



G+D  
Currency Technology

CTCS

# CURRENCY MANAGEMENT SOLUTIONS

Training Program

Status March 2019



## Table of Contents

---

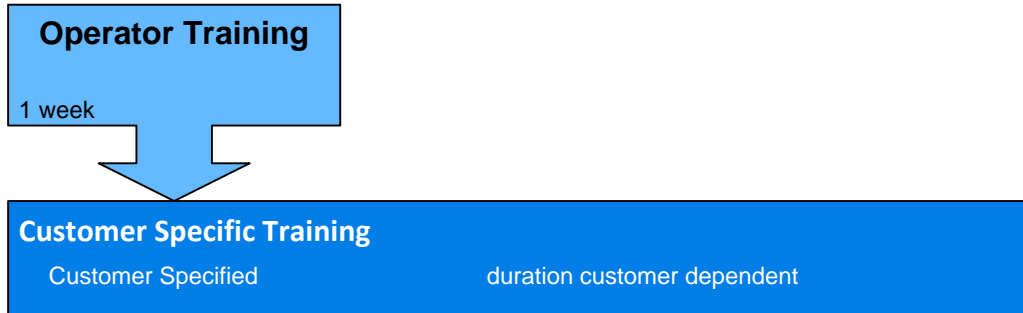
Table of Contents .....	1
<b>Training BPS X9 .....</b>	<b>3</b>
BPS X9 – Operator Training .....	4
BPS X9 – Basic Technical Training .....	5
BPS X9 – Basic Technical Compact Training .....	7
BPS X9 – Update Training for BPS2000 specialists .....	9
BPS X9 – Nota Master Image Basic Training .....	12
BPS X9 – Nota Master Image Update Training for OBIS 3 specialists .....	15
BPS X9 – Advanced Training OBIS 3/ Nota Master Image .....	17
BPS X9 – Adaptation Training/ Serial Number Definition .....	19
<b>Training BPS 2000 QICC / BPS 2000 OBIS / BPS 2000D / BPS 2000B .....</b>	<b>24</b>
BPS 2000 – Operator Training .....	25
BPS 2000 – Basic Technical Training .....	26
OBIS3 TRAINING .....	28
<b>Training BPS M7 .....</b>	<b>31</b>
BPS M7 Operator Training .....	32
BPS M7 Administrator Training .....	33
BPS M7 Supervisor / Manager Training .....	34
BPS M7 Basic Technical Training .....	35
Update BPS1000 to BPS M7 Technical Training .....	37
BPS M7 Upgrade Technical Training .....	39
<b>Training BPS M5 .....</b>	<b>40</b>
BPS M5 Operator Training .....	41
BPS M5 Administrator Training .....	42
BPS M5 Supervisor / Manager Training .....	43
BPS M5 Basic Technical Training .....	44
Update BPS1000 to BPS M5 Technical Training .....	46
Nota Tracc L Technical Training .....	48
<b>Training BPS M3 .....</b>	<b>51</b>
BPS M3 Operator Training .....	52
BPS M3 Administrator Training .....	53
BPS M3 Supervisor / Manager Training .....	54
BPS M3 Basic Technical Training .....	55
BPS M3 Installation Training .....	57
BPS M3 Upgrade Technical Training .....	58
BPS M3 Upgrade Technical Customer specific Training .....	59
<b>Training BPS Eco-Remote .....</b>	<b>60</b>
BPS Eco-Remote Support Line .....	61
BPS Eco-Remote Customer .....	62
BPS Eco-Remote Product Specialist .....	63
BPS Eco-Remote Field Engineer .....	64
<b>BPS Eco-Protect .....</b>	<b>65</b>
<b>Training BPS C4 .....</b>	<b>66</b>
Update BPS 200 to BPS C4 / BPS C4-S Technical Training .....	67
BPS C4 / BPS C4-S Basic Starter Training .....	69
BPS C4 / BPS C4-S Basic Technical Training .....	71
BPS C4 / BPS C4-S Customer specific Training .....	74

BPS C1 Starter Training .....	75
BPS C1 Technical Training .....	76
Numeron Operator / Supervisor Training.....	77
Numeron Technical Training.....	78
<b>Training NotaPack 10 System .....</b>	<b>80</b>
NotaPack 10 Operator Training .....	81
NotaPack 10 Field Engineer Training .....	83

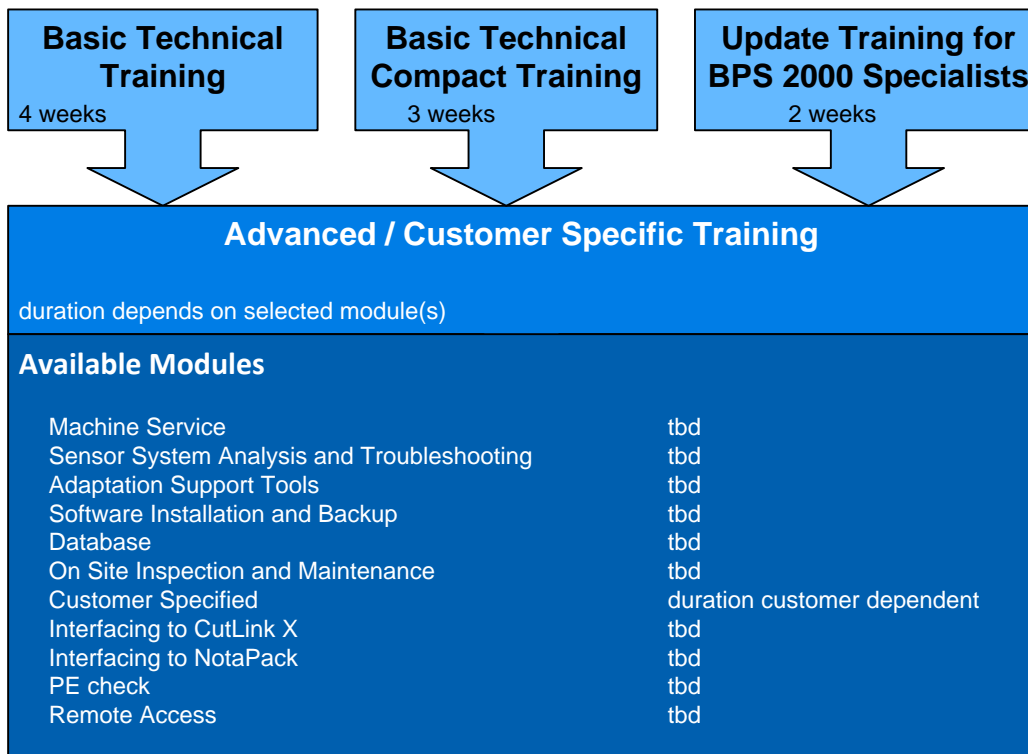
# Training BPS X9

## Training BPS X9

### User Training



### Technical Training



## BPS X9 – Operator Training

---

Pre-requisites:	Basic technical knowledge
Duration:	1 week / 5 training days
Participant's max.:	6
Training goals:	After completion of this training the participant will be self sufficient in the operation and banknote processing of the BPS X9
Notes:	Due to the site dependent process particularities, this training is to be held on-site. For sites unknown to the trainer, a site inspection is required to analyse customer specific requirements and processes (on-site; duration: one day). This training can be held according to customer's rotating shift schedule.

### Curriculum:

#### Week 1: System Operation

- Welcome and organisational information about training**
- Training overview**
- BPS System tasks: Counting, sorting, authenticity testing**
- Structure of the system: Counting Machine (CM), Quality Inspection Control Center (QICC), peripheral components**
- Explanation of concepts**
- QICC Control Center (CC)**
- Operation manuals**
- Starting up the Counting Machine (CM) and processing banknotes**
- Singler stop, emergency stops**
- Error handling**
- Jam recovery**
- Power failure**
- Consumables replacement**

## **BPS X9 – Basic Technical Training**

---

Pre-requisites:	Refer to the “Skills Assessment BPS X9 Maintenance” document
Duration:	4 weeks / 20 training days
Participant’s max.:	6
Training goals:	After completion of this training the participant will be self sufficient in the repair and maintenance of the BPS X9 in the areas mechanics, electrics, electronics, and pneumatics

### **Curriculum:**

#### **Week 1: Operating the system**

- Welcome and organizational information about training**
- Training overview**
- Safety Instructions**
- BPS system tasks: counting, sorting, authenticity testing**
- Structure of the system: Counting Machine (CM), Quality Inspection Control Center (QICC), peripheral components**
- Explanation of concepts, Production Order**
- QICC, Control Center (CC) / CC Plug-Ins**
- Starting up the CM and processing banknotes**
- Operating Controls**
- Cleaning, Replacing Consumables**
- Singler stop, emergency stops**
- Reports and logs, printouts**
- Jam Recovery**
- Power failure (Component Failure Recovery)**

#### **Weeks 2 and 3: Theoretical fundamentals**

- Functionality of the Loading module, carrier transfer**
- Functionality of the Input module, Feeding Assembly, Singler, Transport Section, Sensor Section**
- Functionality of the Base Module, Sensor Section**
- Functionality of the Reject Module, Reject Handling**
- Functionality of the Delivery Module, Stackers, Banders, Bundlers**

**Functionality of the Shredder Module, Special Stacker, Audit Stacker**

**Automatic flap doors**

**Pneumatics (air distribution system)**

**Electrical overview, Power Supply, UPS**

**Control and synchronization signals (Machine Clock, Singler Zero)**

**Main Controllers (SCS, MPC)**

**Module Controllers (LMC, IMC, BMC, STC, GPC, BPC, SRC),**

**Controller communication, data buses**

**Connecting to a network**

**Software recovery**

**Control Center (CC)**

**Banknote Analyzer**

**Weeks 3 and 4: Maintenance and adjustment works**

**Maintenance manual**

**CC Adjustment Plug-In**

**Service Report**

**Removal and replacement of assemblies**

**Disassembly, assembly and adjustment of the singler**

**Adjustment of banders and bundlers**

**Gate replacement**

**Stacker synchronization and adjustment**

**Adjustment of actuators**

**Signal tracking**

**I/O ports, detector and actuator control**

**Analyzing sensor failures**

**Fault tracing and trouble shooting**

**Preventive and scheduled maintenance**



## **BPS X9 – Basic Technical Compact Training**

---

Pre-requisites:	Refer to the “Skills Assessment BPS X9 Maintenance” document
Duration:	3 weeks / 15 training days
Participant’s max.:	4
Training goals:	The participant will receive knowledge of the technical system BPSX9 and the interaction of the components. He will be self-sufficient in troubleshoot and maintain the BPS X9.
Difference to Basic Technical Training:	Fewer participants, less basics, focus on understanding the whole system, tools for troubleshooting and less disassembling parts.

