

Titre/Title **INTERACTIVE CONTACTLESS VALIDATOR VPE420 ON-SITE AND WORKSHOP MAINTENANCE MANUAL**

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INTERACTIVE CONTACTLESS VALIDATOR VPE420 ON-SITE AND WORKSHOP MAINTENANCE MANUAL

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Contact Details

Affiliated Computer Services Solutions France SAS

Customer Service:

* Address : Affiliated Computer Services Solutions France SAS,
Rue Claude Chappe - BP 345
07503 GUILHERAND GRANGES CEDEX (FRANCE)

Phone : 33. (0)4.75.81.42.21

Fax : 33. (0)4.75.81.43.38

Return Service (repair):

* Adresse : ASCODI Industries SAS
1 rue Gilles de Roberval
Quartier Briffaut - BP 161
26906 VALENCE Cedex 9 (FRANCE)

Téléphone : 33 (0)4 75 81 42 77

Télécopie : 33 (0)4 75 81 84 41

* Adresse : Affiliated Computer Services Solutions France SAS
Service Clients Public Transport
12, rue Jules Ferry
93110 ROSNY-SOUS-BOIS (FRANCE)

Téléphone : 33.(0)1.56.63.92.00

Télécopie : 33.(0)1.56.63.92.22

WARNING

THIS DOCUMENT DESCRIBES ALL THE FUNCTIONS AND OPTIONS THAT CAN BE IMPLEMENTED ON THIS EQUIPMENT.

IN THIS DOCUMENT, THE FIGURES AND DRAWINGS ARE PROVIDED ONLY AS EXAMPLE.

IN THIS DOCUMENT, MMI SCREENS OF SOFTWARE TOOLS ARE PROVIDED AS EXAMPLE. AND CAN BE GIVEN IN EITHER FRENCH OR ENGLISH LANGUAGE. THE MMI LANGUAGE IS A SETTING PARAMETER.

IN ORDER TO KNOW YOUR EQUIPMENT SETTINGS, REFER TO THE HARDWARE SPECIFICATIONS OF THE EQUIPMENT.

Modification Sheet

Revision Approval: B		
Name	Position	Signature
Written by: G. BERNE	Customer Service	
Checked or Approved by: P. VALETTE	Technical Project Leader	
Authorized by : A. MARROT	Head of Customer Service	

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CHAPTER 1: OVERVIEW

1. ABBREVIATIONS

VPE 420	Interactive contactless validator type VPE420
CPU	Central Processing Unit
FLASH	Electrically Programmable Memory (parallel access)
LCD	Liquid Cristal Display
LED	Light Emitting Diode
MMI	Man machine Interface
N.U.	Not Used
RS232	} Standard data links
RS422	
RS485	
Ethernet	
TLB	Teleticketing (ContactLess Ticketing)

2. PRESENTATION

2.1 GENERAL PRESENTATION

This device is a contactless reader-encoder unit which processes ISO/IEC 14 443-compliant contactless cards.

With its modern design similar to mobile communication devices, this interactive validator VPE420 is much more than a simple validation tool.

With a large color touch screen and voice synthesis, it is a truly modern communication tool, prestigious for the image of transport networks.

The screen offers a contextual display which indicates only the right information at the right time (contactless target, keys, pictograms...). This helps user understanding and the flow of validations is therefore increased.

Of an innovative concept, the wide-range contactless antenna integrated in the screen enables the easy validation of all types of contactless media: card, ticket, NFC telephone, NFC Smart Object, simply by placing the media in front of the screen when invited to do so.

Activated on request, the voice synthesis effectively guides users with sight impairments.

Over and beyond ticketing, the combination of sound, image and touch enables a multitude of possibilities such as the display and vocal announcement of the next stop, transmission of passenger information messages; performing "on the spot" satisfaction surveys, transmission of video spots or advertising banners ...

However with all this, the validator still remains reliable, robust and ecological. In fact it contains no battery, which reduces its impact on the environment and eliminates preventive maintenance operations.



Figure 1: Interactive contactless validator + flange assembly

The validator can be fixed on a vertical tube of 25 to 35 mm diameter through a support which integrates and hides the connectors and cables.



Once installed on its support the validator is slightly inclined to facilitate reading and entry on the screen.

The support integrates an identification memory module which enables the memorization of information such as the identification of the validator, of the vehicle, its IP address... Thus, in case of replacement of the validator, the new one automatically recovers the context information.

The unit is locked by a hidden lock underneath the support.

Unlocking opens a flap with gives access to a USB connector thus enabling the connection of a USB peripheral (key, keyboard, mouse).



3. DESCRIPTION

3.1 BLOCK DIAGRAM



Item	Designation
1	Validator VPE 420
2	VPE 420 Touch screen (capacitive or resistive)
3	Speaker
4	RFID Antenna
5	Capacitive touch
6	External connector
7	Brackets SAM

Figure 2: VPE 420 block diagram

3.2 DESCRIPTION OF FUNCTIONS

For details, refer to the interactive contactless validator VPE 420 hardware specifications.

3.2.1 Validator casing

This comprises a front and rear cover in molded ABS/PC with no screw apparent when the validator is mounted on its support.

3.2.2 Support

It consists of an aluminium flange attached to the tube by 2 threaded rods bent into a U and a flange cover moulded in ABS-PC attached to the flange to decorate the back of validator.

The flange has an anti-rotation peg to prevent the validator to turn around the tube.

As an option, the validator may be supplied with a support enabling its mounting on a flat surface (wall, panel...).

3.2.3 Internal resources

- ARM core processor.
- Memories:
 - SDRAM: 128 Mbytes
 - FLASH: 256 Mbytes extensible to 32 Gbytes
- Identification module (present in the support): 256 bytes.
- Calendar, protected at least 3 days in the event of power supply cutout.
- Operating system: Windows CE 6.0 R3.

3.2.4 Touch screen

6"5 TFT screen mounted in portrait mode.

- Technology: color TFT graphic.
- Definition: 640 x 480 pixels (VGA).
- Touch panel: Projected capacitive, or resistive.

3.2.5 Sound module

The sound module is formed by a loudspeaker by which pre-recorded messages or sounds are broadcast in Wav or MP3 format (optional) with a sound rating of up to 72 dB at 1 m.

3.2.6 Contactless interface

The contactless interface comprises:

- A radio coupler complying with standard ISO/IEC 14443 (type A and B) supporting the Innovatron B' protocol. Optionally, the coupler can integrate the Felica standard (Type C) and be "EMV contactless" compatible.
- An antenna.
- Four SAM supports.

Main characteristics of interface:

- Carrier frequency: 13.56 MHz.
- Communication speed with contactless card: up to 424 Kbit/s.
- Range: 0 to 10 cm depending on type of contactless media.

3.2.7 Communication interfaces

3.2.7.1 RS232/RS422/RS485/SAEJ1708

Two ports, configurable for RS232 or RS422 or RS485, with one configurable additionally for SAEJ1708.

3.2.7.2 Ethernet

One Ethernet, 10/100 base TX.

3.2.7.3 USB

One USB 2.0 master interface; accessible under the validator after unlocking.

3.2.7.4 Input - Output interfaces

Two opto-isolated inputs and four dry contact outputs.

4. MODES OF OPERATION

According to the address to which the validator is wired, it can work in “master” or “slave” mode of peripheral equipment.

“Master” Mode

In this mode, the validator is master of the dialogue between equipment (console, beacons, validator, etc.).

Data exchange and loading of the RTP file may be carried out:

- through an infrared connection from a portable terminal,
- or through a beacon or WiFi system to a land site.

Generally, this mode is used when the validator is alone.

“Slave” Mode

In this case, the validator is linked in long distance transmission through a serial connection to the master equipment (console or validator).

Generally, this mode is used as slave of a master validator or when the console has a printer.

“Autonomous” Mode

Thanks to the internal ticket machine and a back up memory, the validator may function in “autonomous” mode, i.e. not connected to master equipment.

“Degraded” Mode

Due to a dialogue failure, the validator may function in “degraded” mode until the system works correctly again. This functioning mode is defined by application parameters. During this mode, the validations are memorized and will be transmitted to the master machine when the dialogue is resumed.

Refer to the interactive contactless validator VPE 420 hardware specifications, functional specifications.

5. MAIN CHARACTERISTICS

5.1 PHYSICAL CHARACTERISTICS

- Height: approximately 250 mm
 - Width: approximately 146 mm
 - Depth: approx. 95 mm (in relation to the front of the tube)
 - Weight of the Validator with the flange support: < 1,5 Kg approximately
- These values are given for the Validator + flange assembly.

5.2 ENVIRONMENTAL CHARACTERISTICS

5.2.1 Climatic characteristics

- Operating temperature range: -25°C to +55°C
- Storage temperature range: -30°C to +70°C
- Humidity: 95% HR
- Without condensation at 35°C
- Protection index: IP54.
- Protection impact index IK07.

5.2.2 Electrical characteristics

The Validator is powered on vehicles equipped with a nominal 12-Volt or 24-Volt battery.

- For 24 Vdc Battery 18 Vdc to 32 Vdc.

	24Vdc nominal
Maximum power consumption	600mA

- For 12 Vdc Battery 9 Vdc to 16 Vdc.

