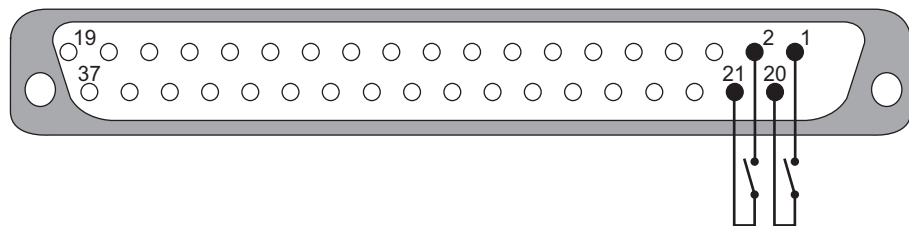


Fig. 9: DS-P digital relay output

Digital Relay outputs: TX relay

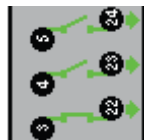


Fig. 10: TX digital relay output in Quick View

Characteristics

Direct current digital outputs: TX relay

- Quantity: 3 (3-22; 4-23; 5-24)
- Functions: depending on the operator's setting
- Dry contact type
- Direct current: 60 V DC - 1 A max ; 30 V DC - 2 A max

Diagram

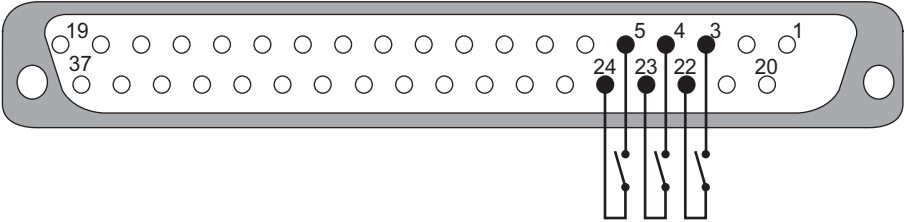


Fig. 11: TX digital relay output

Example The example below illustrates standard usage of digital outputs.

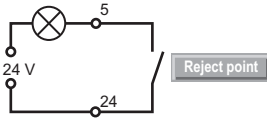
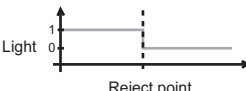
Type	24 V	Diagram	Mode	Logical status
Light 	Internal or External			
				

Fig. 12: Example of digital output use

4.4.7 Select Default Configuration

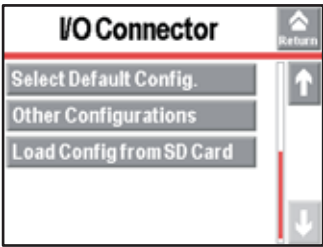
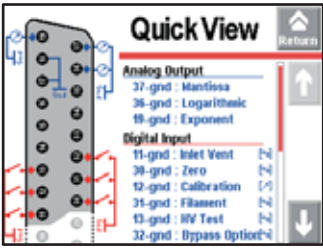
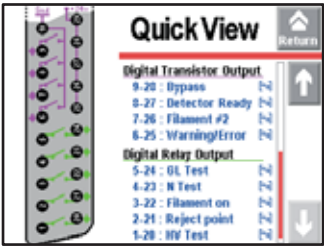
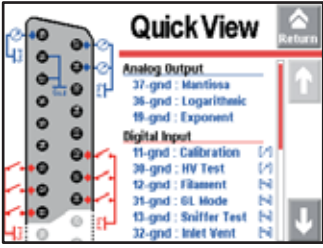
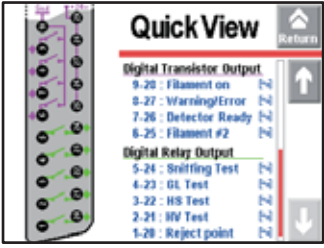
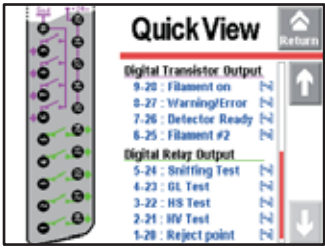
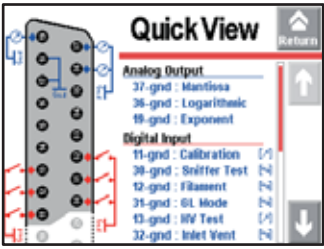
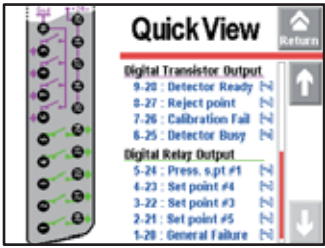
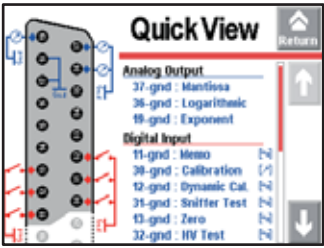


Fig. 13: I/O connector menu

This is the default configuration of the I/Os upon delivery of the detector. It is specific to one leak detector model.