### **Curriculum:**

#### **Week 1: Operating the system**

**Welcome and organizational information about training**  
**Training overview**  
**Safety Instructions**  
**BPS system tasks: counting, sorting, authenticity testing**  
**Structure of the system: Counting Machine (CM),  
 Quality Inspection Control Center (QICC), peripheral  
 components**  
**Explanation of concepts, Production Order**  
**QICC, Control Center (CC) / CC Plug-Ins**  
**Starting up the CM and processing banknotes**  
**Operating Controls**  
**Cleaning, Replacing Consumables**  
**Singler stop, emergency stops**  
**Reports and logs, printouts**  
**Jam Recovery**  
**Power failure (Component Failure Recovery)**

#### **Weeks 2: Functionality of Modules, Control Center, Service Tools**

**Functionality of the Loading module, carrier transfer**  
**Functionality of the Input module, Feeding Assembly, Singler,  
 Transport Section, Sensor Section**  
**Functionality of the Base Module, Sensor Section**

**Functionality of the Reject Module, Reject Handling**  
**Functionality of the Delivery Module, Stackers, Banders, Bundlers**  
**Functionality of the Shredder Module, Special Stacker, Audit Stacker**  
**Software architecture**  
**Software Tools**  
**Software installation**  
**Recovery**  
**Service Tools in SW**  
**Service Tools in HW**  
**Log files, Reports, Analyses**  
**Typical error scenarios**  
**Control Center (CC)**

### **Weeks 3: Adjustments and troubleshooting, Service Tools**

**CC Adjustment Plug-In**  
**Service Report**  
**Removal and replacement of assemblies**  
**Disassembly, assembly and adjustment of the singler**  
**Adjustment of banders and bundlers**  
**Gate replacement**  
**Stacker synchronization and adjustment**  
**Fault tracing and trouble shooting**  
**Typical error scenarios**

## BPS X9 – Update Training for BPS2000 specialists

---

Pre-requisites:	The technical training is intended for BPS2000 specialists.
Duration:	2 weeks / 10 training days
Participant's max.:	6
Training goals:	The participant will receive knowledge about the differences between the BPS2000 system and the BPSX9 in the areas of operation, hardware and software. After the training, he will be self-sufficient in operate, repair and troubleshoot the BPS X9.

### Curriculum:

#### Week 1: Operation and software

##### Operation

- Banknote Processing
- Production Order
- System Error

##### Control Center

- Plug Ins
- Customer Tools
- Service Tools

##### Software

- Overview System Software
- Software Tools
- Installation
- Recovery

#### Week 2: Hardware

##### Theory

- Design Features
- System Architecture
- General Improvements

**Modules**

**Sensor Basics**

**Controllers and Interfaces**

**Subsystem QICC2-PC**

**Subsystem MPC**

**Sensor Subsystem**

**Subsystem Real Time Control**

**Hardware**

**Software**

**Sections**

**Service Schema / Service Key**

**Practice:**

**Identify the differences to BPS2000**

**Reports and Logs**

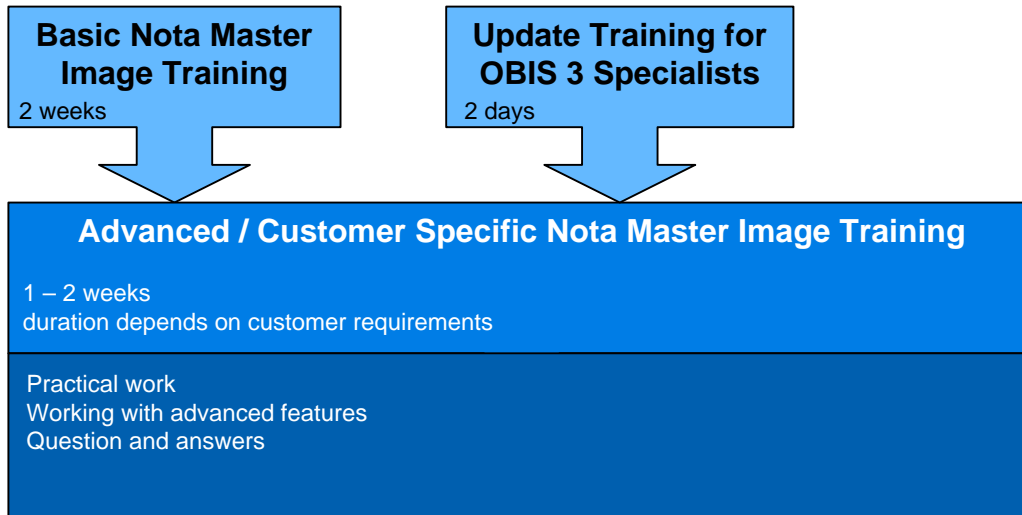
**CC Plugins**

**Main topics from manual Adjustment procedures**

**Main topics from Repair manual**

**Installation and removal of the shredder with test**

## Nota Master Image Training



## **BPS X9 – Nota Master Image Basic Training**

---

	Pre-requisites:	Refer to the “Skills Assessment BPS X9 document
	Duration:	2 weeks / 10 training days/ 60 hours
Participants’ max.:	4	
Training goals:	The emphasis placed in the training measures depends on the previous knowledge and skills of the participants, so that durations given here for the individual training modules must be regarded as approximate only.	

A detailed breakdown can be provided with knowledge of participants' previous qualifications as appropriate to their future roles. Course targets, content and duration are adapted accordingly. This means that concrete offers are drawn up and submitted by the responsible training personnel in accordance with the respective customer's requirements.

### **Curriculum:**

#### **Hardware and Software**

##### **System Overview**

**Hardware components**

**Electrical connections**

**Link to the BPS X9**

##### **Introduction to the Optical Inspection System User Interface (OISUI)**

**Main Menu**

**Online and offline operation**

**Adjustment mode, calibration mode and production mode**

##### **Adjustment Works**

**Alignment of camera optics and adjustment of focus**

**Acquisition parameters**

**Brightness adjustment, camera gains**

**Flat field correction (FFC)**

**Correction of lens distortion (CLD)**

**Upload of the calculated parameters, extra gain**

## **Recording and storage of banknotes**

**Banknote storage**

**Memory buffers: continues, marked from machine and marked from NMI**

## **Basics of banknote inspection**

**Basic inspection sequence**

**Master banknote and training set, selective training set**

**Inspect tree: structure, inspection sequence and hierarchy**

**Inheritance of inspection items**

## **Working with the OISUI Software**

**Inspection of banknotes**

**Inspect tree, edit window, result list and analysis window**

## **Creating an adaptation**

**Determination of the training set**

**Training set administration**

**Brightness normalisation**

**Size / Alignment**

**Cut inspection**

**Layer principle**

**Denomination layer**

**Geometrical normalisation of prints by using tie points**

**Working with projection regions**

**Inspection regions and editing of inspect region parameter sets**

**Masking of optical instable areas (e.g. reflecting foils)**

**Serial number inspection**

**Scaling parameters and measurements**

**Use of transfer points**

**Use of auxiliary points**

**Denomination layer**

**Use of variable print characteristics (VPC)**

**Statistic regions**

## **Online operation**

**Verification of the adaptation**

**Training regions**

**Error zones and production statistics**

**Blob analysis and error weighting**

**Result history and history setup**

**Upload of parameter set**

## **Practical works**

**Opportunity to create own adaptation**



## **BPS X9 – Nota Master Image Update Training for OBIS 3 specialists**

---

**Pre-requisites:** Very good knowledge of building OBIS 3 adaptations including fine-tuning, field experiences and production ramp-up. Skilled application of all available inspect items and clear know-how about adaptation structure and philosophy.

**Duration:** 2 days

**Participants' max.:** 4

**Training goals:** After successful participation of this training the participants will be able to create and maintain NMI-adaptations for any denomination using the advanced NMI features.

The training is intended for OBIS 3 specialists mainly coming from OBIS 3 Vx.20 or lower and who need to apply their expertise to NMI with its advanced features. Since some of these features are also implemented in OBIS 3 Vx.22 the training covers partly the upgrade to the OBIS 3 version.

**Equipment:** Every participant should have his/her PC/Notebook available, either their own ones (WIN7 /administrator rights required) or provided by G&D. Software and dongle provided by G&D.

### **Curriculum:**

#### **Hardware and Software**

##### **System Overview**

##### **Hardware components and installation**

##### **Software components**

##### **Handling**

##### **New connection of OBIS to machine**

##### **Camera calibration and adjustment**

#### **Adaptation tool (OISUI)**

##### **Offline**

##### **Wizard to initiate adaptation**

##### **Automatic creation of reference brightness region**

##### **Import of measurements into adaptation tool**

##### **Only one definition of adaptation orientation**

##### **Only one scaling of master banknote**

##### **Synchronization of edit window and inspect tree**

- Automatic creation of parameter sets for inspect regions**
- Detailed definition of quality check in serial number inspection**
- More robust search for VPCs and tie points**
- Assisted mode for fine-tuning through minimization of tuning elements and automatic interaction with error function parameters**
- Projection regions, statistic regions and brightness regions show expected results already for master banknote**
- Quick navigation to detected errors**
- Check for adaptation errors in inspect regions**
- Multiple selections in result list**
- Assessment and classification for cutting errors**
- Change of singling orientation when replacing (and resizing) master banknote**
- Saving and inserting features**
- New outline search**
- Conversion OBIS 3 adaptation to NMI**

## **Online**

- New index administration for denominations (HEX ID)**
- New dialogue for saving raw data**
- New management for unfit banknotes (OBIS and machine)**
- Management of dynamic properties and their publication**

## **Features to be activated by SW-key or dongle**

- DifferenceOfMeasures\_Obis4**
- ExtendedErrorZoneResults\_Obis4**
- ProductionStatistics\_Obis4**
- SavingOfAnalysisImages\_Obis4**
- SavingOfFeatures\_Obis4**
- SerialNumberSorting\_Obis4**
- SpecialVerticalScratchFeature\_Obis4**
- TrainingRegions\_Obis4**

## **OBIS PC**

- Windows 7**

## **Questions / Clarification**

## **BPS X9 – Advanced Training OBIS 3/ Nota Master Image**

---

**Pre-requisites:** Good knowledge of building OBIS 3 / NMI rough adaptations and skilled application of all available inspect items.