	12Vdc nominal
Maximum power consumption	1200mA

The Validator is protected against polarity reversals and against power surges.

The Validator's power line must be protected by a circuit breaker or fuse, calibrated as follows:

- 2 amperes for one Validator – VPE420.
- 4 optional digital outputs (isolated relay):
 - 2 SPST-NO relays isolated outputs
 - 2 SPDT relays isolated outputs
 - Contacts ratings:
 - Max switching voltage: 60VDC
 - Max switching current: 1A
 - Contacts protections against overvoltage and over current due to switching operations.

–2 optional opto-coupled isolated inputs:

Forward voltage: from 8VDC to 60 VDC.

Forward current: 10 mA.

Protection against reverse voltage.

5.3 FUNCTIONAL CHARACTERISTICS

Refer to the interactive contactless validator VPE 420 functional specifications.

6. EXTERNAL CONNECTIONS



Link to support kit for external connections (power, serial connections, maintenance)

Flange assembly

Figure 3: Presentation of the external connection

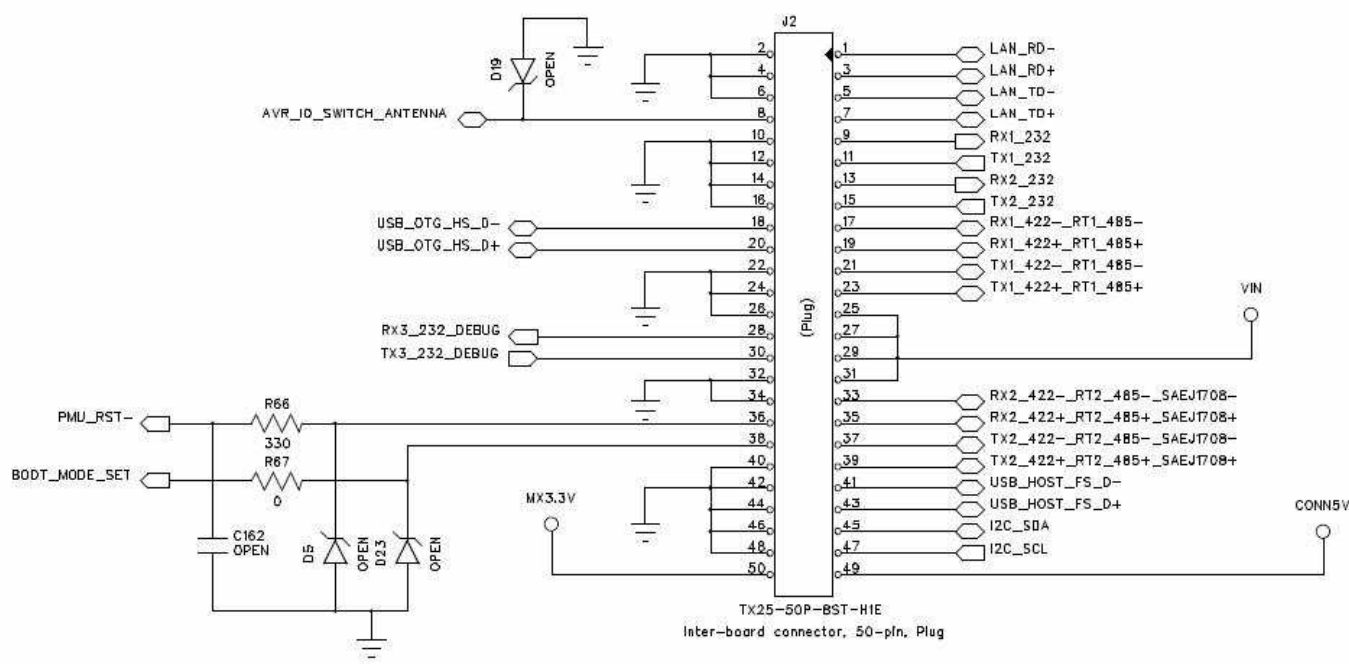
6.1 VALIDATOR CONNECTION

Refer to the interactive contactless validator VPE 420 hardware specifications.

The functional connections of VPE 420 are made through a single male connector (J2), Connector type 50P TX25-50P-8ST-H1E:

- DC power supply: +24V,
- the COM1 to COM2 links,
- the Relay outputs,
- the isolated inputs,
- one USB 2.0 master interface,
- the Ethernet link (COM4).

Connecteur J2 of UC board: External Connection:



6.2 CONNECTIONS ON CONNECTION BOARD



Figure 4: Connection board

Connector J2: power supply

Connector J7: COM 1 and COM2 only RS485 and RS422 configured

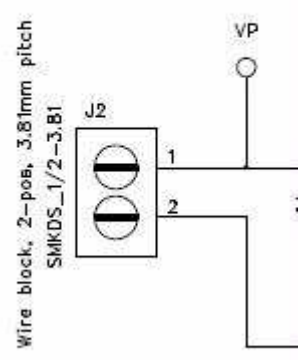
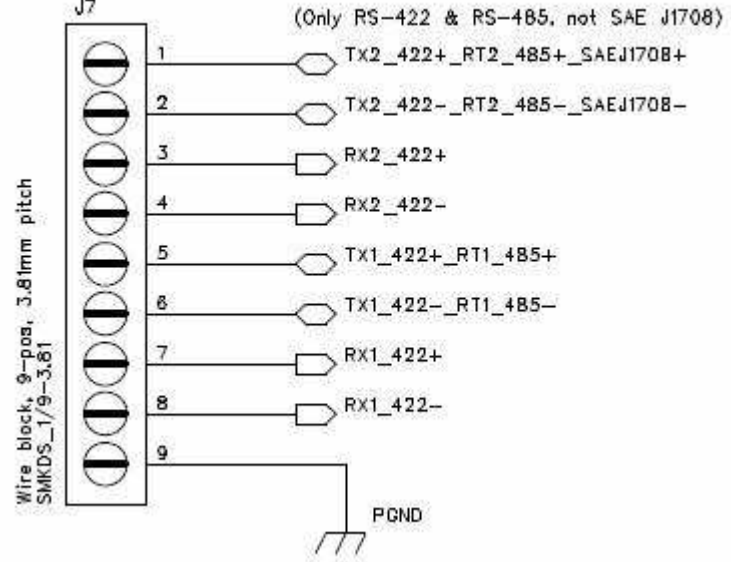
Connector J6: COM 1 and COM2 only RS232 configured, and Ethernet COM

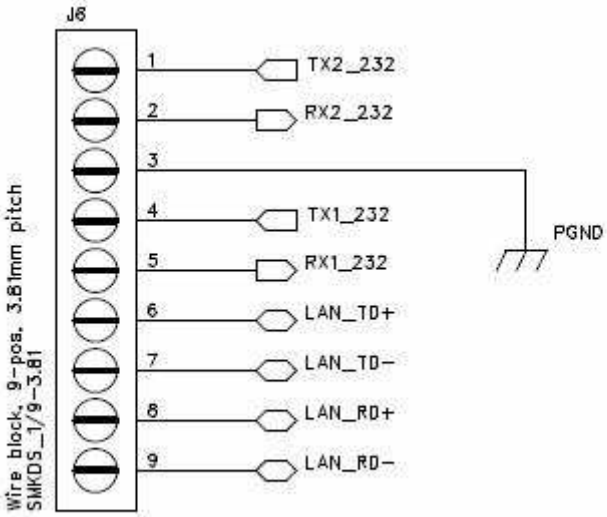
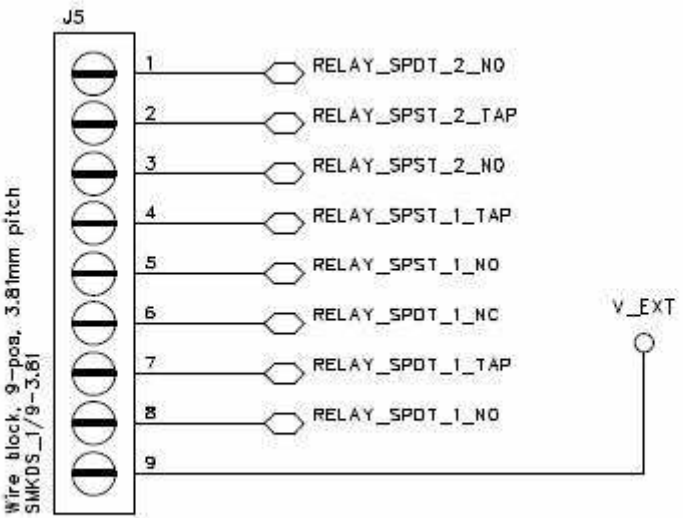
Connector J5: several configuration of two outputs