Detector	Default configuration	
ASM 340		
ASM 380		

Detector	Default configuration
ASM 390 ASM 392	
ASI 35	

4.4.8 Other Configurations

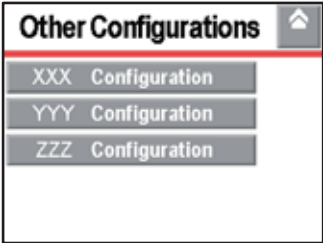
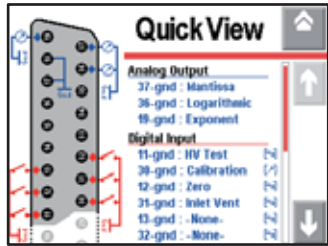
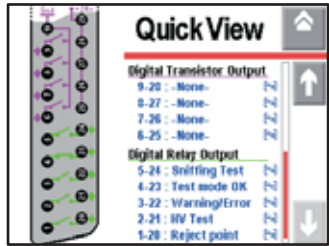
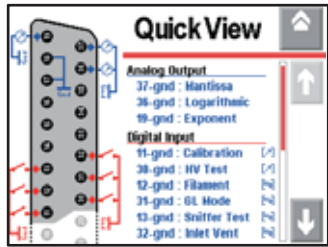
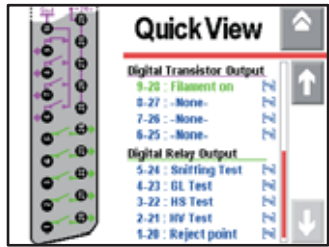
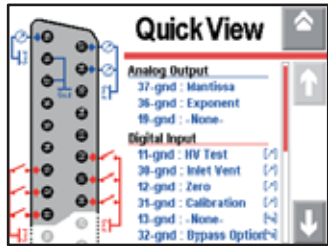
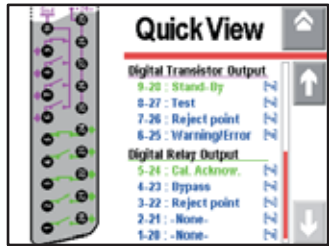
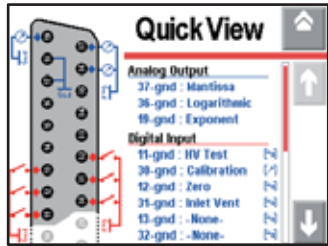
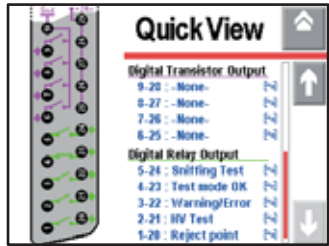
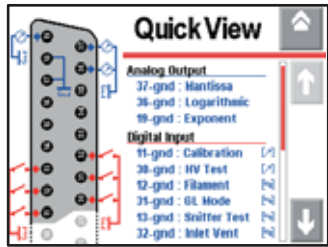
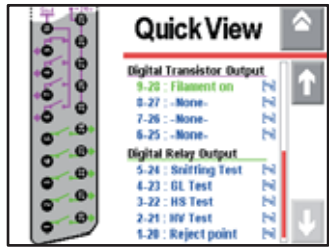
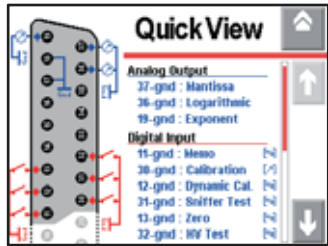
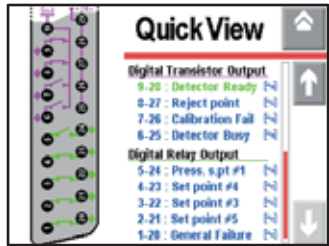


Fig. 14: Other configurations menu
3 predefined configurations are available. Each I/O can be configured according to needs.

Detector	Predefined configurations Quick view
ASM 340	ASM 142 Configuration  
	ASM 182 Configuration  
	HLT 5xx Configuration (compatible HLT 2xx)  
ASM 380	#1 Configuration  
	#2 Configuration  
	#3 Configuration  

Detector	Predefined configurations Quick view
ASM 390 ASM 392	ASM 142 Configuration
	ASM 182 Configuration
	HLT 5xx Configuration (compatible HLT 2xx)
ASI 35	ASI 20 MD Configuration
	2xxx Configuration
	3xxx Configuration

4.4.9 Load configuration from SD card

When loading, the operator loads the saved configuration of I/Os (values + activations) recorded on the SD card.