**Duration:** 5 - 10 days according to customization

Participants' max.: 4

**Training goals:** After successful participation of this training the participants will be able to prepare an OBIS/NMI adaptation for production. This includes advanced fine-tuning for false unfit rate reduction and supervision while production ramp-up.

The training is intended for OBIS 3 / NMI specialists who attended the respective basic training and who are able to carry out rough adaptations. The objective of this training is to prepare the participants for collecting dedicated field experiences including fine-tuning and production ramp-up, i.e. targeted reduction of false unfit rates and creation of appropriate production environment. The training can be tailored according to customers' needs and requirements.

**Equipment:** The training is preferably held at customer's premise since production environment is needed for realistic knowledge transfer regarding the afore-mentioned targets. Classroom with projector.

### **Curriculum:**

#### **Brief Repetition and Answering Questions**

**Repetition of adaptation rules and inspection elements**

**Opportunity of clarification of questions and knowledge gaps**

**Discussion of existing customer adaptation (if necessary)**

#### **Practical work with OBIS / NMI at BPS2000 resp. BPS X9 under G&D supervision**

**Camera adjustment and calibration (focus, angle, position)**

**ACQ parameters, camera gain, FFC, CLD**

**Visual evaluation of images**

**Proper selection of training set banknotes**

**Raw data recording**

**Fine-tuning according to customer standard**

**Developing methodology for reduction of false unfit rate**

**Ensuring detection of defects according to calibration set or customer QC**

**Distinction of region parameter modification vs. training set extension**

**Techniques to identify region parameters for changes and how to modify them**

**Techniques to identify banknotes to be included to selective training set**

## **Working with Advances Features**

**Difference of measures**

**Extended error zone results**

**Production statistics**

**Saving of analysis images**

**Saving of features**

**Serial number sorting**

**Special vertical scratch filter (if applicable)**

**Training regions**

## BPS X9 – Adaptation Training/ Serial Number Definition

---

### Adaptation Training BPS X9

#### Adaptation Training

Duration: 1 – 2 weeks

#### Hardware and Software

Beginning an adaptation from a template

Sensor adaptation

NSCMAG, FLP, M10,SIL, other sensors

GSL Designer

Configurator

Recording raw data

Installation of deployment

### Serial Number Definition Adaptation Training

#### SNDEF

Duration: 2 weeks

Tools and installation

Principles of banknote numbering

Principle of serial number processing

Partition groups

Examples

# BPS X9 Adaptation Training

- Prerequisites:** Good knowledge of banknote features to be inspected in the framework of banknote printing works machine sorted finishing. The participants should be familiar with the operation of Windows-based PC systems. Basic knowledge of digital image processing is advantageous.
- Achievement:** After successful participation of this training the participants will be able to create and maintain X9-adaptations (deployment) for any denomination. This includes standard sensor adaptations as well as the configuration of all necessary machine settings.
- Duration:** The duration of the training depends on the sensor equipment as required by the customer. A training for the complete sensor equipment is scheduled for 2 weeks (10 days). The total time required for the training can be calculated from this schedule. Times indicated in **red** are mandatory; times indicated in **blue** are optional.
- Participants:** maximum 4
- Equipment:** Every participant should have his/her PC/Notebook available, either their own ones (WIN7 /administrator rights required) or provided by G&D. Software and dongle provided by G&D.

## Hardware and Software

- System Overview
- Hardware components
- Software components
- Software installation
- Handling
- Recommended file structure

2 days

## Beginning an adaptation from a template

- Control Center for the configurator
- Loading configurator project and prepare template
- Control Center for the adaptation tool and the GSL Designer
- Adding AlgoDefinitions for adaptation
- Rawdata Management

## Sensor adaptation

- OBIS
- DIS
- SNC
- NSCMAGL no M10
- NSCMAGLHough
- NSCMAGLPrint
- Clip function for improved serial number evaluation
- Verification of soft magnetic print
- NSCMAGLMultiCode
- Example of a MultiCode thread

0.5 days

3 days

<ul style="list-style-type: none"> <li>Definition of the thread coding</li> <li>Diagnosis of evaluation results</li> <li>Important output properties</li> <li>Setting length threshold</li> <li>Further properties to check coded threads for completeness</li> <li>Checking Consecutive (non-coded) threads for completeness</li> <li>NSCMAGL_BLDenolndep</li> </ul>		<ul style="list-style-type: none"> <li>1 day</li> <li>1 day</li> <li>0.5 days</li> </ul>
<p>FLP</p> <p>M10</p> <p>SIL</p> <p>Other sensors</p>	no NSCMAG	
<p>GSL Designer</p> <ul style="list-style-type: none"> <li>Editing bounds</li> <li>Editing variables</li> <li>Setting activators</li> <li>Setting switches</li> <li>Setting thresholds</li> </ul>		<p>0.5 days</p>
<p>Configurator</p> <ul style="list-style-type: none"> <li>Importing sensor adaptation</li> <li>Sensor settings</li> <li>Selection of properties to be used in sensor reporting</li> <li>Property settings</li> <li>Set stacking modes</li> <li>Short machine (DM1)</li> <li>Long machine (DM2DM1)</li> </ul>		<p>1 day</p>
<p>Recording rawdata</p> <p>Installation of deployment</p> <p>Questions / Clarification</p>		<p>0.5 days</p> <p>1 day</p>
	maximum	10 days

## Serial Number Definition Adaptation Training

- Prerequisites:** The Serial Number Definition requires a very good knowledge of building algorithms combined with a profound mathematical background. Basic knowledge of C-language is advantageous. Furthermore, the participants should be familiar with the operation of Windows-based PC systems.
- Achievement:** After successful participation of this training the participants will be able to create and modify serial definition files according to the required numbering scheme. The training conveys furthermore a number of examples taken from real applications which cover most numbering sequences. These examples can then be modified to the actual use case.
- Duration:** 10 days
- Participants:** maximum 4
- Equipment:** Every participant should have his/her PC/Notebook available (WIN7), either their own ones or provided by G&D.

### Tools and Installation

- Notepad++
- Dev-Cpp Compiler
- Test Tool For Serial Number Definition File
- Recommended File Structure

### Principles of Banknote Numbering

- Basic Parameters
- Some Serial Number Structures
- Serial Number With Lot Number
- Serial Number With IPP Number
- Serial Number With Denomination Code And No Position Number
- Serial Number Sequence
- Sequence Mode
- Batch Mode
- Batch Mode With Position Numbers
- Batch Mode Without Position Numbers

### Principle Of Serial Number Processing

- Serial Number Processing In The BPS
- Organization Of An Adaptation Buffer (SNDEF)
- General Denomination Related Description
- Partitioning Of the Serial Number
- Serial Number Processing Using Variables For Sheet And Position Numbers (e, b)
- Serial Number Conversion from ASCII to the Binary Format (intern)



**Serial Number Conversion from the Binary Format to ASCII**

**Serial Number Processing Using the Variable For BNID**

**Serial Number Conversion from ASCII to the Binary Format (intern)**

**Serial Number Conversion from The Binary Format To ASCII**

### **Partition Groups**

**Serial Number Partition Description**

**Partition Group Part\_Lot\_Offset (1st SN)**

**Lookup Table**

**Several Lookup Tables**

**Returning The Lookup Table Index**

**Returning The Lookup Table Value**

**Searching Lookup Table Value And Returning The Index**

**Partition Group Part\_Intern\_ascii**

**Partition Group Part\_ascii\_Intern**

### **Examples**

**Checksum Modulo 9 (Euro Banknotes)**

**Batch Mode**

**Using Full Range Of Available Characters In The Serial Number**

**Start Offset At Lot Start**

**Start Offset Other Than Lot Start**

**Start Offset At Lot Start With Different Lot Size**

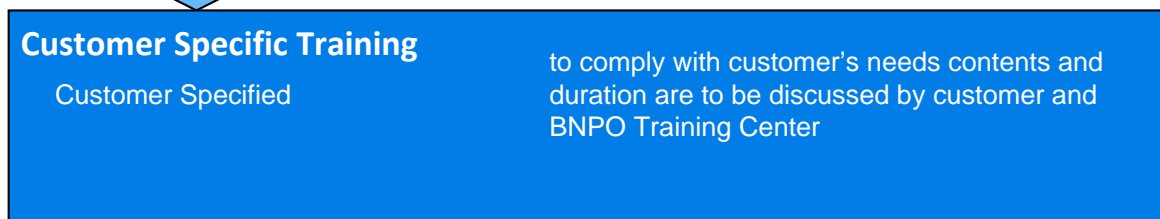
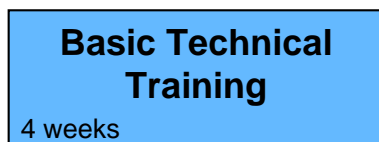
## Training BPS 2000 QICC / BPS 2000 OBIS / BPS 2000D / BPS 2000B

# Training BPS 2000

### Operator Training



### Technical Training



## BPS 2000 – Operator Training

---

Pre-requisites:	Basic technical knowledge
Duration:	1 week
Participants max.:	6
Training goals:	After completion of this training the participant will be self sufficient in the operation and banknote processing of the BPS 2000
Notes:	Due to the site dependent process particularities, this training is to be held on-site. For sites unknown to the trainer, a site inspection is required to analyse customer specific requirements and processes (on-site; duration: one day). This training can be held according to customer's rotating shift schedule.