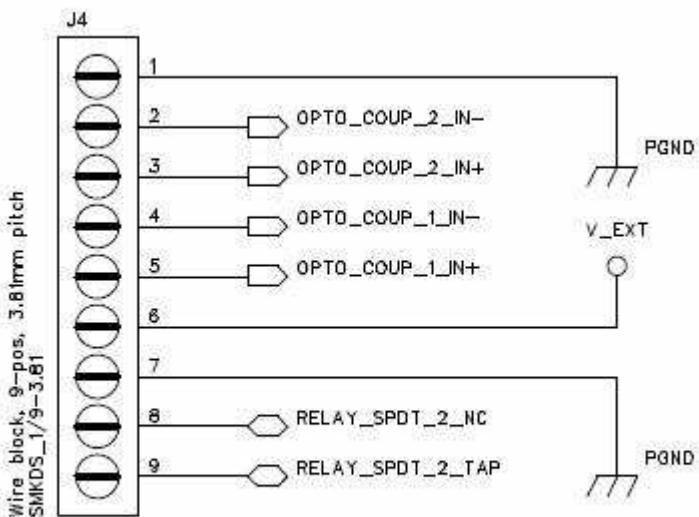
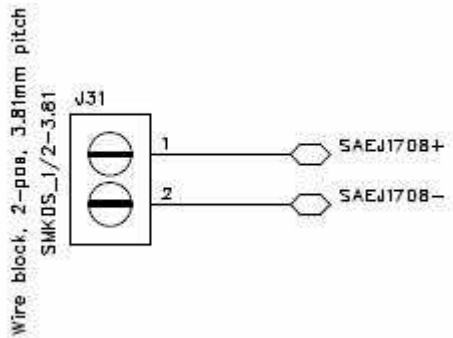
Connector J4: two inputs and one outputs

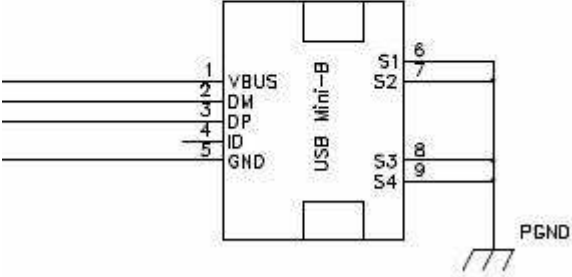
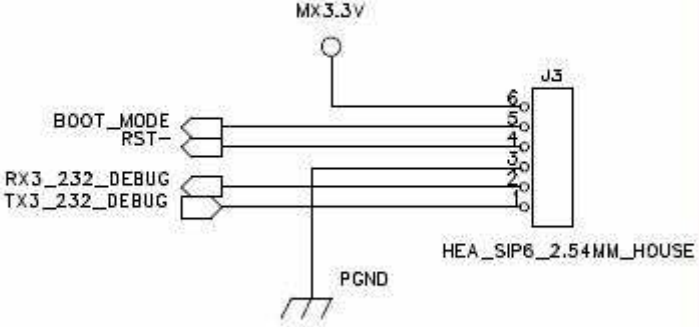
Connector J31: COM2 SAEJ1708 configured

6.2.1 Details of the connections board

Connector	Schema
<p>Connector J2: power supply</p>	<p>(9V–32V)</p>  <p>Wire block, 2-pos, 3.81mm pitch SMKDS_1/2-3.81</p> <p>Pin1 : VP Pin 2 : PGND</p>
<p>Connector J7: COM1 and COM2 only RS485 and RS422 configured</p>	<p>(Only RS-422 & RS-485, not SAE J1708)</p>  <p>Wire block, 9-pos, 3.81mm pitch SMKDS_1/9-3.81</p> <p>1 TX2_422+_RT2_485+_SAEJ1708+ 2 TX2_422-_RT2_485-_SAEJ1708- 3 RX2_422+ 4 RX2_422- 5 TX1_422+_RT1_485+ 6 TX1_422-_RT1_485- 7 RX1_422+ 8 RX1_422- 9 PGND</p>

Connector	Schema
<p>Connector J6: COM1 and COM2 only RS232 configured, and Ethernet COM</p>	 <p>Wire block, 9-pos, 3.81mm pitch SMKDS_1/9-3.81</p> <p>J6</p> <p>1 TX2_232</p> <p>2 RX2_232</p> <p>3 PGND</p> <p>4 TX1_232</p> <p>5 RX1_232</p> <p>6 LAN_TD+</p> <p>7 LAN_TD-</p> <p>8 LAN_RD+</p> <p>9 LAN_RD-</p>
<p>Connector J5: several configuration of two outputs</p>	 <p>Wire block, 9-pos, 3.81mm pitch SMKDS_1/9-3.81</p> <p>J5</p> <p>1 RELAY_SPDT_2_NO</p> <p>2 RELAY_SPST_2_TAP</p> <p>3 RELAY_SPST_2_NO</p> <p>4 RELAY_SPST_1_TAP</p> <p>5 RELAY_SPST_1_NO</p> <p>6 RELAY_SPDT_1_NC</p> <p>7 RELAY_SPDT_1_TAP</p> <p>8 RELAY_SPDT_1_NO</p> <p>9 V_EXT</p>

Connector	Schema
<p>Connector J4: two inputs and one outputs</p>	 <p>Wire block, 9-pos, 3.81mm pitch SMKDS_1/9-3.81</p> <p>J4</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>PGND</p> <p>V_EXT</p> <p>PGND</p> <p>OPTO_COUP_2_IN-</p> <p>OPTO_COUP_2_IN+</p> <p>OPTO_COUP_1_IN-</p> <p>OPTO_COUP_1_IN+</p> <p>RELAY_SPDT_2_NC</p> <p>RELAY_SPDT_2_TAP</p>
<p>Connector J31: COM2 SAEJ1708 configured</p>	 <p>Wire block, 2-pos, 3.81mm pitch SMKDS_1/2-3.81</p> <p>J31</p> <p>1</p> <p>2</p> <p>SAEJ1708+</p> <p>SAEJ1708-</p>

Connector	Schema
Connector J38: for USB KEY, USB KEYBOARD, etc.	<div><p>USB Device for debug only</p><p>J38 1-1240014-00 (TAI5DL)</p></div>
Connector J3: for DEBUG and OS download	<div><p>(For debug and OS download.)</p></div>

Connector	Schema
Connector J8: LAN socket is for debug only	<p>(LAN socket is for debug only)</p> <p>LAN_TD+ LAN_TD- LAN_RD+ LAN_RD-</p> <p>1 RJ1_TX+ 2 RJ2_TX- 3 RJ3_RX+ 4 RJ4 5 RJ5 6 RJ6_RX- 7 RJ7 8 RJ8</p> <p>RJ-45 (8P8C) (vertical)</p> <p>J8 CON_RJ45_8P8C_VERT</p> <p>PGND</p> <p>PGND</p>

7. CONFIGURATION VPE420

7.1 VALIDATOR ADDRESS

Addressing is done by switches SW2 of the VPE420 connection board.

Address	SW2 number 1	SW2 number 2	SW2 number 3	SW2 number 4
Signal	RT_ADDR3	RT_ADDR2	RT_ADDR1	RT_ADDR0
VPE420 N°0	OFF	OFF	OFF	OFF
VPE420 N°1	OFF	OFF	OFF	ON
VPE420 N°2	OFF	OFF	ON	OFF
VPE420 N°3	OFF	OFF	ON	ON
VPE420 N°4	OFF	ON	OFF	OFF
VPE420 N°5	OFF	ON	OFF	ON
VPE420 N°6	OFF	ON	ON	OFF
VPE420 N°7	OFF	ON	ON	ON
VPE420 N°8	ON	OFF	OFF	OFF
VPE420 N°9	ON	OFF	OFF	ON
VPE420 N°10	ON	OFF	ON	OFF
VPE420 N°11	ON	OFF	ON	ON
VPE420 N°12	ON	ON	OFF	OFF
VPE420 N°13	ON	ON	OFF	ON
VPE420 N°14	ON	ON	ON	OFF
VPE420 N°15	ON	ON	ON	ON

Warning: Switches are set 1 when they are set on position "ON".

7.2 CONFIGURATIONS AND POLARISATION COM 1 ET COM2

7.2.1 Configuration COM1

CONFIG COM1	SW1.10	SW1.9	SW1.8	SW1.7	SW1.6	SW1.5	SW1.4	SW1.3	SW1.2	SW1.1
RS-232	N.U	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
RS-422 non-polarized and non adapted	N.U	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
RS-485 non-polarized and non adapted	N.U	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON
RS-422 polarized and adapted	N.U	ON	ON	ON	ON	ON	ON	OFF	OFF	ON
RS-485 polarized and adapted	N.U	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON

When The COM1 is configured in RS 422

- SW1.4: Enable to polarize TX1_422+ with a pull-up
- SW1.5: Enable to adapt the emission of RS422
- SW1.6: Enable to polarize TX1_422- with a pull-down
- SW1.7: Enable to polarize RX1_422+ with a pull-up
- SW1.8: Enable to adapt the reception of RS422
- SW1.9: Enable to polarize RX1_422- with a pull-down

7.2.2 Configuration COM 2

CONFIG COM2	SW3.10	SW3.9	SW3.8	SW3.7	SW3.6	SW3.5	SW3.4	SW3.3	SW3.2	SW3.1
RS-232	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
RS-422	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
RS-485	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
SAJ1708	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON