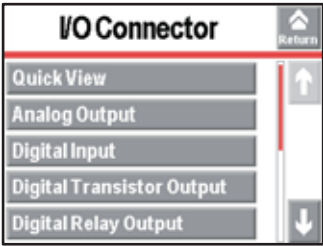


Fig. 15: Menu I/O connector

4.4.10 Internal 24 V or external 24 V power supply

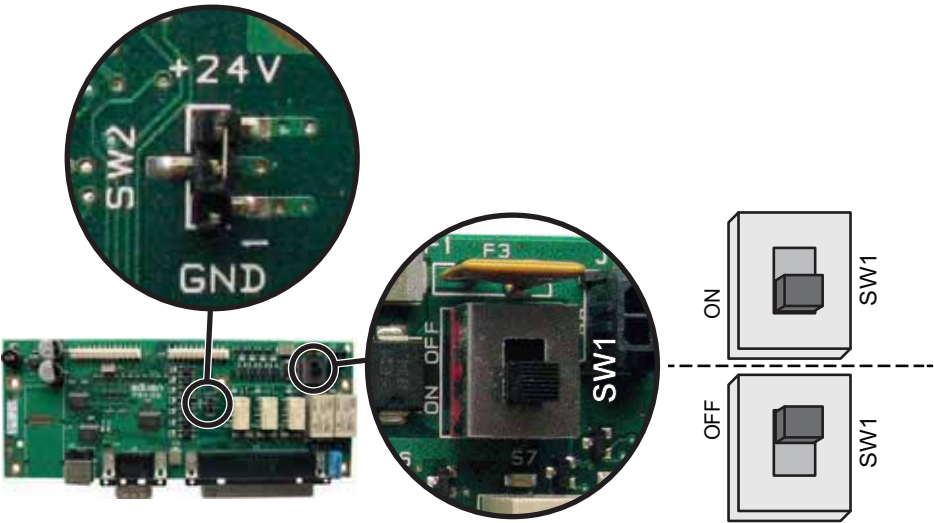
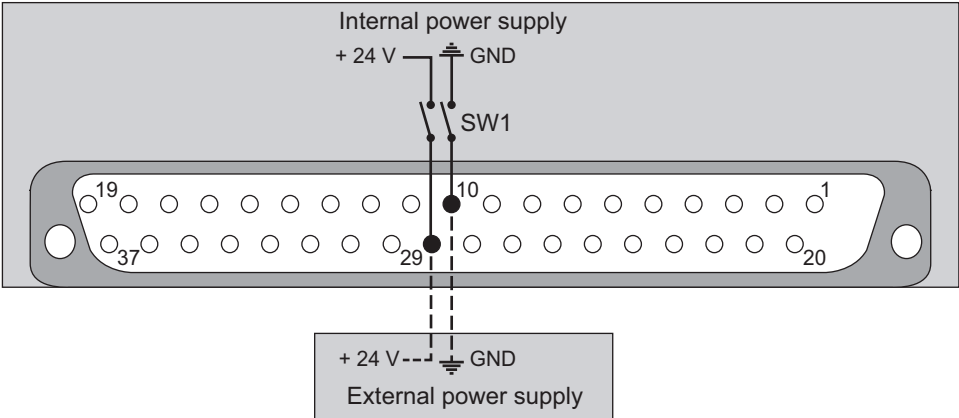


Fig. 16: SW1/SW2 location on I/O board (P0419)

Note SW2 switch must always be set on 24 V.
→ Configure SW1 switch according to power supply type.

ON	Internal power supply Internal 24 V ± 10 % + internal ground
OFF	External power supply External 24 V ± 10 % + external ground Default configuration upon delivery.



4.5 Cable I/O type ASM 142

Only available for ASM 340 leak detector (see 11.1).

This accessory enables communication with the customer's automatic systems when the ASM 142 (25 pin D-Sub) leak detector is replaced by an ASM 340 model (37 pin D-Sub). The configuration of the Sub-D plugs of these two products is the same.

- From the "Settings" screen, press **[Advanced] [Input/Output] [I/O Connector] [Other configurations] [ASM142]** (see 4.4.8).
- Connect the connecting cable between the 37 pin Sub-D connector of the detector and the customer's automatic systems.

4.6 Cable I/O type ASM 182

Only available for ASM 340 leak detector (see 11.1).

This accessory enables communication with the customer's automatic systems when the ASM 182 (25 pin D-Sub) leak detector is replaced by an ASM 340 model (37 pin D-Sub). The configuration of the Sub-D plugs of these two products is the same.

- From the "Settings" screen, press **[Advanced] [Input/Output] [I/O Connector] [Other configurations] [ASM182]** (see 4.4.8).
- Connect the connecting cable between the 37 pin Sub-D connector of the detector and the customer's automatic systems.

4.7 Modul I/O type HLT

Only available for ASM 340 leak detector (see 11.1).

This accessory enables communication with the customer's automatic systems when the HLT 5xx leak detector is replaced by an ASM 3xx (see **Operating instructions of the Compatibility Modul I/O - HLT**).

4.8 Modul I/O type ASI 20 MD

Only available for ASI 35 leak detector (see 11.4).

This accessory enables communication with the customer's automatic systems when the ASI 20 MD type leak detector is replaced by an ASI 35 (see **Operating instructions of the Modul I/O type ASI 20 MD**).

4.9 Modul I/O type 2xxx or 3xxx

Only available for ASI 35 leak detector (see 11.4).

This accessory enables communication with the customer's automatic systems when the 2xxx or 3xxx type leak detector is replaced by an ASI 35 (see **Operating instructions of the Modul I/O type 2xxx/3xxx**).

5 Setting (USB - Wi-Fi - Ethernet)

Wi-Fi not available for ASI 35 / ASM 390 / ASM 392 leak detectors.

5.1 Allocation of Serial Link 1 and Serial Link 2

From the «Settings» screen, press **[Advanced] [Input/Output]**.