### Curriculum:

#### Week 1: System Operation

- Welcome and organisational information about training**
- Training overview**
- BPS System tasks: Counting, sorting, authenticity testing**
- Structure of the system: CP, QICC/MIC**
- Explanation of concepts, SSO, SV, OP, FE, Shift, IPP, Pile Mode / Continuous Mode, OPA, OPB, OPBP, OPP**
- QICC / MIC: SV Menu, OP Menu**
- Operation manuals**
- Starting up the Currency Processor (CP) and processing banknotes**
- Singler stop, emergency stops**
- Error handling**
- Jam recovery**
- Power failure**
- Consumables replacement**

## **BPS 2000 – Basic Technical Training**

---

Pre-requisites:	Refer to the “Skills Assessment BPS 2000 Maintenance” document
Duration:	4 weeks
Participants max.:	6
Training goals:	After completion of this training the participant will be self sufficient in the repair and maintenance of the BPS 2000 in the areas mechanics, electrics, and pneumatics

### **Curriculum:**

#### **Week 1: Operating the system**

- Welcome and organisational information about training**
- Training overview**
- BPS System tasks: Counting, sorting, authenticity testing**
- Structure of the system: CP, QICC/MIC, for bank version: MIS**
- Explanation of concepts, SSO, SV, OP, FE, Shift, IPP, OPP, Deposit, Batch, Reel, Pile Mode / Continuous Mode (dependent on customer requirements).**
- QICC / MIC: SSO Menu, SV Menu, OP Menu**
- Starting up the Currency Processor (CP) and processing banknotes**
- Singler stop, emergency stops**
- Reports and logs, printouts**
- Power failure**
- Consumables replacement**

#### **Weeks 2 and 3: Theoretical fundamentals**

- Components (detectors and actuators)**
- Transfer section loading module**
- Transfer section input module**
- Hoist system input module**
- Singler area**
- Singler principle**
- Transport section**
- Reject section**
- Delivery section**
- Banding**

- Bundling**
- Special stacker**
- Shredder**
- Automatic flap doors**
- Pneumatics (Air distribution system)**
- Electrical overview**
- High Voltage Supply (HVS)**
- Low Voltage Supply (LVS)**
- Control- and synchronisation signals (MAP, SIO)**
- Module controllers (P-STG, LFC, PMC, DMC, SMC)**
- Signal tracking**
- I/O ports, detector and actuator control via monitor**
- Central unit hardware configuration (GWC/DBC, SYC, SEC and TRC, interfaces)**
- Software installation, flash load**
- BN data set**
- Jams and analysis of the situation by using monitor commands**
- Most commonly used monitor commands of GWC/DBC, SEC, TRC, SYC**
- Bank version only: Manual Inspection Station (MIS)**
- Removal and replacement of assemblies**
- QICC (Quality Inspection Control Center)**

## **Weeks 3 and 4: Maintenance and adjustment works**

- Maintenance manual and safety instructions**
- Disassembly, assembly and adjustment of the singler**
- Adjustment of banders and bundlers**
- Gate adjustment**
- Stacker synchronisation and adjustment**
- Response time measurement and adjustment of actuators**
- Analysing sensor failures**
- Fault tracing and trouble shooting**
- Preventive and scheduled maintenance**

## OBIS3 TRAINING

---

Prerequisites:

Duration: 2 weeks (10 working days/60 hours)

Participants max.: 3

Training Goals: *The emphasis placed in the training measures depends on the previous knowledge and skills of the participants, so that durations given here for the individual training modules must be regarded as approximate only.*

*A detailed breakdown can be provided with knowledge of participants' previous qualifications as appropriate to their future roles. Course targets, content and duration are adapted accordingly. This means that concrete offers are drawn up and submitted by the responsible training personnel in accordance with the respective customer's requirements.*

### Curriculum:

#### Hardware and Software

##### System Overview

Duration: 4 hours

**Hardware components**

**Electrical connections**

**Link to the BPS 2000**

##### Introduction to the Optical Inspection System User Interface (OISUI)

Duration: 3 hours

**Main Menu**

**Online and offline operation**

**Adjustment mode, calibration mode and production mode**

## **Adjustment Works**

Duration: 6 hours

**Alignment of camera optics and adjustment of focus**

**Creation of acquisition parameters**

**Flat field correction (FFC)**

**Correction of lens distortion (CLD)**

**Upload of the calculated parameters**

## **Recording and storage of banknotes**

Duration: 2 hours

**Memory buffer marked and continuous**

## **OBIS setup parameters**

Duration: 1 hour

## **Adaptation**

### **Basics of banknote inspection**

Duration: 3 hours

**Master banknote and training set, selective training set**

**Inspection tree: structure, inspection sequence and hierarchy**

**Inheritance of inspection items**

### **Working with the OISUI Software**

Duration: 4 hours

**Inspection of banknotes**

**Inspection tree, result and graphical window**

**Blob analysis and error weighting**

### **Creating an adaptation and train in of parameters**

Duration: 26 hours

**Determination of the training set**

**Layer principle and inspect regions**

**Brightness normalisation**

**Inspection of border layers**

**Geometrical normalisation of prints by using tie points**

**Insertion of inspect regions and editing of parameter sets**

**Masking of optical instable areas (e.g. reflecting foils)**

**Use of transfer points**

**Working with projection regions**

**Serial number inspection**

**Insertion of measurements and scaling parameters**

**Use of auxiliary points**

**Working with denomination dependant regions**

**Use of variable print characteristics (VPC)**

**Inspection of banknote size, high running and skew**

**Statistic region**

## **Miscellaneous**

Duration: 3 hours

**Verification of the adaptation**

**Error zones and production statistics**

**Result history and history setup**

**Upload of parameter set**

## **Practical works**

Duration: 8 hours

**Opportunity to create own adaptation**

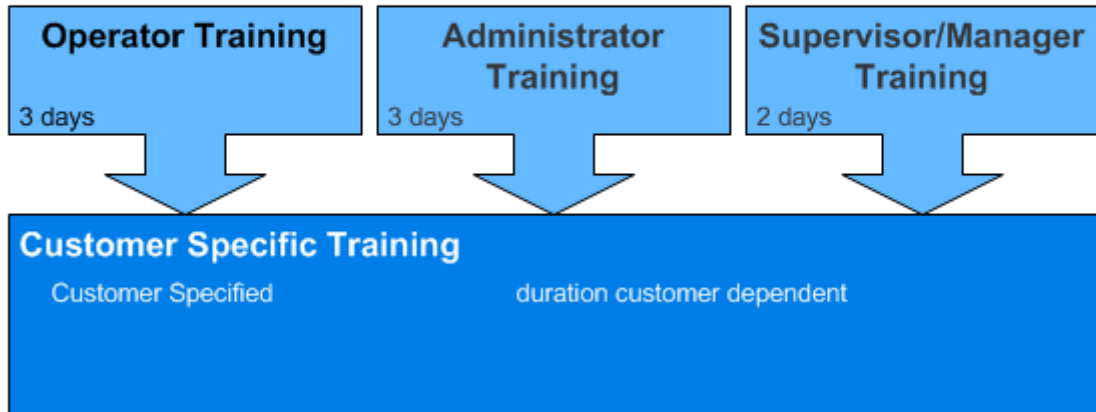


## Training BPS M7

### Training BPS M7

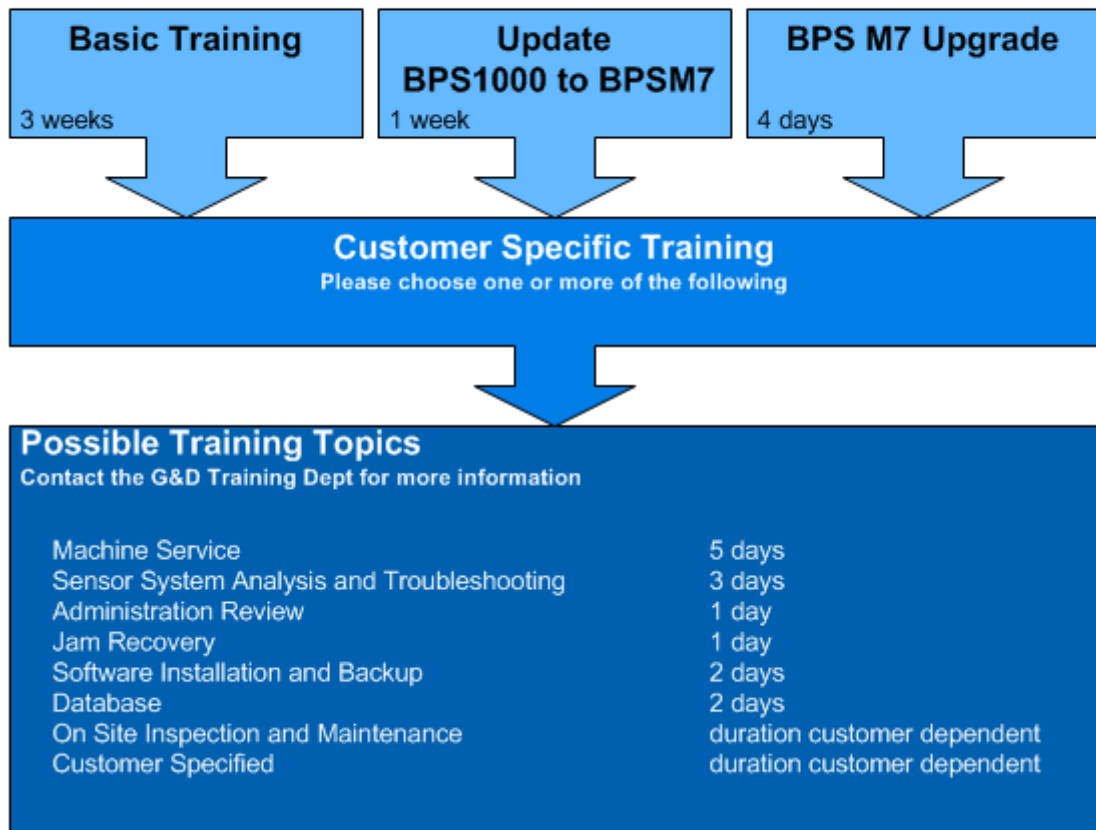
#### User Training

These trainings only apply to users without BPS1000 experience



### Training BPS M7

#### Technical Training



## BPS M7 Operator Training

---

Prerequisites:	Refer to the “Skills Assessment BPS M7 User” document.
Duration:	21 hours (3 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M7. They will also be able to identify and solve simple faults.

### Training Contents

#### System overview

- Input Module
- Operating Module
- Delivery Module
- Shredder module
- Compressed and Suction Air Supply
- System start

#### Power on, log on, banknote processing and finish

#### Banknote processing

#### Recovery Procedure

#### Practical Exercises

#### End of training course

## BPS M7 Administrator Training

---

Prerequisites:	List of the “Skills Assessment BPS M7 User” document.
Duration:	21 hours (3 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in administration of the BPS M7 user rights list, user groups, creation and personalization of BPS M7 chip cards. They will also be able to identify and solve simple user access faults.