CONFIG COM2	SW2.10	SW2.9	SW2.8	SW2.7	SW2.6	SW2.5
RS-232	OFF	OFF	OFF	OFF	OFF	OFF
RS-422 non-polarized and non adapted	OFF	OFF	OFF	OFF	OFF	OFF
RS-485 non-polarized and non adapted	OFF	OFF	OFF	OFF	OFF	OFF
SAJ1708	OFF	OFF	OFF	OFF	OFF	OFF
RS-422 polarized and adapted	ON	ON	ON	ON	ON	ON
RS-485 polarized and adapted	OFF	OFF	OFF	ON	ON	ON

When The COM2 is configured in RS 422

- SW2.10: Enable to polarize TX2_422-with a pull-down
- SW2.9: Enable to adapt the emission of RS422
- SW2.8: Enable to polarize TX2_422+ with a pull-up
- SW2.7: Enable to polarize RX2_422+ with a pull-up
- SW2.6: Enable to adapt the reception of RS422
- SW2.5: Enable to polarize RX2_422- with a pull-down

8. INTERCONNECTIONS

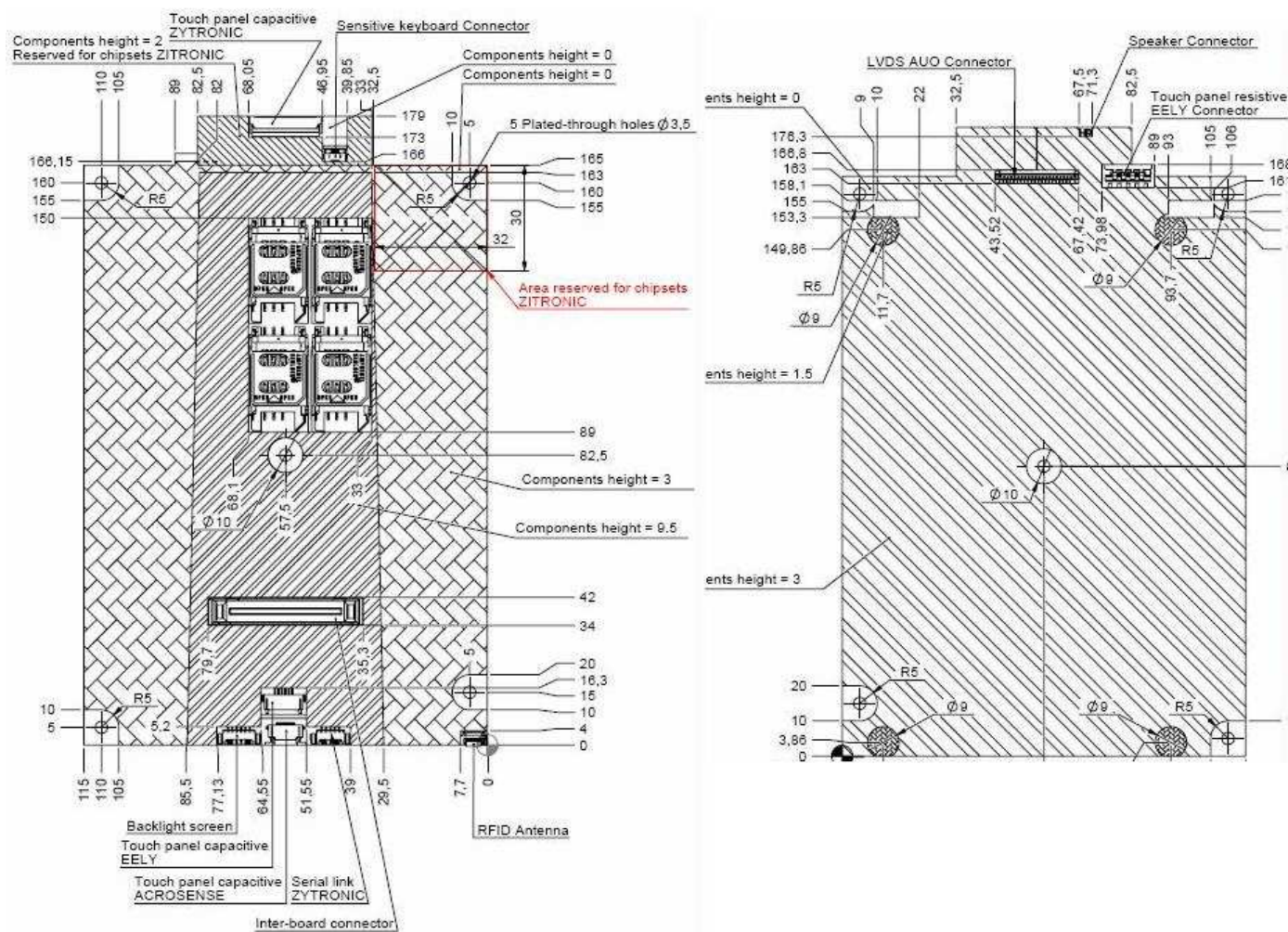


Figure 5: Interactive Contactless validator VPE 420 interconnexions

9. DOCUMENTATION OF ASSOCIATED EQUIPMENT

- ~ Interactive contactless validator product datasheet
Reference: SES5409
- Interactive Contactless Validator VPE420 - installation specifications and requirements
Reference: OPE2790

CHAPTER 2: PREVENTIVE MAINTENANCE

1. CHANGING “OPERATIONAL” CONSUMABLES

Not applicable.

2. ON-SITE PREVENTIVE MAINTENANCE

2.1 PURPOSE OF THE ON SITE PREVENTIVE MAINTENANCE

The purpose to check and possibly repair, worn parts in order to keep the equipment in permanent good working condition.

2.2 NECESSARY TOOLS

Not applicable.

2.3 ON SITE PREVENTIVE MAINTENANCE OPERATIONS

Not applicable.

3. PREVENTIVE MAINTENANCE IN WORKSHOP

3.1 PURPOSE OF THE WORKSHOP PREVENTIVE MAINTENANCE

The roles of the maintenance technician, who must be trained to work on this type of equipment, are:

- Analyze the defect related to the specified alarm code.
- If possible, start-up the VPE 420 again.
- Complete 1st level section service sheet if the VPE 420 is dismantled.
- Keep track of the dismantled VPE 420, with the service sheet attached, to the maintenance workshop.

3.2 NECESSARY TOOLS

Not applicable.

3.3 ON SITE PREVENTIVE MAINTENANCE OPERATIONS

Not applicable.

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CHAPTER 3: CORRECTIVE MAINTENANCE

1. ON-SITE CORRECTIVE MAINTENANCE

1.1 PURPOSE OF SITE MAINTENANCE

The tasks of the maintenance technician, who must be trained to operate this type of equipment, are:

- Analyze the defects relative to customer information.
- Complete the first level section of the intervention sheet.
- Keep track of the equipment, with the intervention sheet attached, to the maintenance workshop.

1.2 NECESSARY TOOLS

Tooling is in metric measurement.

- Equipment key wrench.
- Star screwdriver set from 6 to 30 (not provided by ACS).
- Flat screwdriver set from 4 to 8 (not provided by ACS).
- Digital multimeter.

1.3 SITE CHECKLIST AND REPAIR ACTIONS FOR FAILURE AND ALARM CODES

To be defined.

1.3.1 Component code (atlas system)

To be defined.

1.3.2 Alarm Code: XXX (atlas system)

To be defined.

1.3.3 List of alarms

See project alarm list or the functional specification of the equipment.

1.4 TABLE OF FAULT CODES

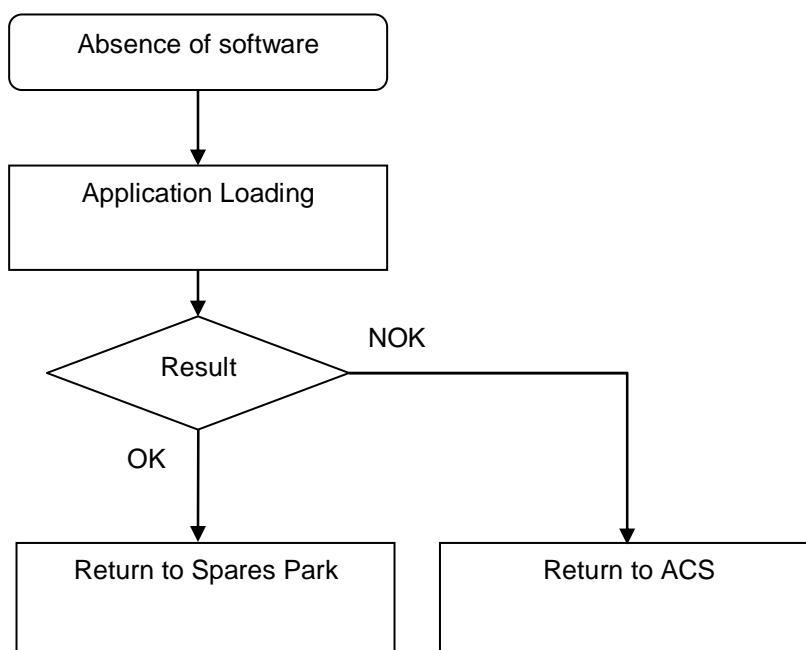
For a detailed description of alarm codes available on the equipment, see the alarm specification.