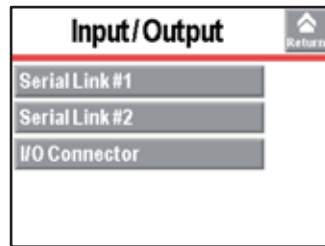


Fig. 17: Input/Output menu

Select [Serial Link 1] or [Serial Link 2] to access the setting menu

Type ⇨ Set the type of serial link: see table below.

Parameters ⇨ Set the serial link mode: see table below.

Type The operator must allocate the 2 serial links (1 and 2) according to their use.

Use	ASM 340	ASM 380	ASM 390	ASM 392	ASI 35	Possible allocation		Type to select
						Serial Link 1	Serial Link 2	
RS-232	x	x	x		x	Yes	No	Serial
Bluetooth ⁽¹⁾	x	x				No	Yes	Bluetooth
USB ⁽²⁾	x	x	x		x	Yes	Yes	USB
Wi-Fi ⁽³⁾	x	x				No	Yes	Network
Ethernet ⁽⁴⁾	x	x	x		x	No	Yes	Network
Bluetooth transmitter for RC 500 WL remote ⁽⁵⁾	x	x	x			Yes	No	Serial
RC 10 remote control ⁽⁵⁾	x	x	x		x	Yes	No	Serial
ECB WiFi remote ⁽⁵⁾	x	x	x		x	Yes	No	Serial

(1) Option or accessory

(2) With all I/O boards (option or accessory)

(3) With I/O Wi-Fi board (option or accessory)

(4) With I/O Ethernet board (option or accessory)

(5) Accessory

Parameters → From the "Settings" screen, press **[Advanced] [Input/Output] [Serial Link 1] or [Serial Link 2] [Parameters]**.

Modes list: according to leak detector model, some modes are not available.

Mode	Description	Use ⁽¹⁾		
		RS-232 ⁽¹⁾	Bluetooth ⁽²⁾	USB ⁽³⁾ Wi-Fi ⁽²⁾⁽³⁾ Ethernet ⁽³⁾
Basic	Continuous acquisition of data according to a defined time duration. At any time, a command can be sent to the leak detector. 5 V power supply available.	x	x	x
Spreadsheet	Variant on the Basic mode. Continuous data acquisition, formatted in a spreadsheet such as Excel Microsoft® Office or other similar software. 5 V power supply available.	x	x	x
Advanced	Full control of the detector by a supervisor. The detector sends information at the supervisor's request. 5 V power supply available. Recommended mode for automatic systems.	x	x	x
Export Data	Export, via a PC, of "tickets" issued by the detector after: • Calibration with an internal/external calibrated leak, • Calibration control with an internal leak, • A test. 5 V power supply available. Serial links 1 and 2 must not be in "Export Data" mode at the same time.	x	x	x
RC 500 WL	Use of a wireless remote control (model RC 500 WL). ⁽¹⁾ 5 V power supply available.	x	x	-

Mode	Description	Use ⁽¹⁾		
		RS-232 ⁽¹⁾	Bluetooth ⁽²⁾	USB ⁽³⁾ Wi-Fi ⁽²⁾⁽³⁾ Ethernet ⁽³⁾
RC 500	Use of a wired remote control (model RC 500). ⁽¹⁾ 24 V power supply available.	x	-	-
HLT 5xx	Protocol for compatibility with the HLT 5xx detector protocol. 5 V power supply available. List of orders for the protocol compatible with ASM 340/ASI 35 (See <i>RS-232 Operating instructions</i>).	x	-	x
HLT 2xx	Protocol for compatibility with the HLT 2xx detector protocol. 5 V power supply available. List of orders for the protocol compatible with ASM 340/ASI 35 (See <i>RS-232 Operating instructions</i>).	x	-	x
Ext. Module	Full control of the detector by a supervisor. The detector sends information at the supervisor's request. 24 V power supply available. A 24 V power supply is required for using an external module (example: profibus).	x	-	-

(1) Available for all models of leak detectors

(2) Not available for ASM 390/392

(3) Not available for ASM 310

5.2 MAC address

The following addresses MAC, necessary for the installation of the drivers of the Wi-Fi or Ethernet modules, are available on the label stuck to the detector or accessory.

HLD1302577 - RS232 Bluetooth MAC address XXXXXX / None Network MAC address xx:xx:xx:xx:xx:xx / None
--

Fig. 18: Example Address label MAC

6 Command via USB

Available on any detector equipped with the 37 pin I/O board.



If the RS-232 link is already occupied for another use, the USB allows to pilot the detector by the RS commands by recreating a serial port, as if the RS-232 link was used.

6.1 Cable

- Always use an A-B type USB cable.
- The cable is not supplied and must be bought separately.

6.2 Localization

To locate the connector, please refer to the **Connection interface** chapter of the leak detector operating instructions.

6.3 Starting up

6.3.1 Setting

→ Allocate the 'USB' type to serial link 1 or 2 (see 5.1).

6.3.2 Driver installation

Displays are given as examples only (Windows 7). They can vary depending on the computer system.

Do not connect the USB cable before installing the driver.