### Training contents

#### System overview

System start

#### Power on, log on, banknote processing and finish

Menus

#### Banknote processing

Detailed banknote processing including reject handling

#### Administration

Chipcard handling and User Rights

#### End of training course

## **BPS M7 Supervisor / Manager Training**

---

Prerequisites:	Refer to the “Skills Assessment BPS M7 User” document.
Duration:	14 hours (2 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M7. They will also be able to solve banknote recovery processes, interpret reports and logs, identify and solve simple operating failures.

### **Training contents**

#### **System overview**

#### **System overview**

- System start**
- Switch on system**
- Processing section**

#### **Menu's**

- Banknote Processing**
- Reporting System**
- Administration**
- Configuration**

#### **Additional options**

#### **Unexpected events and Cleaning Procedures**

#### **End of training**

## BPS M7 Basic Technical Training

---

Prerequisites:	Refer to the "Skills Assessment BPS M7 Basic" document. Notebook with WinXP Pro and administrator rights - Ethernet cross link cable - USB flash drive ≥ 8 GB
Duration:	3 weeks - approx. 100 Hrs. Note: The training duration may be extended to 4 weeks if a translator is required. Please contact the training dept. for more information.
Participants.:	5 (max)
Training aims:	After completion of this training, the participants will be self-sufficient in the repair, maintenance and troubleshooting of the BPS M7 with respect to the mechanical, electrical and pneumatic systems.

### System overview

**Specifications**  
**Construction**

### Processing basics

**System start and first operation**  
**Banknote Processing complete**  
**Reporting system**

### Main Menu

**Configuration and Administration**  
**Software Tools**

### Mechanical system

**General components**  
**Input module and singler**  
**Operation module**  
**Delivery module and stacker**  
**Bundler unit**  
**LDM and Coupling modules**  
**Shredder unit**

## **Pneumatic system**

- BPS air system**
- Air supply module**

## **Electrical system**

- Power Supply**
- MPC Hardware**
- Module controller**
- Monitoring and control**

## **Sensor system**

- Sensor Computer System - SCS**
- Sensors**
- Measurement system**

## **Software system**

- Components**
- Installation**
- Backup and recovery**
- Tools**

## **System maintenance**

## **Faults and Troubleshooting**

## **End of training**

## Update BPS1000 to BPS M7 Technical Training

---

Prerequisites:	Thorough knowledge of the BPS1000 machine. Notebook with WinXP Pro and administrator rights - Ethernet cross link cable - USB flash drive ≥ 8 GB
Duration:	1 week - approx. 35 Hrs.
Participants:	5 (max)
Training aims:	Participants gain an in-depth understanding of all hardware and software <u>differences</u> to the BPS1000 machine.

### System Overview

#### Description and Technical Data

### Global Machine Modifications

- Mechanic
- Electric
- Pneumatic

### Module Specific Modifications

- Input Module
- Operator Module
- Delivery Module
- Shredder Module

### Software

- Structure
- Installation and Imaging
- Tools

### Peripheral Devices

- Dust Suction Unit

### Faults and Troubleshooting





## BPS M7 Upgrade Technical Training

---

Prerequisites:	Thorough knowledge of the BPS1000 machine. Notebook with WinXP Pro and administrator rights. - Ethernet cross link cable - USB flash drive ≥ 8 GB
Duration:	4 days - approx. 28 Hrs.
Participants:	5 (max)
Training aims:	Participants gain an in-depth understanding of the BPS M7 IM/OM modules <u>only</u> .

### System Overview

#### Description and Technical Data

### Module Specific Modifications

Input Module

Operator Module

### Software

Structure

Installation and Imaging

Tools

### Peripheral Devices

Dust Suction Unit

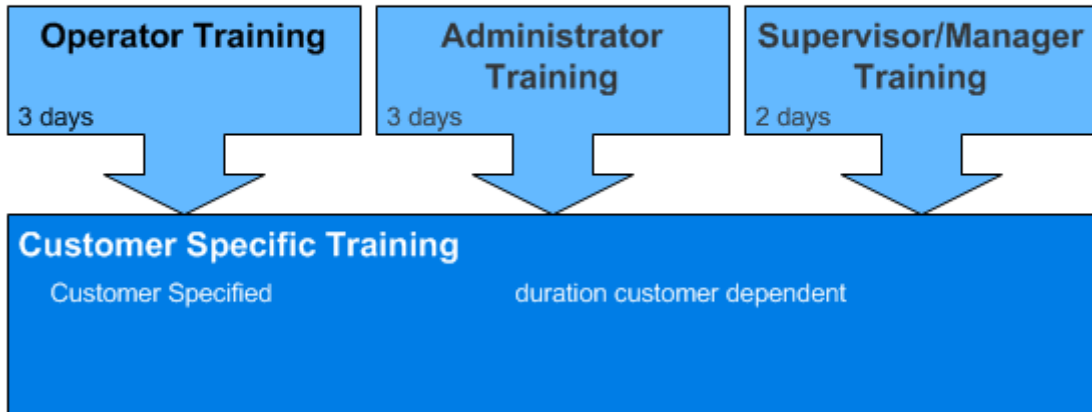
### Faults and Troubleshooting

## Training BPS M5

### Training BPS M5

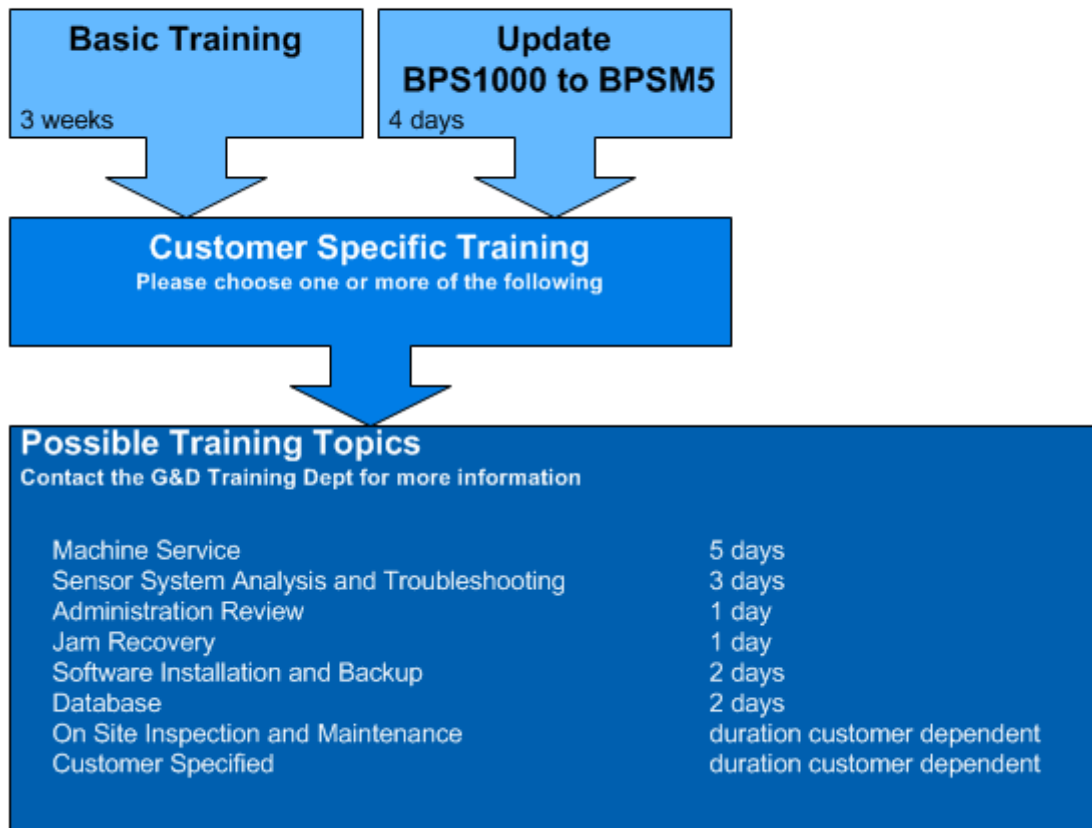
#### User Training

These trainings only apply to users without BPS1000 experience



### Training BPS M5

#### Technical Training



## **BPS M5 Operator Training**

---

Prerequisites:	Refer to the “Skills Assessment BPS M5 User” document.
Duration:	21 hours (3 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M5. They will also be able to identify and solve simple faults.

### **Training Contents**

#### **System overview**

- Input Module**
- Operating Module**
- Delivery Module**
- Shredder module**
- Compressed and Suction Air Supply**
- System start**

#### **Power on, log on, banknote processing and finish**

#### **Banknote processing**

#### **Recovery Procedure**

#### **Practical Exercises**

#### **End of training course**

## **BPS M5 Administrator Training**

---

Prerequisites:	List of the “Skills Assessment BPS M5 User” document.
Duration:	21 hours (3 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in administration of the BPS M5 user rights list, user groups, creation and personalization of BPS M5 chip cards. They will also be able to identify and solve simple user access faults.

### **Training contents**

#### **System overview**

**System start**

#### **Power on, log on, banknote processing and finish**

**Menus**

#### **Banknote processing**

**Detailed banknote processing including reject handling**

#### **Administration**

**Chipcard handling and User Rights**

#### **End of training course**

## BPS M5 Supervisor / Manager Training

---

Prerequisites:	Refer to the “Skills Assessment BPS M5 User” document.
Duration:	14 hours (2 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M5. They will also be able to solve banknote recovery processes, interpret reports and logs, identify and solve simple operating failures.

### Training contents

#### System overview

#### System overview

- System start
- Switch on system
- Processing section

#### Menu's

- Banknote Processing
- Reporting System
- Administration
- Configuration

#### Additional options

#### Unexpected events and Cleaning Procedures

#### End of training

# BPS M5 Basic Technical Training

---

Prerequisites:	Refer to the “Skills Assessment BPS M5 Basic” document. Notebook with WinXP Pro and administrator rights - Ethernet cross link cable - USB flash drive ≥ 8 GB
Duration:	3 weeks - approx. 100 Hrs. Note: The training duration may be extended to 4 weeks if a translator is required. Please contact the training dept. for more information.
Participants.:	5 (max)
Training aims:	After completion of this training, the participants will be self-sufficient in the repair, maintenance and troubleshooting of the BPS M5 with respect to the mechanical, electrical and pneumatic systems.