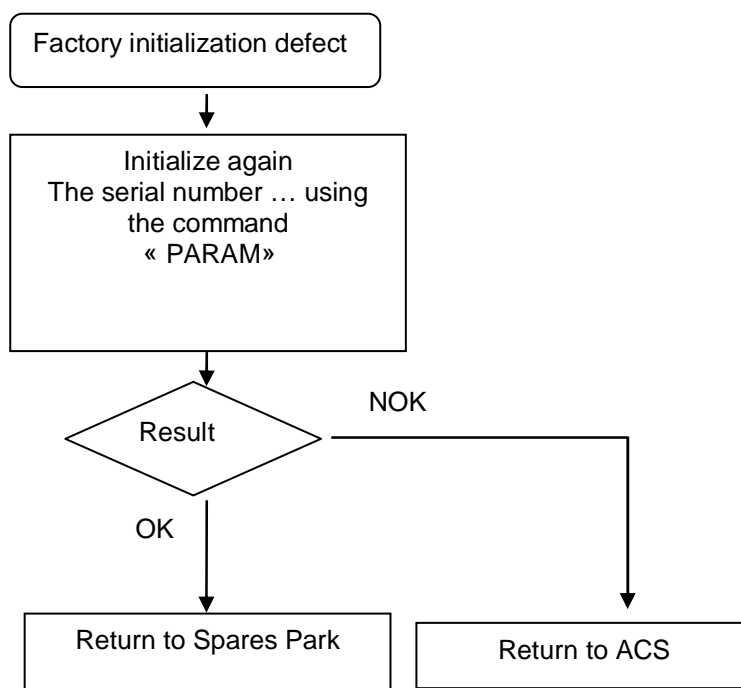
The table below lists all the maintenance procedures to be performed before returning equipment to the ACS Repair Workshop.

A group of logical diagrams describes these different maintenance interventions to be performed according to the alarm code present on the equipment.

Removal-Installation Procedure	Paragraph concerned
VPE 420 exchange	See 1.7 page 31.
Application loading procedure for cases where the VPE 420 is on boot	Chapter 11.4.3 page 29
Maintenance menu integrated in the application software	Chapter 11.4.4 page 29

Logical Diagram N°1: Absence of software



Logical Diagram N2: Factory Initialization Defect**1.4.1 Power up of the VPE 420**

To be defined.

1.4.2 Application launch

To be defined.

1.4.3 Application load Procedure in cases where the VPE 420 is on boot**Procedure:**

To be defined.

1.4.4 Maintenance menu integral to application software**Procedure:**

To be defined.

1.5 INITIALIZING VPE 420

To be defined.

1.6 TESTS

1.6.1 Processing of a transport medium

To be defined.

1.6.2 Functional tests

To be defined.

1.7 VPE 420 EXCHANGE

The unit is locked by a hidden lock underneath the support.

Unlocking opens a flap with gives access to a USB connector thus enabling the connection of a USB peripheral (key, keyboard, mouse).



The mounting/dismantling of the validator on its support is done easily in a few seconds.



Dismantling the validator



Mounting of the validator

Figure 6: VPE 420 exchange

1.8 SUBASSEMBLIES EXCHANGE

1.8.1 SAM EXCHANGE



Figure 7: SAM exchange

Removing

- Remove the VPE 420.
- On the CPU (1), remove the SAMs from brackets (2).
- For the fourth SAM, disassembled the new Hood assembly.

Installation

- On the CPU (1), install the SAMs from brackets (2).
- Mount the VPE 420.
- For the fourth SAM, Mount the rear Hood assembly.

Note 1 : The CPU has 4 brackets SAM.

2. CORRECTIVE MAINTENANCE IN THE WORKSHOP

2.1 PURPOSE OF CORRECTIVE MAINTENANCE IN THE WORKSHOP

The tasks of the maintenance technician, who must be trained to operate this kind of equipment, are:

- to analyze the defects with the instruments supplied by the on-site maintenance personnel,
- to repair the equipment by replacing subassemblies or components,
- to complete the worksheet,
- to return the equipment to the site to which it is assigned.

Note : If a replacement is necessary, CUT power supply of equipment.

2.2 NECESSARY TOOLS

- Star screw driver.
- Multimeter.
- Adjustable stable feeding 35 V - 1 A.
- Equipment key.

2.3 ADJUSTMENTS

To be defined.

2.4 TEST

To be defined.

2.5 SUBASSEMBLIES EXCHANGE

Only an authorized and qualified person qualified and trained in the maintenance can remove and install subassemblies.

Exchange procedures concern all subassemblies that can be mounted. Do not consider those that are not part of your applications.

In exchanging subassemblies, refer to the interconnections 7 page 18.



Before performing any work on equipment, make sure power is **OFF**.

Tightening torque to be observed during assembly:

- M 2 ⇒ 2 daN/cm
- M 2,5 ⇒ 3 daN/cm
- M 3 ⇒ 7 daN/cm
- M 4 ⇒ 9 daN/cm
- M 10 ⇒ 30 daN/cm

2.5.1 Particular point due to the replacement

- The CPU must be initialized.