- Insert the CDRom (or USB key) of the detector's operating Manual into your player.
- Install the 'Driver_FTDI_VPC' driver supplied in the "Driver" folder of the operating Manual CDRom (or USB key).
- Start driver installation.

Note Windows 8 : Run this programmable in compatibility mode for Windows 7.



Fig. 19: Driver installation start screen

- Validate the different stages and then **[Finish]**.
- Start driver extraction.

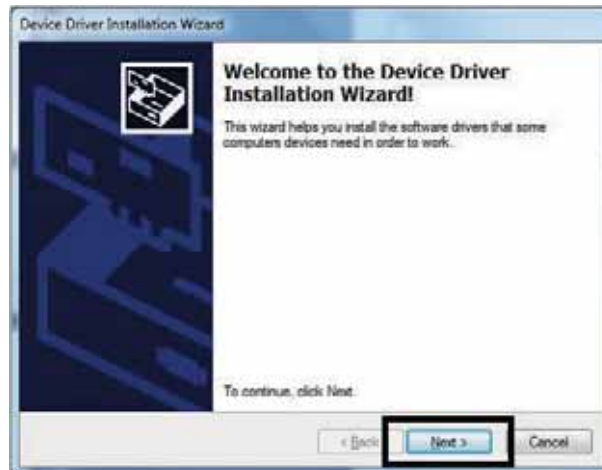


Fig. 20: Driver extraction start screen

→ Validate the different stages and then **[Finish]**.



Fig. 21: Driver extraction end screen

- Connect a cable between the USB port and your computer. As soon as the cable is connected, the USB module is detected.
- To know which USB port is allocated, consult your computer's device manager: Device Manager > Ports (COM & LPT).

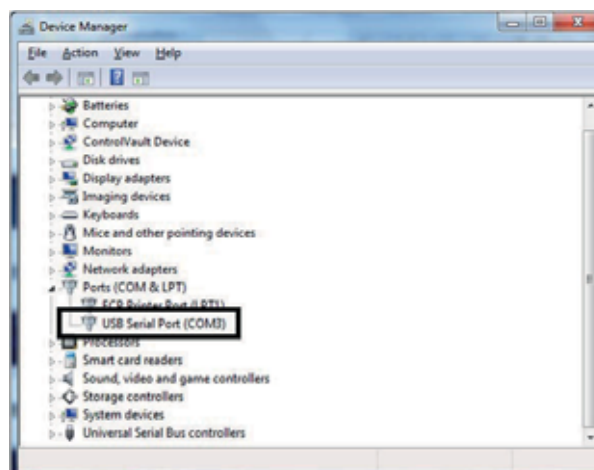


Fig. 22: Device screen

In our example, the USB port is allocated to COM 3.

→ Use this COM port as RS-232.

7 Command via Wi-Fi/Ethernet

Available on any detector equipped with a 37 pin Wi-Fi/Ethernet I/O board.

Wi-Fi not available for ASI 35 / ASM 390 / ASM 392 leak detectors.

Once the driver has been installed and configured, the operator has a virtual RS-232 serial link to manage the leak detector from a compatible computer.

The detector can be controlled by using the RS-232 commands (see **RS-232 operating instructions**).

7.1 Localization

- Wi-Fi** To locate the connector, please refer to the **Connection interface** chapter of the leak detector operating instructions.
- Ethernet** To locate the connector, please refer to the **Connection interface** chapter of the leak detector operating instructions.

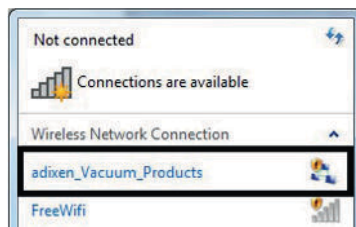
7.2 Module access

Displays are given as examples only (Windows 7). They can vary depending on the computer system.

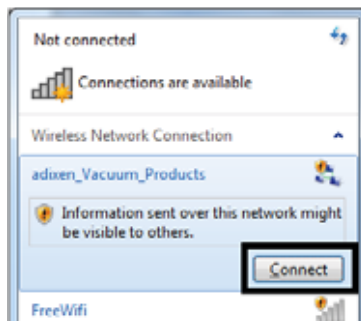
- Wi-Fi** The Wi-Fi antenna is supplied with the I/O board: screw-on.
Creation of the Wi-Fi module network:



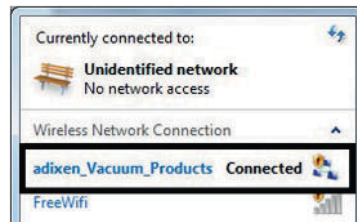
→ Select the "adixen_Vacuum_Products" Wi-Fi network.



→ Connect to the Wi-Fi network.



→ The detector is connected to the Wi-Fi network.



Ethernet The cable is not supplied and must be bought separately.

→ Connect a cable between the Ethernet port and your computer. As soon as the cable is connected, the USB module is detected.

7.3 Starting up

7.3.1 Setting

→ Allocate the 'Network' type to serial link 2 (see 5.1).

7.3.2 Driver installation

Displays are given as examples only (Windows 7). They can vary depending on the computer system.

1. Programme installation

Note Windows 8: Run program in compatibility mode for Windows 7.