## System overview

- Specifications
- Construction

## Processing basics

- System start and first operation
- Banknote Processing complete
- Reporting system

## Main Menu

- Configuration and Administration
- Software Tools

## Mechanical system

- General components
- Input module and singler
- Operation module
- Delivery module and stacker
- Bundler unit
- LDM and Coupling modules
- Shredder unit

## **Pneumatic system**

- BPS air system**
- Air supply module**

## **Electrical system**

- Power Supply**
- MPC Hardware**
- Module controller**
- Monitoring and control**

## **Sensor system**

- Sensor Computer System - SCS**
- Sensors**
- Measurement system**

## **Software system**

- Components**
- Installation**
- Backup and recovery**
- Tools**

## **System maintenance**

## **Faults and Troubleshooting**

## **End of training**

## Update BPS1000 to BPS M5 Technical Training

---

Prerequisites:	Thorough knowledge of the BPS1000 machine. Notebook with WinXP Pro and administrator rights - Ethernet cross link cable - USB flash drive ≥ 8 GB
Duration:	4 days - approx. 28 Hrs.
Participants:	5 (max)
Training aims:	Participants gain an in-depth understanding of all hardware and software <u>differences</u> to the BPS1000 machine.

### System Overview

#### Description and Technical Data

### Global Machine Modifications

- Mechanic
- Electric
- Pneumatic

### Module Specific Modifications

- Input Module
- Operator Module

### Software

- Structure
- Installation and Imaging
- Tools

### Peripheral Devices

- Dust Suction Unit

### Faults and Troubleshooting





## Nota Tracc L Technical Training

---

*Prerequisites: Refer to the “Skills Assessment BPS M7 Basic” document.*

*Notebook (XP-Professional with full Admin Rights)*

*We do also recommend safety shoes for the participants*

*Duration: 4 Days - approx. 32 Hrs.*

*Note: The training duration may be extended to 5 Days if a translator is required. Please contact the training dept. for more information.*

*Participants.: 5 (maximum !!!)*

*Training aims: After completion of this training, the participants will be self-sufficient in the repair, maintenance and troubleshooting of the NotaTracc L Module with respect to the mechanical, electrical and pneumatic systems.*

### General Information

### Day 1

*Daily Schedule  
Overview of training schedule and content  
Training room security and safety*

### System overview

#### **System Explanation**

*Operating Elements  
Covers / Doors  
Service Door  
Slider*

#### **Introduction Trays**

*Sizes  
Module Installation  
Options: Separators; Cover; NFC-Chip; RFID-Card  
Guiding Grooves  
Lateral Hangers*

## **System Start and Banknote Processing**

### **Explanation of Functional Sequence**

*Selection of Input and OP-Mode*

*Operating elements*

*Banknote processing with close Covers*

## **Explanation of the BPS Interface including Connections and Changes in the Singler Area**

### **Machine Connectios / Modifications**

*Mechanical Connection and Adjustment*

*Power Connection; CAN-Bus*

*Pressurized Air*

*LCF Plate; additional Light Barrier*

### **Explanation of the complete Mechanical Transport Sequence**

*Tray Transport; Lifts*

*Horizontal Transport; Shaker*

*Gripper; Seperator detection*

*Module movement electrical / mechanical*

### **Pneumatic Elements**

*Main Valve; Pressure Monitoring*

*Cylinders and Valves*

### **Electrical / Electronic Components**

*MDC / CAN Bus*

*Power Supply / UPS*

*Omron Safety System Door Contacts*

*Seperator detection Boards*

*Motors and their functions*

*Camera*

*Interface Board*

## Technical Documentation / Electrical Drawings

Day 2

*Flow Charts  
Detectors; Light Barriers; Switches; Fuses  
Electrical and Pneumactical Drawings*

---

## Mechanical Adjustments

Day 3 + 4

### **E-Test**

*Work project: Try all Functions available with E-Test*

### **Parts exchange**

Flat Belts horizontal  
Tooth Belts Gripper  
Tooth Belt Module Move  
Seperator detection

### **Summary**

### **Questions and Answers**

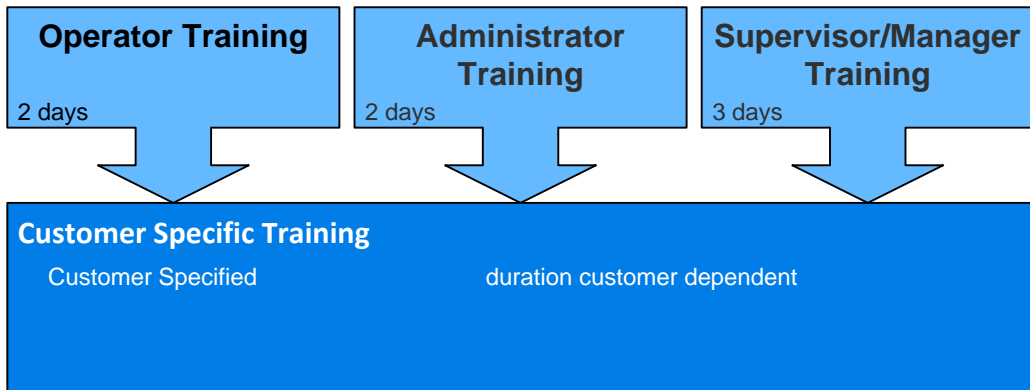
**END**

---

## Training BPS M3

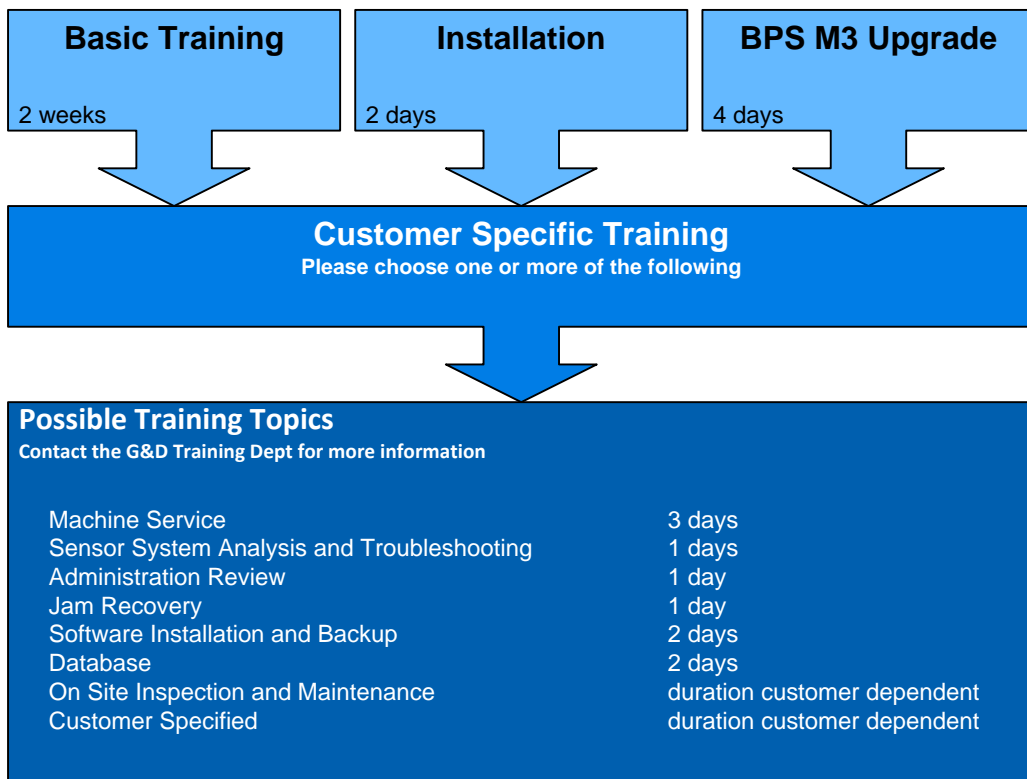
### Training BPS M3

#### User Training



### Training BPS M3

#### Technical Training



## **BPS M3 Operator Training**

---

Prerequisites:	Knowledge about BN Processing.
Duration:	16 hours (2 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M3. They will also be able to identify and solve simple faults.

### **Training Contents**

#### **System overview**

- Input Module**
- Operating Module**
- Delivery Module**
- Compressed and Suction Air Supply**
- System start**

#### **Power on, log on, banknote processing and finish**

#### **Banknote processing**

#### **Recovery Procedure**

#### **Practical Exercises**

#### **End of training course**

## **BPS M3 Administrator Training**

---

Prerequisites:	Knowledge about BN Processing.
Duration:	16 hours (2 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in administration of the BPS M3 . They will also be able to identify and solve simple user access faults.

### **Training contents**

#### **System overview**

**System start**

#### **Power on, log on, banknote processing and finish**

**Menus**

#### **Banknote processing**

**Detailed banknote processing including reject handling**

#### **Administration**

**Manage user Rights with the Control Center**  
**Create Opmodes**

#### **End of training course**

## BPS M3 Supervisor / Manager Training

---

Prerequisites:	Knowledge about BN Processing
Duration:	24 hours (3 days)
Participants:	5 (max.)
Training aims:	After completion of this training course, the participant will be self-sufficient in banknote processing on the BPS M3. They will also be able to solve banknote recovery processes, interpret reports and logs, identify and solve simple operating failures.

### Training contents

#### System overview

#### System overview

System start  
Switch on system  
Processing section

#### Menu's

Banknote Processing  
Reporting System  
Administration  
Configuration

#### Additional options

Manage user Rights with the Control Center  
Create Opmodes

#### Unexpected events and Cleaning Procedures

#### End of training



## BPS M3 Basic Technical Training

---

Prerequisites:	Refer to the “Skills Assessment BPS M7 Basic” document (also Valid for BPS M3). Notebook with Win 7 or higher and administrator rights - USB flash drive 64 GB
Duration:	2 weeks - approx. 80 Hrs.  Note: The training duration may be extended to 3 weeks if a translator is required.  The duration of the training can be shortened by 3 days. The prerequisite for this is a successful completion of the BPS M3 Update e-learning module. Please contact the training dept. for more information.
Participants.:	5 (max)
Training aims:	After completion of this training, the participants will be self-sufficient in the repair, maintenance and troubleshooting of the BPS M3 with respect to the mechanical, electrical and pneumatic systems.