2.5.2 Dismantling/mounting – VPE 420

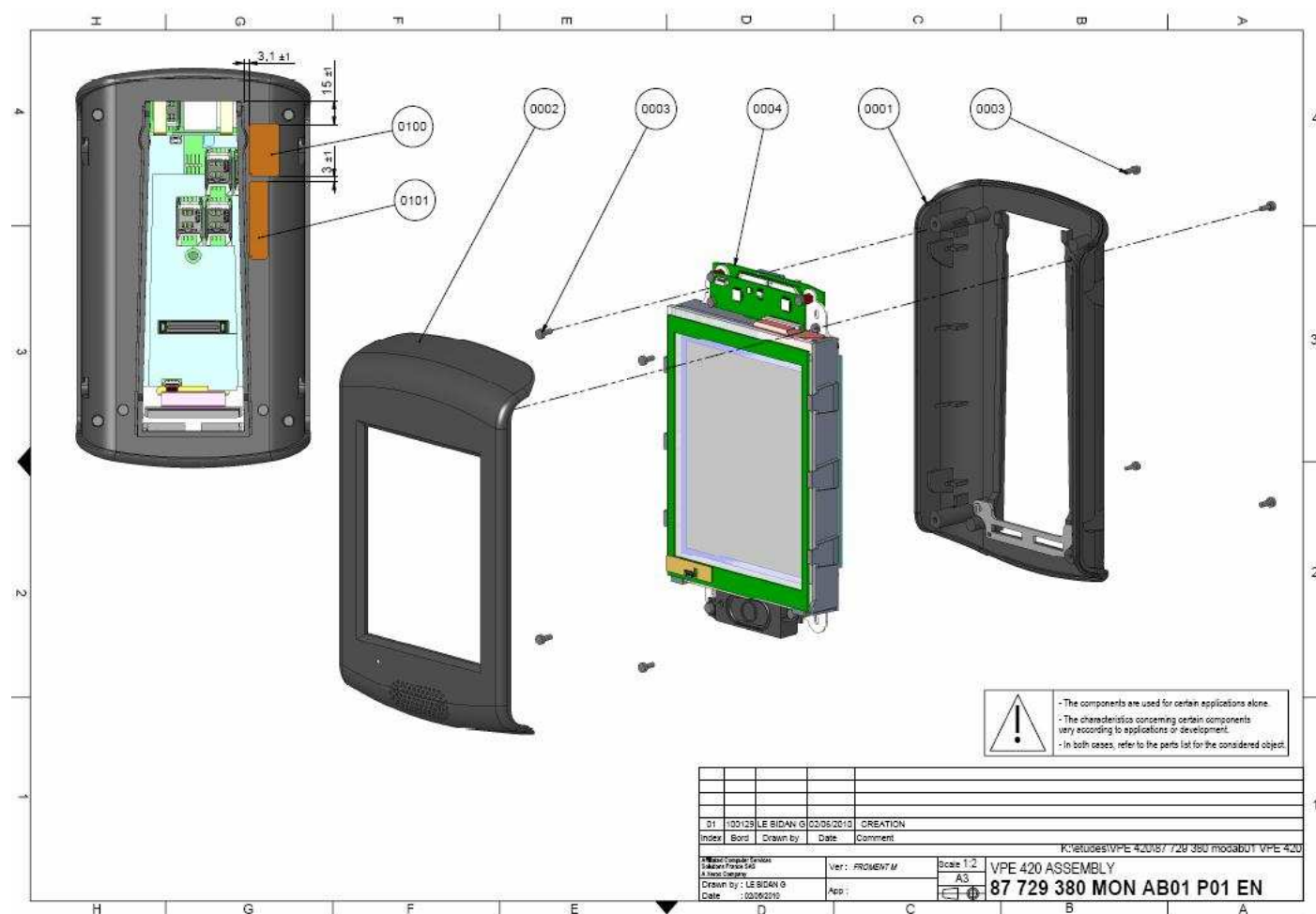


Figure 8: Dismantling/mounting – VPE 420

2.5.3 Dismantling/mounting – VPE 420 Front hood assembly

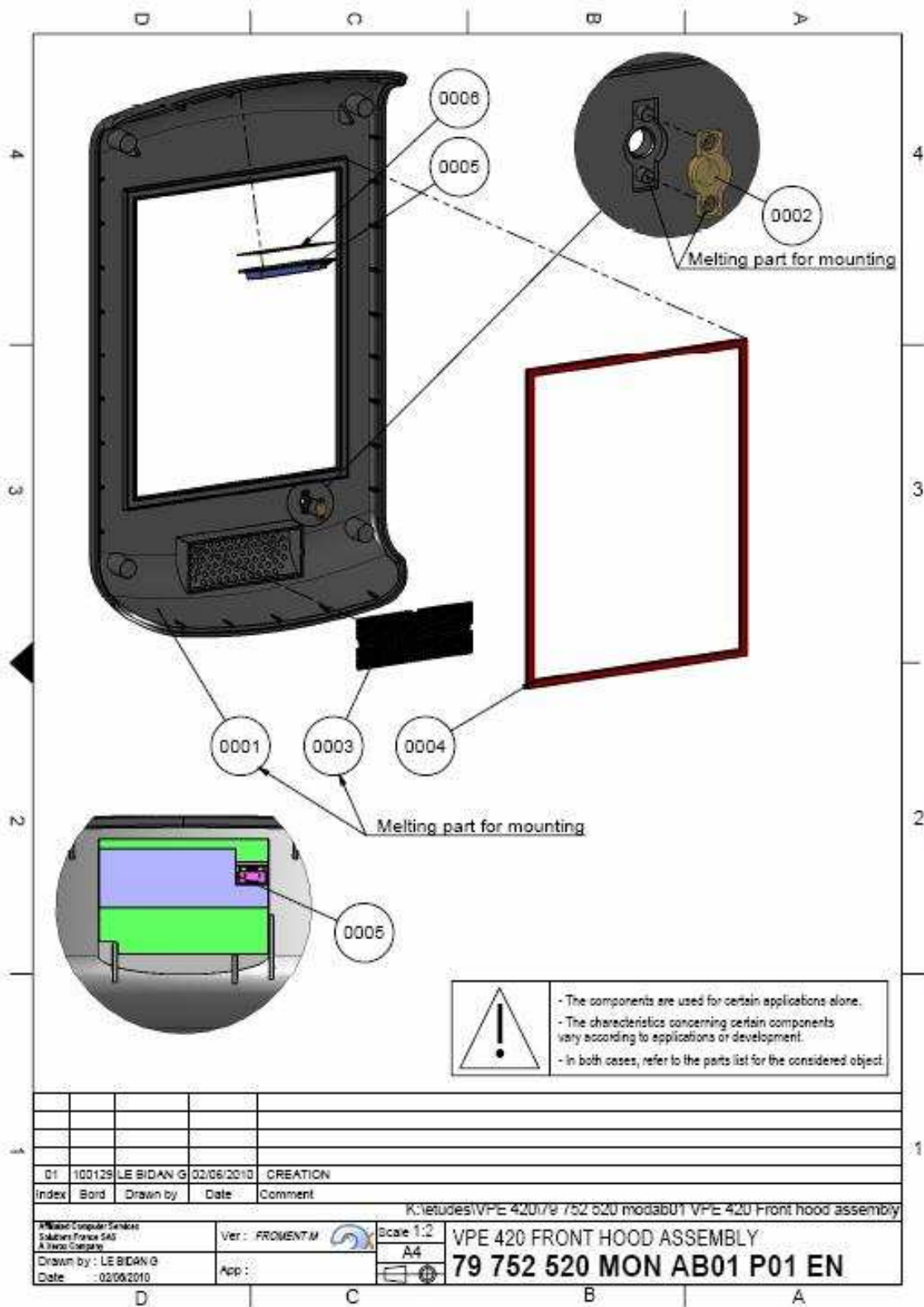


Figure 9: Dismantling/mounting – VPE 420 Front hood assembly

2.5.4 Dismantling/mounting – VPE 420 rear hood assembly

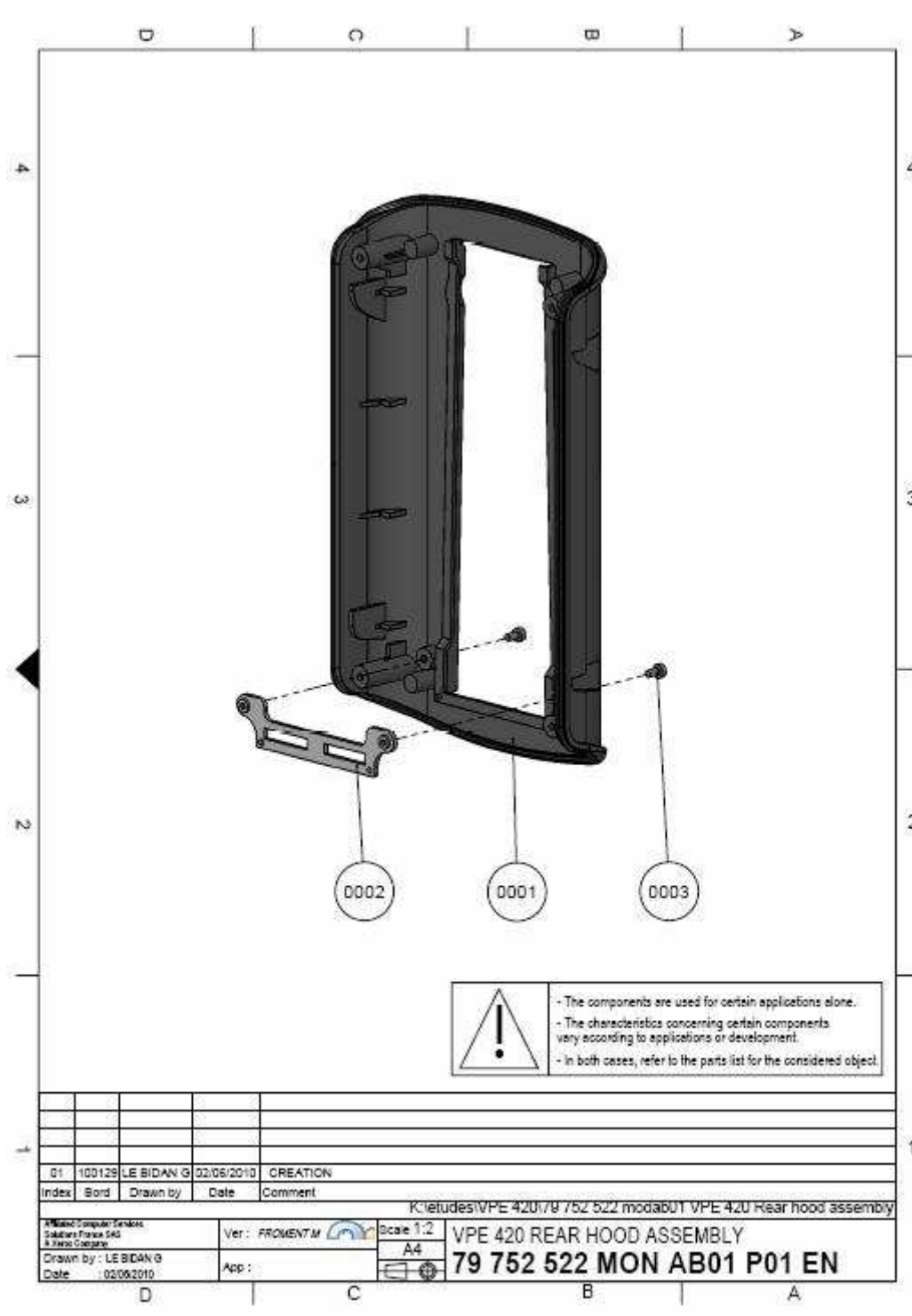


Figure 10: Dismantling/mounting – VPE 420 rear hood assembly

2.5.5 Dismantling/mounting – VPE 420 Frame assembly

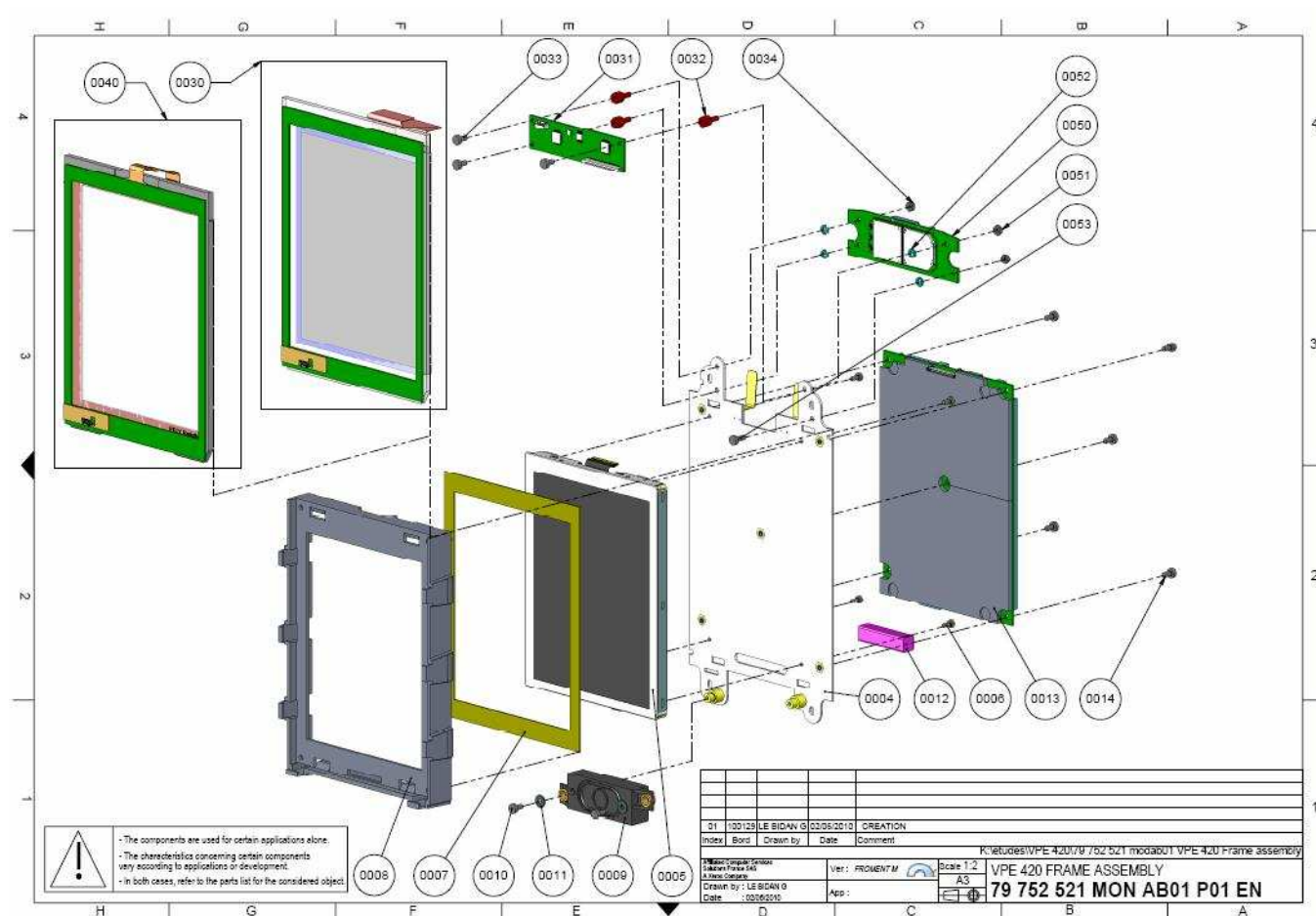


Figure 11: Dismantling/mounting – VPE 420 Frame assembly

2.5.6 Dismantling/mounting – VPE 420 kit touch screen resistive

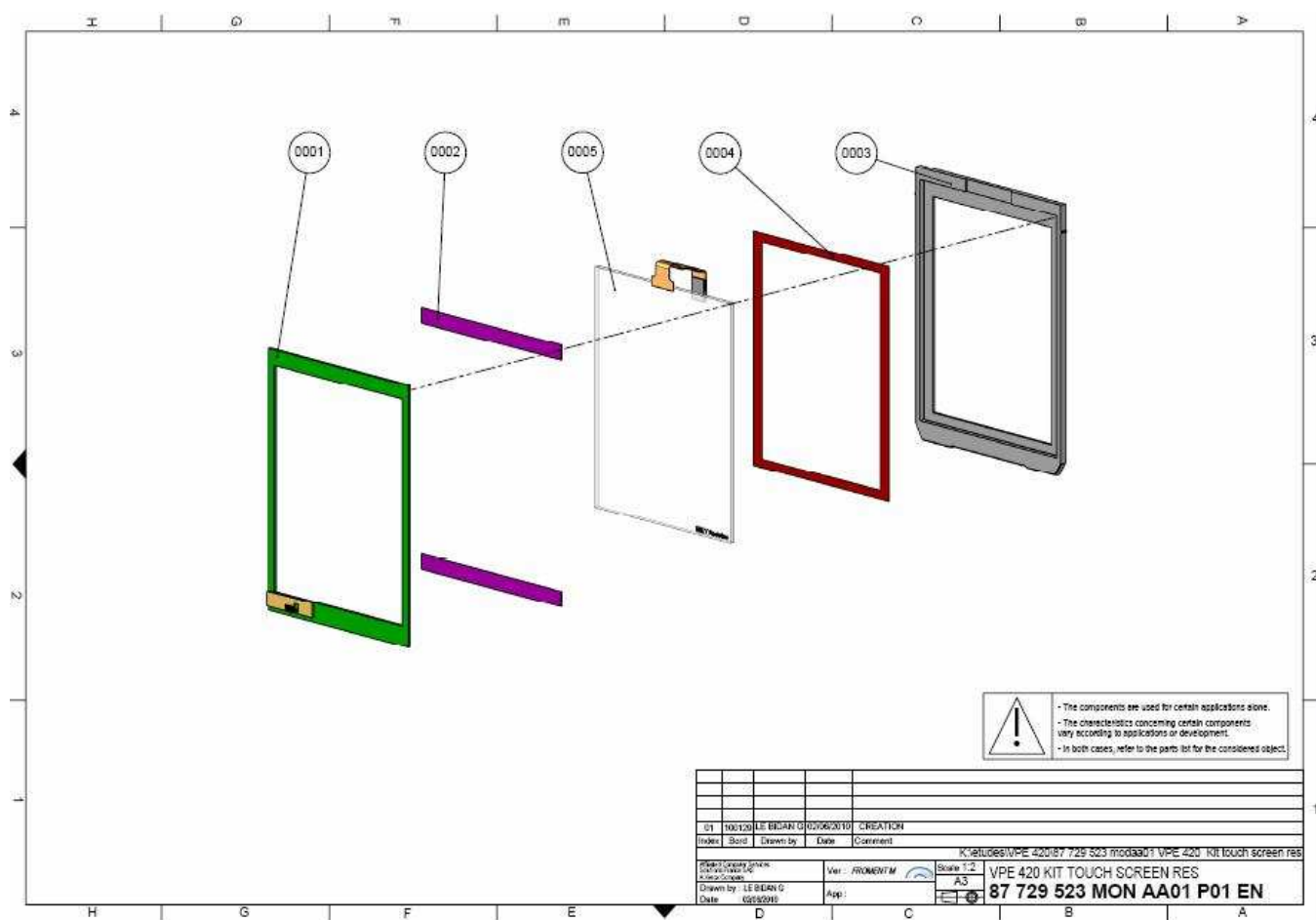


Figure 12: Dismantling/mounting – VPE 420 kit touch screen resistive

2.5.7 Dismantling/mounting – VPE 420 kit touch screen capacitive

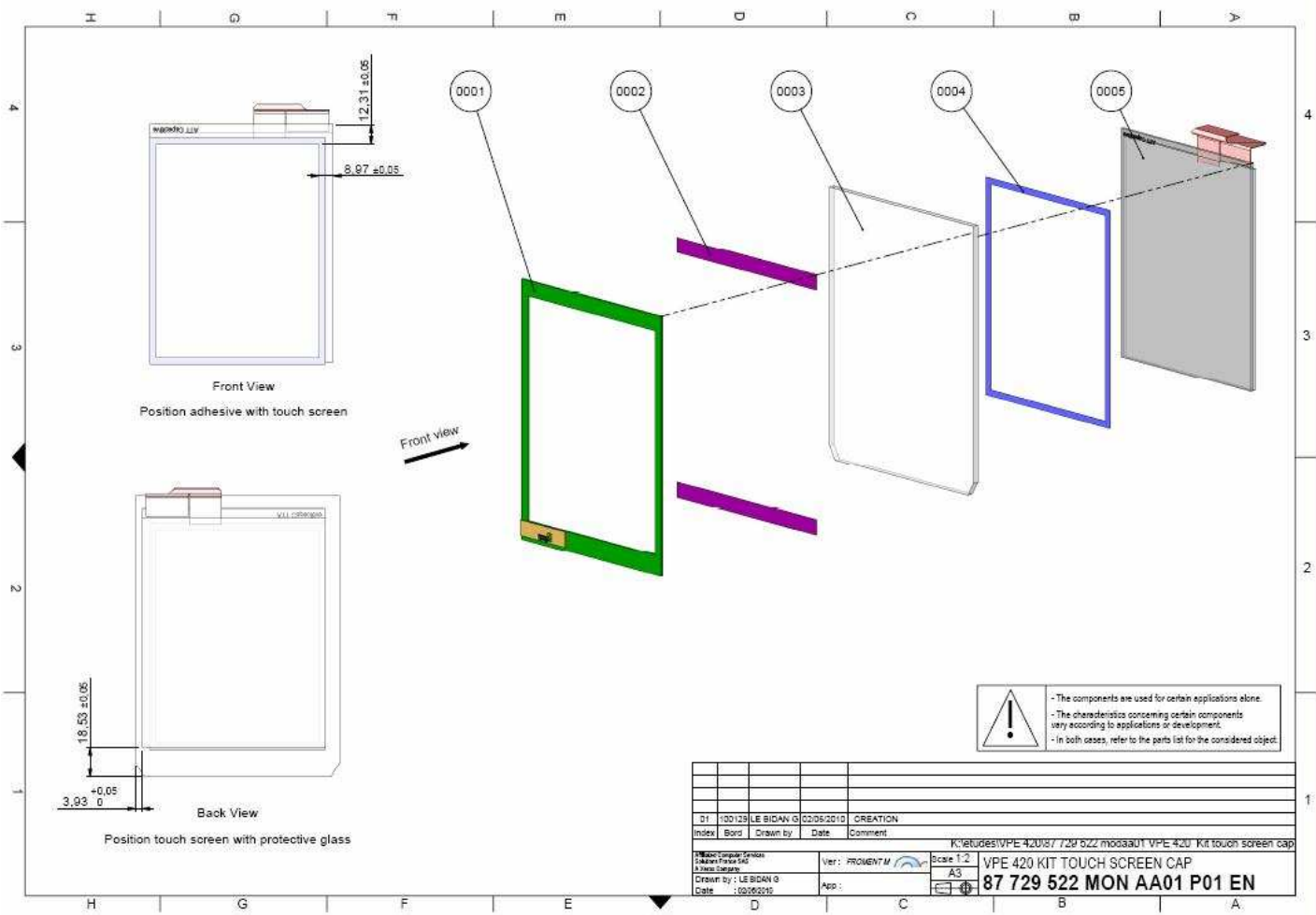


Figure 13: Dismantling/mounting – VPE 420 kit touch screen capacitive

ANNEX 1: INTERVENTION AND TROUBLESHOOTING FILE

1. COMPOSITION

Each file breaks down into five sheets:

- 1 exemplar is retained by the "User" customer's maintenance department,
- 1 exemplar is returned to the customer after repairs are made,
- 3 exemplars are assigned to the repair and follow-up of the equipment/materiel.

If the customer performs its own 2nd level maintenance, it must, on a monthly basis, return the "Quality-Reliability" (Q.F.) and the "After Sales Service" (S.A.V.) exemplars to ACS Customer Services so that it can perform functional monitoring of the equipment.

2. MODE OF USE

During each intervention on equipment, the maintenance technician must, imperatively, fill out an intervention sheet, regardless of whether or not a replacement has been made.

3. DESCRIPTION OF HEADINGS/LINE ITEMS

3.1 FRAME 1

- Re-shipment address
Address at which customer maintenance is conducted, to be filled out in all cases, even if the customer itself performs the trouble shooting.
- Invoicing address.
- Reason for return
To be filled out in the same manner, in as much detail as possible.
- Materiel/equipment in operation
Complete reference concerning the defective equipment.

3.2 FRAME 2

To be filled out by the 1st level maintenance service at the time of intervention.

3.3 FRAME 3

To be filled out by the 2nd level maintenance service at the time of intervention, while noting the exchanges of sub-assemblies and the reason for the exchange.

3.4 FRAME 4

Reserved to ACS.

A C S Affiliated Computer Services Solutions France SAS
Rue Claude Chappe • 07500 Guilhaud Granges
Tél + 33 4 75 81 42 21 • Fax + 33 4 75 81 43 38

Intervention Troubleshooting Sheet N°

1st level

FRAME 1

Re-shipment address : _____

Attention : _____ Tel : _____

Invoicing address : _____

Attention : _____ Tel : _____

Reason for return (analysis elements, breakdown cause, report, tests carried out...):

Technical interlocutor : M. : _____ Tel : _____

FRAME 2

Intervention nature

Troubleshooting ☐ Preventive ☐