→ Install the "Device Discovery" programme supplied in the "Driver" folder of the CDrom (or USB key) of your leak detector's operating Manual.

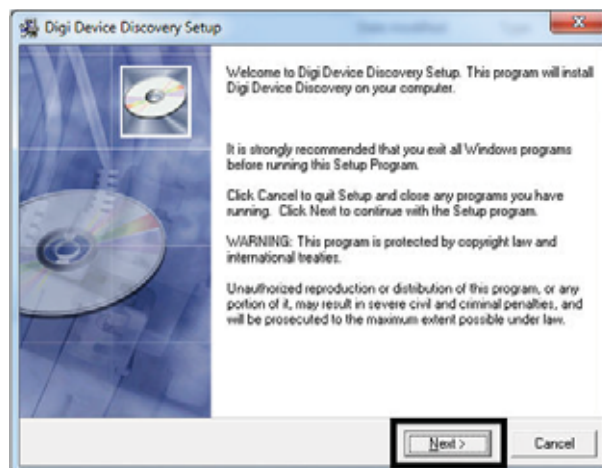


Fig. 23: Programme installation start

→ Validate the different stages and then [Finish].

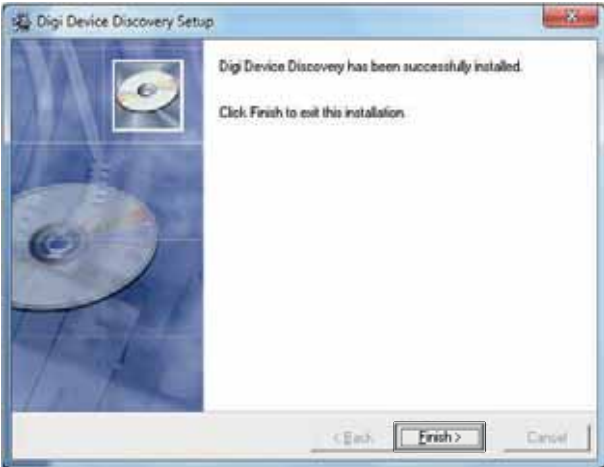


Fig. 24: Programme installation end screen

2. Change in the IP address of the Wi-Fi/Ethernet module

→ Start the "Digi Device Discovery" programme: the Wi-Fi/Ethernet module is automatically detected.

The module is not automatically detected if the sub-network is not correctly set. The sub-network address by default is 192.168.x.x

Note Contact your Network administrator for the IP addresses to be configured.

→ Otherwise, re-start detection: click on [Refresh view].

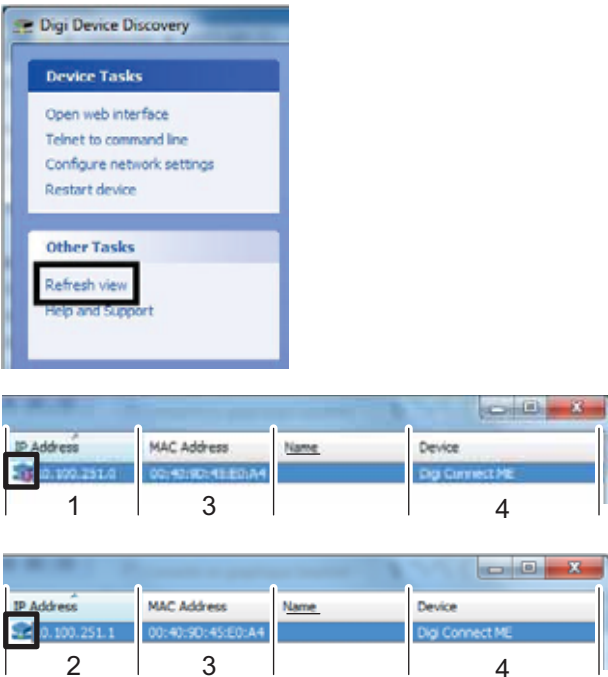
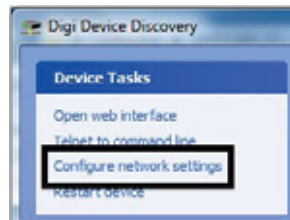


Fig. 25: Example: Ethernet module detected and undetected display

1	"Not properly configured" message displayed in the details.
2	Module detected: IP address correct (icon OK)
3	Module identification MAC address The MAC address is unique and specific to each Wi-Fi/Ethernet module. It is indicated on the module and the identification label stuck to the detector frame. To select a detector from several detected, select the MAC address of the desired detector.
4	Type of module: "Digi Connect WI-ME" for Wi-Fi"Digi Connect ME" for Ethernet

→ Change the module's IP address to be in the same sub-network as your computer.



→ Change and save the addresses.

Note Contact your Network administrator for the IP addresses to be configured.