### System overview

- Specifications**
- Construction**

### Processing basics

- System start and first operation**
- Banknote Processing complete**
- Reporting system**

### Main Menu

- Configuration and Administration**
- Software Tools**

### Mechanical system

- General components**
- Input module and singler**
- Operation module**
- Delivery module and stacker**

**Bander unit**  
**LDM and Coupling modules**

## **Pneumatic system**

**BPS air system**  
**Air supply module**

## **Electrical system**

**Power Supply**  
**MPC Hardware**  
**Module controller**  
**Monitoring and control**

## **Sensor system**

**Sensor Computer System - SCS**  
**Sensors**  
**Measurement system**

## **Software system**

**Components**  
**Installation**  
**Backup and recovery**  
**Tools**

## **System maintenance**

## **Faults and Troubleshooting**

## **End of training**

## BPS M3 Installation Training

---

Prerequisites:	Refer to the “Skills Assessment BPS M7 Basic” document (also Valid for BPS M3). Notebook with Win 7 or higher and administrator rights - USB flash drive 64 GB
Duration:	2 days - approx. 16 Hrs.
Participants:	5 (max)
Training aims:	Participants are available to unpack the machine and install all modules in the right order. After the installation they are able to test the System.

## Installation

- Site and facility requirements**
- Modules description**
- Unpack the Modules**
- Mount the modules**
- Mount flat- and round belts**
- Connect compressed and suction air**
- Power connection**
- Test the System**

## BPS M3 Upgrade Technical Training

---

Prerequisites:	<p>Refer to the “Skills Assessment BPS M7 Basic” document (also Valid for BPS M3).                  Good experience on BPS 1000 or BP M ...                  Machines                  Notebook with Win 7 or higher and administrator rights                  - USB flash drive 64 GB</p> <p>Note:                  This training will also be available as an e Learning. Please contact the training dept. for more information.</p>
Duration:	4 days - approx. 32 Hrs.
Participants:	5 (max)
Training aims:	Only the differences to the M machines or BPS 1000 Machines will be shown.

### System Overview

#### Description and Technical Data

### Module Specific Modifications

- Input Module
- Operator Module

### Software

- Structure
- Installation and Imaging
- Tools

### Faults and Troubleshooting

## **BPS M3 Upgrade Technical Customer specific Training**

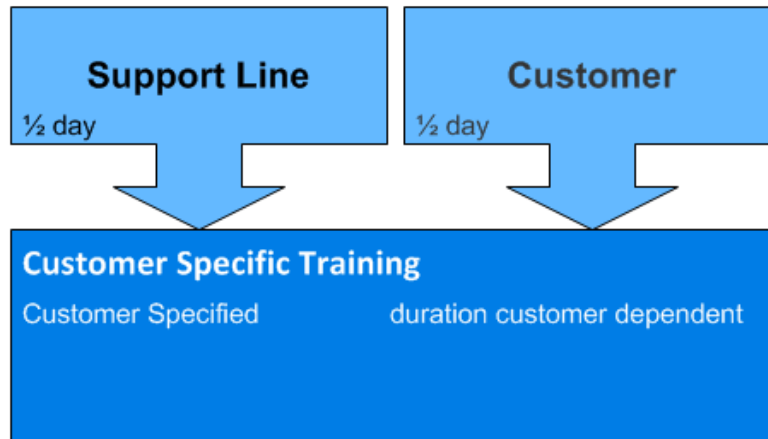
---

*Please apply for a customer specific training at the G & D Trainings center.*

## Training BPS Eco-Remote

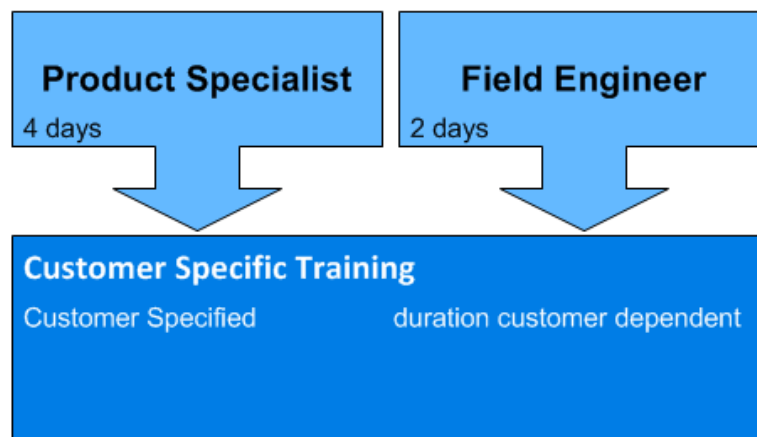
# Training BPS Eco-Remote

### User Training



# Training BPS Eco-Remote

### Technical Training



## BPS Eco-Remote Support Line

---

Prerequisites:	Basic knowledge of computers and IT networks.
Duration:	4 hours
Participants max.:	4
Training aims:	After completion of this training course, the participant will be self-sufficient in the use of the BPS Eco-Remote system regarding Remote Sessions to the BPS machines.

### Training contents

System overview of the BPS Eco-Remote system

Account logon and access to the RAS Enterprise server

Establishing and managing remote sessions

Overview of the Policy Server

Practice sessions

### End of training

## BPS Eco-Remote Customer

---

Prerequisites:	Basic knowledge of computers.
Duration:	4 hours
Participants max.:	4
Training aims:	After completion of this training course, the participant will be self-sufficient in the use of the Policy Server for the BPS Eco-Remote system.

### Training contents

System overview of the BPS Eco-Remote system

Policy Server

- Access and logon
- Defining policies
- Creating users and user groups
- Managing remote sessions
- Analysis of the Audit log

### End of training



## BPS Eco-Remote Product Specialist

---

Prerequisites:	Good knowledge of computers and IT networks.
Duration:	4 days (32 hours)
Participants max.:	4
Training aims:	After completion of this training course, the participant will be self-sufficient in the installation, configuration, use, and support of the BPS Eco-Remote system.

### Training Contents

- System overview of the BPS Eco-Remote system
- Review of network fundamentals
- Account logon and access to the RAS Enterprise server
- G&D RAS Server installation
- Windows RAS Server installation
- Policy Server Installation
- Policy Server Configuration and Management
- Software Management
- Establishing and managing remote sessions
- Training overview for all user groups
- Troubleshooting

### End of training

## **BPS Eco-Remote Field Engineer**

---

Prerequisites:	Basic knowledge of computers and IT networks.
Duration:	2 days (16 hours)
Participants max.:	4
Training aims:	After completion of this training course, the participant will be self-sufficient in the installation, configuration, and use of the Eco-Remote system.

### **Training Contents**

System overview of the BPS Eco-Remote system

Review of network fundamentals

Account logon and access to the RAS Enterprise server

G&D RAS Server installation

Windows RAS Server installation

Policy Server Installation

Establishing and managing remote sessions

Basic Troubleshooting tips

### **End of training**

## **BPS Eco-Protect**

Prerequisites:	Good knowledge of computers and IT networks.
Duration:	8 hours
Participants max.:	4
Training aims:	After completion of this training course, the participant will be self-sufficient in the installation and configuration of the BPS Eco-Protect system.

### **Training contents**

System overview of the BPS Eco-Protect system

Review of network fundamentals

Overview of FTC / FTP / SFTP

System Installation

System Configuration

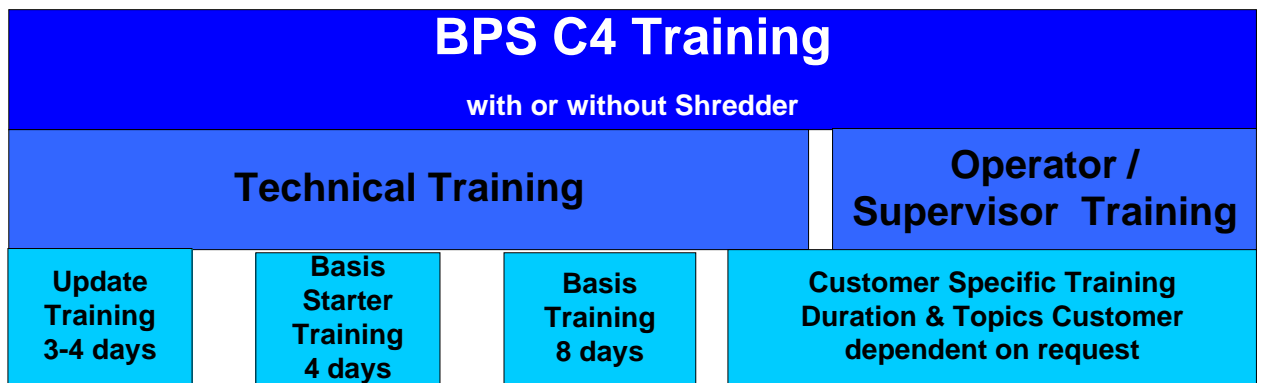
Exporting and importing configurations

Eco-Protect with Eco-Remote

Troubleshooting

### **End of training**

# Training BPS C4



## Update BPS 200 to BPS C4 / BPS C4-S Technical Training

---

Prerequisites:	Thorough knowledge of the BPS 200 machine
Duration:	3 days
Participants.:	4 (max)
Training aims:	After completion of this training, the participants will be self-sufficient in the repair, maintenance and troubleshooting of the BPS C4 and / or BPS C4-S with respect to the mechanical, electrical and pneumatic systems.
Objectives:	The Participants will learn the news and differences between BPS C4 / BPS C4-S and BPS 200. Installation of Software, background information of Windows CE and operation of the system will be trained. The troubleshooting with the help of the internal service tool will be trained as well

### Training Contents

#### Got to know BPS C4

#### Overview

#### Menus

#### BPS C4 Service Stick and Toolbox

#### OMOCO

#### Software Installation / Software Update

#### Windows CE specialties

#### Trouble Shooting

#### Practical Work

#### Shredder (optional)

## End of training

## BPS C4 / BPS C4-S Basic Starter Training

---

Prerequisites:	Technical understanding in mechanics, Software and Computers.
Duration:	4 days
Participants max.:	4
Training goals:	After completion of this training, participants will be self-sufficient in banknote processing on the BPS C4 /BPS C4-S. They will also be able to adjust and maintain the machine and do smaller repairs as well.
Subsequent trainings:	Advanced- or Update Training

### Training contents

#### Introduction

**Presentation BPS C4**  
**Site and facility requirements**  
**Transport of the machine**

#### System operation

**Practical demonstration – processing a deposit**  
**Operation modes configuration (OMOCO)**  
**Protocols**  
**Service menu**  
**Shredder Optional**