Update ☐ Other ☐

Replaced equipment item

Type : _____

Ref. : _____

Serial n° : _____

Date : _____

Duration : _____

Technician : _____

Incident code : _____

FRAME 4 Cod Cli Exp

Return date : _____

Quotation n° : _____

Cod Cli Fac : _____

Equipment item in operation

Type : _____

Ref. : _____

Serial n° : _____

Configuration (autonomous, connected...):

OR

Operating mode when incident occurs (statement...):

Incident : _____ at reception ☐

_____ while operating ☐

Date : _____

2nd level

FRAME 3

Eqpt item under warranty

yes ☐ no ☐

Date : _____

Duration : _____

Technician : _____

Noticed defaults, incidents, assessment report n° : _____

Incident code(s) : _____

confirmed breakdown yes ☐

no ☐

Replaced equipment items

	Designation	Old		New		References	Reasons				
		Serial n°	Version	Serial n°	Version		1	2	3	4	5
1											
2											
3											

Reasons : 1/ breakdown cause, 2/ breakdown consequence, 3/ preventive, 4/ modification, 5/ others

Comments : _____

69 003 005

Customer

ANNEX 2: APPENDIX – "PRECAUTIONS AND SAFETY"

1. PRESENTATION

This general appendix indicates the precautions and safety instructions to be applied for all ACS products, Public Transport Toll Activity.

Some paragraphs in this document may be unnecessary for the type of equipment that you have just acquired.

2. CERTIFICATION

Our quality control begins with inspection and testing of most of the components used in our products. After assembly, all equipment is tested.

Mastery of the industrial process enabled ACS to obtain ISO 9001 certification.

3. EXTERNAL CONNECTION

3.1 POWER SUPPLY

Before the equipment is connected, make sure to check for compatibility in voltage between the equipment and the power source (aid: product identification label).

Note : The particular constraints of specific products must also be respected (see PRODUCT DOCUMENTATION) or the particular chapter in the installation notice for the product under consideration.

3.2 SIGNALS

The different signals, such as:

- low voltage power supply,
- remote transmission,
- wire alarms,

are Very Low Safety Voltage circuits (TBTS) and must absolutely be interconnected to equipment whose interfaces are powered by circuits of the same type.

The equipment that is interconnected by the TBTS connections must have the same protective ground if the signals do not have galvanic insulation (relays, opto-couplers, etc.).

Note : TBTS: a connection whose voltage is \leq at 60 V continuous or at \leq 42.4 V alternating.

4. PRECAUTIONS



Alarm symbol - failure to comply on the part of the operator could have serious consequences.

Take into account all of the notices affixed in the form of labels or other means.

4.1 DISCONNECTING THE EQUIPMENT

Whenever disconnecting the cable, place the equipment OFF TENSION. If the equipment is powered by a backup supply, wait for it to be cut off.

4.2 VENTILATION

If the equipment is furnished with aeration vents, never obstruct them so as to avoid the risk of overheating.