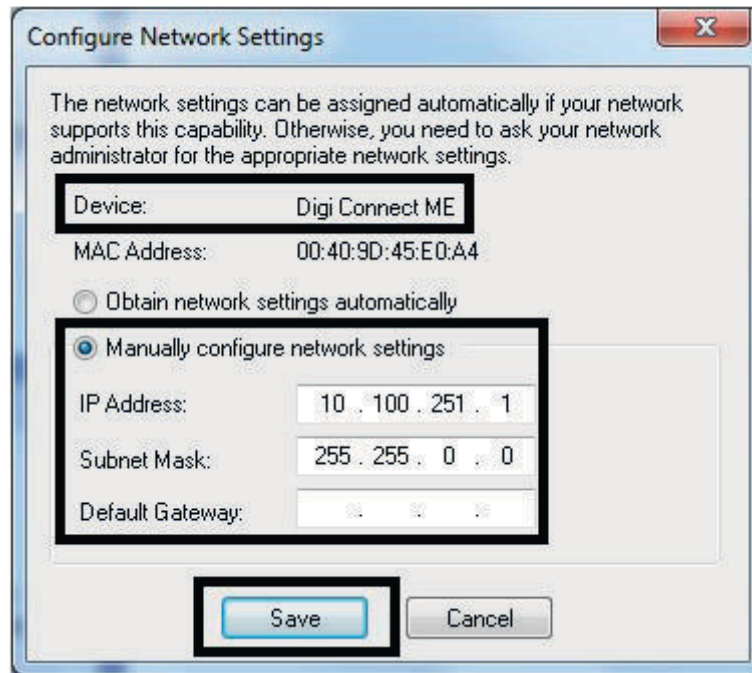


Fig. 26: Address configuration example

→ To finalise the IP address update, restart connection to module [OK].



Fig. 27: Restart connection to the module

3. Allocation of a serial port to the Wi-Fi/Ethernet module

→ Install the "Digi Real Port" driver supplied in the "Driver" folder of the CDrom (or USB key) of your leak detector's operating Manual.



Fig. 28: Installation home page

- Validate the different stages and then **[Finish]**.
- Start the "Digit Real Port" driver: the Wi-Fi/Ethernet module is automatically detected. If it is not detected, refresh.

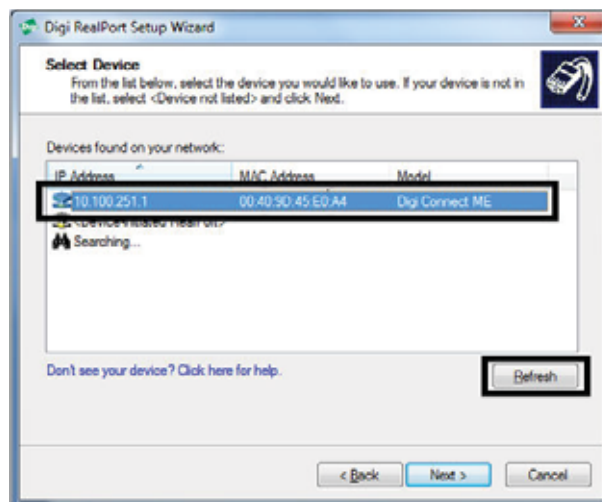
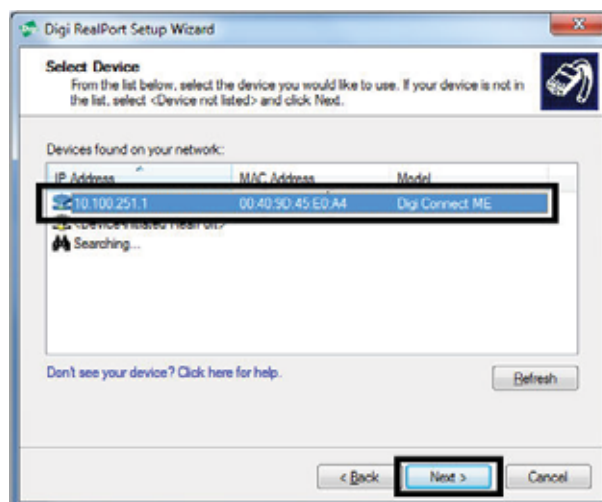


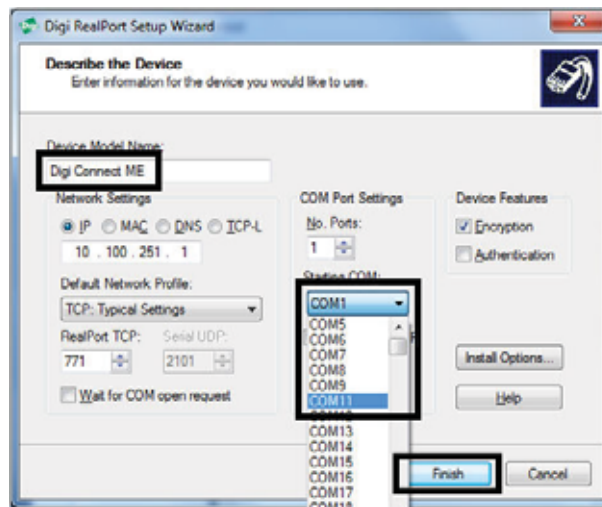
Fig. 29: Example: Ethernet module detected

- Select the Wi-Fi/Ethernet module to be allocated to a PC serial port, then **[Next]**.



- Select the Wi-Fi/Ethernet module.

→ Select a serial port number from the list and then **[Finish]**.



In our example, the Ethernet port is allocated to COM 11.
The virtual port selected is in the process of being created.