#### Repairs, removals and adjustments

**Singler, round belts, flat belts, limpness sensor**  
**Component location, item removal and replacement**  
**Shredder Optional**

#### Electric and electronic systems

**Power supply**  
**Module controller MDC**  
**Power PC, CAN BUS, MAP 2**  
**Shredder Optional**

## **Sensor Unit**

**Assembly, disassembly**

**Cleaning**

## **System software**

**Service software**

**Operating system Windows CE**

**Error codes, database**

**Hyper terminal**

## **Service tools and troubleshooting**

**Using the service tool test procedures to check the machine**

## **System maintenance**

**Maintenance procedures and adjustments**

## **Options**

**Air supported singler**

**LDM (Large Delivery Module)**

**LPS (Limpness Sensor)**

**Shredder Optional**

## **End of training**



## BPS C4 / BPS C4-S Basic Technical Training

---

Prerequisites:	Technical understanding in mechanics, Software and Computers.
Duration:	8 days
Participants max.:	4
Training goals:	After completion of this training, participants will be self-sufficient in banknote processing on the BPS C4 /BPS C4-S. They will also be able in repair and maintenance.
Subsequent trainings:	Advanced- or Update Training

### Training contents

#### Introduction

- Presentation BPS C4**
- Site and facility requirements**
- Transport of the machine**
- User operator training**
- Supervisor training**

#### System operation

- Practical demonstration – processing a deposit**
- Operation modes configuration (OMOCO)**
- Protocols, printing and explanation**
- Service concept, interface, menu**
- Shredder Optional**

#### Repairs, removals and adjustments

- Singler, round belts, flat belts, limpness sensor**
- Stacker and failsafe**
- Component location, item removal and replacement**
- Shredder Optional**

#### Electric and electronic systems

- Power supply**
- MAT generator**

**Module controller MDC**  
**Power PC, CAN BUS, MAP 2**  
**Shredder Optional**

## **Sensor Unit**

**Function**  
**Assembly, disassembly**  
**Cleaning**  
**Practical training**

## **System software**

**Customer laptop adjustments**  
**Service software**  
**Operating system Windows CE**  
**Error codes, database**  
**Hyper terminal**

## **Service tools and troubleshooting**

**Problems with fit/unfit sorting**  
**Using the service tool test procedures to check the machine**  
**Presentation of realistic problems for troubleshooting guide**

## **System maintenance**

**Maintenance procedures and adjustments**

## **Options**

**Fast deposit processing FDP**  
**Header card deposit processing HDP**  
**Air supported singler**  
**LDM (Large Delivery Module)**  
**LPS (Limpness Sensor)**  
**SFS (Soil and Stain Sensor)**  
**Ticket Reading (CCD Camera)**  
**Shredder Optional**

## End of training

## **BPS C4 / BPS C4-S Customer specific Training**

---

*Please apply for a customer specific training at the G & D Trainings center.*

## BPS C1 Starter Training

---

Prerequisites:	Thorough understanding in software and computers
Duration:	1 day
Participants.:	4 (max)
Training goals:	After completion of this training, the participants will be self-sufficient in the banknote processing on the BPSC1. The participants will also be able to install and update the BPS C1 in software regards.

### Training Contents

#### Operating / Software

Sorting/Counting, Tickets, SerNo, cheques

Configuration/Settings

Software-Installation on Notebooks

PC-Suite with  
BPSC1-Update  
BPSC1-Upgrade

Update with SD-Card  
Adaptation process

## BPS C1 Technical Training

---

Prerequisites:	Thorough understanding in mechanics, software and computers
Duration:	2 days.
Participants.:	4 (max)
Training goals:	After completion of this training, the participants will be self-sufficient in the banknote processing on the BPSC1. The participants will also be able to repair, adjust and maintain the BPS C1 in mechanical and software regards.

### Training Contents

#### Day 1: Operating / Software

Sorting/Counting, Tickets, SerNo, cheques

Configuration/Settings

Software-Installation on Notebooks

PC-Suite with  
BPSC1-Update  
BPSC1-Upgrade

End User Tool with  
Interfaces: API, XML, Reports

Update with SD-Card  
Adaptation process

#### Day 2: Hardware / Test

Disassembling  
Parts replacement  
Adjustments

Maintenance Menu  
Component Test  
Calibration

## Numeron Operator / Supervisor Training

---

Prerequisites:	none
Duration:	1 day
Participants:	4, max. 6

### Curriculum:

#### Presentation Numeron

Duration: 1 hour

- Presentation of Numeron**
- Feature of Numeron**
- Processing a Deposit**

#### Operator Training

Duration: 3 hours

- Machine Safety**
- PMI pictogram introduction**
- Printing and explanation of protocols**
- Jam recovery**
- Explanation of the error codes**
- Machine adjustments by operator**
- User operation training**
- Daily checks, cleaning**

#### Supervisor Training

Duration: 3 hours

- Creating OP modes**
- Changing thresholds, machine settings etc.**
- More printouts**
- Adjustment**
- Typical Errors**
- Practical supervisor training**
- Fitness sorting settings (option)**

## Numeron Technical Training

---

Prerequisites:	PC (with WinXP Pro / Win7 / Win10 and network connectivity, serial com port, administrator rights) Windows knowledge and Network knowledge.
Duration:	21 hours (3 days)
Participants:	4, max. 6

### Curriculum:

#### System operation

Duration: 5 hours

##### **Practical demonstration**

Processing a deposit

##### **Operator training**

Machine safety

Daily checks

PMI pictogram introduction

User operation training

##### **Supervisor training**

Creating operation modes

Changing thresholds, machine settings etc.

#### System maintenance, repairs, removals and adjustments

Duration: 8 hours

##### **Basic Numeron and CashRay theory**

##### **Component location; item removal and replacement**

##### **Disassemble & assemble machine parts**

##### **Machine testing**

##### **Routine maintenance procedures and adjustments**

##### **Service concept, contracts (optional)**



## **System software**

Duration: 8 hours

**Setup Service Laptops (Technician)**

**Software introduction**

**Numeron software installation**

**Update Numeron firmware**

**Prepare multi currency adaptations**

**CashRay 180 software and adaptation installation**

**Software update via ftp client**

**Using SenAdapUA – obtaining raw data from banknotes**

**Connecting Numeron to network, settings (optional)**

## Training NotaPack 10 System

# Training NotaPack System

## Technical Training

### **Operator Training**

2 days

### **Field Engineer Training**

5 days

## NotaPack 10 Operator Training

---

Prerequisites:	none
Duration:	12 hours (2 days)
Participants max.:	6
Training goals:	After completion of this training, participants will be self-sufficient in operation of the NotaPack 10 together with an installed banknote processing system BPS 1000. They also will be able to identify and solve simple disturbances and perform basic cleaning jobs

### Curriculum:

#### System overview

##### Documents

User manual

##### System overview

Safety rules of Notapack 10 System

Module overview

System demonstration

##### Basic functions of the modules

Module 1 feeding

Module 2 label printer

Module 3 sealing and shrinking

Module 4 lift

Module 5 and 6 bundle transport

## Operation of NotaPack 10 system

### **NotaPack 10 settings and system start**

- Controllers and safety elements
- Basic settings on Modul 3
- Printer and Modul 1 settings
- Working with automatic mode

### **Handling details and sealing procedure**

- Package transport and monitoring
- Sealing procedure

## Maintenance and Disturbances

### **Maintenance and replacements**

- Cleaning according the user manual
- Replacement of consumables

### **System handling and disturbances**

- Manual input and service mode activation
- Operating disturbances
- Error messages
- Cancelling bundles

## NotaPack 10 Field Engineer Training

---

Prerequisites:	Refer to the “Skills Assessment NotaPack Basic” document.
Duration:	48 hours (8 days)
Participants max.:	6
Training goals:	After completion of this training, the participants will be self-sufficient in repair and maintenance of the of the NotaPack 10 with respect to electrical, mechanical and pneumatic system components They also will be able to identify and solve mechanical and electrical problems.

### Curriculum:

#### System overview

##### Documents

User Manual, Service Manual and Site and Facility Requirements

Electrical and pneumatic drawings

CD with manuals of all external devices

##### Basic function

Safety rules of NotaPack 10 System

Module overview

System demonstration

#### Operation

##### Settings and system start

Controllers and safety elements

Basic settings on Modul 3

Printer and Modul 1 settings

Service key and automatic mode

Display information and package monitoring

## Components and supply

### Electric system components

- Monitoring elements
- Drive systems

### Power supply and control

- Power supply and modul connection
- Control principles / SPS
- Emergency loop and PNOZ
- Service key

### Pneumatic system

- Pneumatic supply
- Valves and cylinders

## Module details

### Module 1 Feeding module

- Mechanical design
- Drive unit
- Start settings and bundle monitoring
- Connection to BPS System

### Module 2 Printer

- Function and label application system
- Static print principle and settings
- Dynamic print principle and settings
- Connection to Modul 1 switchbox

### Modul 4 Lift

- Mechanical design and function
- Safety cylinder
- Manual input mode

### Module 3 Sealing and Shrinksystem

- Mechanical design and working principles
- Foil application and winding adjustments
- Sealing and shrinking details

### Modul 5 and 6 Feeding modules

- System extension with Modul 5 and Modul 6
- Mechanical design and function of Modul 5
- Mechanical design and function of Modul 6

### **Operating panel and operation modes**

- Main overview and Menu parameters
- Settings of operating parameters
- Automatic mode
- Manual operation / Service mode
- Settings and sealing results

## **Error messages and troubleshooting**

### **Error messages**

- Display of error messages
- List of error messages

### **Disturbances and troubleshooting**

- Undefined disturbances at external modules
- Operating disturbances at Modul 3
- Sealing disturbances
- Cancelling BN bundles

## **Replacement and adjustments**

### **Consumables**

- Foil replacement
- Printer (Label strip and transfer ribbon)

### **Replacement of parts**

- Cylinder and valve replacements
- Sensor and motor replacement
- Sealing bar and heater coil for shrink tunnel
- Hotline information of manufacturer (Ruhlmat)

### **Adjustments**

- Adjustments within the transport system
- Mechanical adjustments of Modul 3
- Settings of the temperature controllers

## **Cleaning and maintenance**

### **Cleaning procedures**

Regular cleaning

### **Maintenance**

Daily maintenance

Weekly maintenance

Monthly maintenance

Three month maintenance

Six month maintenance

## **End of training course**