If the equipment is mounted in embedded fashion, leave a clearance zone around the walls in order to promote heat exchange.

4.3 ELECTRONIC CARD

If the electronic card has a battery or a power cell, do not lay it on a metallic surface.

4.3.1 Special Cases

In the case of cards containing integrated circuits, it is necessary to take precautions to prevent electrostatic discharges.

Precautions to take for handling these cards:

- Transport and storage in anti-static packaging.
- Leave sensitive components in their packaging until they are used.
- Put the components down on a grounded metal surface BEFORE they are unpacked.
- Do not touch the integrated circuits' plugs and the card's conduit paths.
- Wear a grounded anti-static bracelet.

4.4 PACKAGING

If the equipment is delivered in individual packages, save several of these packages for use in the event equipment is returned to ACS.

4.5 CONTACTLESS FUNCTION FOR INDUSTRY CANADA AND FCC

For Industry Canada → IC: 6330A-VPE420

Operation is subject to the following two conditions:

- (1) this device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation of the device.

For FCC → ID: U36-VPE420

Note 1 : Changes or Modifications not expressly approved by the party responsible could void the user's authority to operate this device.

Note 2 : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note 3 : This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

5. SAFETY



Symbol indicating the presence of dangerous voltage inside the equipment (risk of electrocution).

6. STANDARDS

EUROPE:

Directive R&TTE 1999/5/EC:

- RADIO Standards EN302291-2 or EN300330-2
- EMC Standards EN301489-3 and EN50121-3-2
- EMF standard EN50364

Directive Automotive 2004/104/EC:

- Standard CISPR25
- Standard ISO7637-2

Low Voltage Directive 2006/95/EC

- Standard EN60950-1 Edition 2006 + Amendment A11 Edition 2009

NORTH AMERICA:

- FCC Part 15 Subpart C 15.225
- RSS-210 Issue 8 and RSS-Gen Issue 3
- RSS-102

7. REPAIRS

All equipment that is replaced must be approved by ACS. The use of unapproved items may lead to malfunctions, even degradation of the equipment, or may render the equipment hazardous.

Once the repairs have been made, proceed to perform the necessary controls and testing to ensure correct operations and worker safety.

8. CONCLUSION

For various reasons, the installation and use of any type of equipment present more or less serious risks. Adhering to safety rules and installation constraints, and reading the documentation will enable you to minimize the risks and to correctly operate the equipment, with complete safety.

When you read this sentence, are you sure of having read the previous pages of the APPENDIX - "PRECAUTIONS & SAFETY"

If not, take the time to read them

Affiliated Computer Services Solutions France SAS

B.P. 345 – 07503 Guilhaud Granges Cedex (France)

Phone : 33 4 75 81 44 44 - Fax : 33 4 75 81 41 00