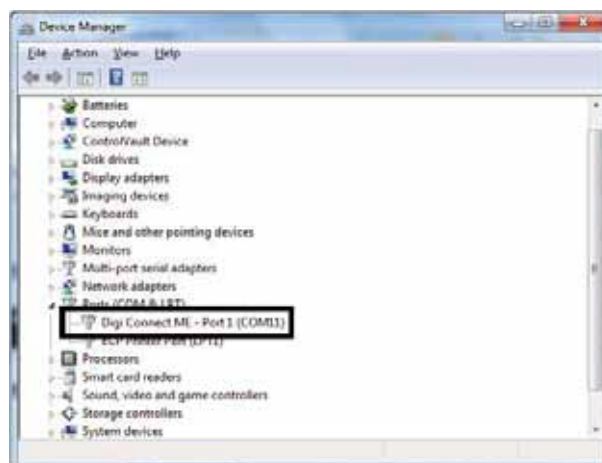


Fig. 30: Digi Real port installation

The virtual port is created.

4. Visualisation of the port created for the Wi-Fi/Ethernet module

→ View the new port created in your device manager: Device Manager > Ports (COM and LPT)



→ Use this COM port as RS-232.

7.3.3 Uninstall

Select the Wi-Fi/Ethernet module allocated to a PC serial port to be uninstalled, then **[Uninstall]**.

7.3.4 Transmission limits

Only with Wi-Fi module

Generally, indoors, we allow a range of 25 m in a dense environment (with large obstacles) and 60 m if there are only thin partitions to cross.

8 Malfunctions

In case of difficulties when using these communication interfaces, please refer to the **Malfunction** chapter of the leak detector maintenance instructions.

9 Disposal



WARNING

Environmental protection

The product or its components must be disposed of in accordance with the applicable regulations relating to environmental protection and human health, with a view to reducing natural resource waste and preventing pollution.

10 Service

Pfeiffer Vacuum offers first-class customer service!

- On-Site maintenance for many products
- Overhaul/repair at the nearby Service Location
- Fast replacement with refurbished exchange products in mint condition
- Advice on the most cost-efficient and quickest solution

Detailed information, addresses and forms at: **www.pfeiffer-vacuum.com (Service)**.

Overhaul and repair at the Pfeiffer Vacuum Service Center

The following general recommendations will ensure a fast, smooth servicing process:

- ➔ Fill out the "Service Request/Product Return" form and send it to your local Pfeiffer Vacuum Service contact.
- ➔ Include the confirmation on the service request from Pfeiffer Vacuum with your shipment.
- ➔ Fill out the declaration of contamination and include it in the shipment (mandatory!). The Declaration of contamination is valid for any product/device including a part exposed to vacuum.
- ➔ Dismantle all accessories and keep them.
- ➔ Close all the flange opening ports by using the original protective covers or metallic airtight blank flanges for contaminated devices.
- ➔ If possible, send the pump or unit in its original packaging.

Sending contaminated pumps or devices

No devices will be accepted if they are contaminated with micro-biological, explosive, or radioactive substances. "Hazardous substances" are substances and compounds in accordance with the hazardous goods regulations (current version).

- ➔ Neutralize the pump by flushing it with nitrogen or dry air.
- ➔ Close all openings airtight.
- ➔ Seal the pump or device in suitable protective film.
- ➔ Return the pump/device only in a suitable and sturdy transport container and send it in while following applicable transport conditions.

Pump or device returned without declaration of contamination form fully completed and/or not secured in suitable packaging will be decontaminated and/or returned at the shipper's expense.

Exchange or repair

The factory operating parameters are always pre-set with exchange or repaired devices. If you use specific parameters for your application, you have to set these again.

Service orders

All service orders are carried out exclusively according to our general terms and conditions for the repair and maintenance, available on our website.

11 Spare parts

Spare parts available to the sale are listed in this chapter.

11.1 ASM 340

Description	P/n
Sub D 37 Pin Plug (Without Cover)	118733
Sub D 37 Pin Plug Cover	118732
Cable I/O type ASM 142 - 340	A333758
Cable I/O type ASM 182 - 340	A335068
Module I/O type HLT - 340	122742
I/O interface module - 340	121350S
I/O interface + Wi-Fi module - 340	121351S
I/O interface + Ethernet module - 340	121352S

11.2 ASM 380

Description	P/n
Sub D 37 Pin Plug (Without Cover)	118733
Sub D 37 Pin Plug Cover	118732
I/O interface module - 380	118088
I/O interface + Wi-Fi module - 380	118089
I/O interface + Ethernet module - 380	118090

11.3 ASM 390/392

Description	P/n
Sub D 37 Pin Plug (Without Cover)	118733
Sub D 37 Pin Plug Cover	118732
I/O interface module - 390/392	126254
I/O interface + Ethernet module - 390/392	126255

11.4 ASI 35

Description	P/n
Sub D 37 Pin Plug (Without Cover)	118733
Sub D 37 Pin Plug Cover	118732
Module I/O type ASI 20 MD - ASI 35	123352
Module I/O type 2xxx - ASI 35	123353
Module I/O type 3xxx - ASI 35	123354

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