SECTION 6

NV200 MANUAL SET

TECHNICAL APPENDICES

INTELLIGENCE IN VALIDATION

Innovative Technology
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NV200 MANUAL SET – SECTION 6

6. TECHNICAL APPENDICES

APPENDIX A – PRODUCT APPROVALS

CE Marking

The NV200 unit described in this manual set has been designed to comply with the relevant sections of the following Harmonised European Standards:

- EN60950-1:2001
- EN60335-1:2002
- EN60335-2-82:2003

The unit complies with all the applicable essential requirements of the Standards.

RoHS

The following products, identified by the part numbers listed in the table below, are compliant with the European Union Directive 2002/95/EC of the Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment.

Product	Description	Lead free date
NV200	Bank Note Acceptor Assembly	All NV200

We hereby declare that lead (Pb), mercury (Hg), cadmium (Cd), hexavalent chromium (Cr4-6), polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), are not intentionally added to our products in amounts exceeding the maximum concentration values as defined by RoHS regulations (except where the application of any of those substances comes within the scope of the RoHS regulations exempted applications).

All compliant products are clearly marked on the product and/or packaging.

All the information provided in this statement of compliance is accurate to the best of our knowledge, as of the date of this publication being issued.

WEEE

The European Union's directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) was adopted by the European Council and Parliament in 2003 with a view to improving the collection and recycling of Waste Electrical and Electronic Equipment throughout the EU, and to reduce the level of non-recycled waste. The directive was implemented into law by many EU member states during 2005 and 2006.

Products and packaging that display the symbol (shown left) indicates that this product must NOT be disposed of with other waste. Instead it is the user's responsibility to dispose of their Waste Electrical and Electronic Equipment by handing it over to an approved reprocessor, or by returning it to the original equipment manufacturer for reprocessing.

APPENDIX B – TECHNICAL SPECIFICATIONS

The information contained here does not form part of a contract and is subject to change without notice. Innovative Technology Ltd operates a policy of continual product development; as such specifications may change from time to time.

Environment:

	Minimum	Maximum
Temperature	+3 °C	+50 °C
Humidity	5 %	95 % non condensing

Power Requirements:

DC Voltage	Minimum	Nominal	Maximum
Absolute limits	10.8 V	12 V	24 V **
Supply ripple voltage	0 V	0V	0.25 V @ 100 Hz
Supply Current			
Standby			400 mA
Running			1.5 A
Peak (motor stall)			3 A

WARNING!
Use correct supply voltage

** **NOTE:** Only the later models of NV200 are capable of using a supply voltage up to 24 V DC. Earlier versions have a maximum voltage of 13.2 V DC.

See Appendix E of this manual (Identifying The NV200 Issue Number) for information on how to identify if your validator supports 24V DC operation.

We recommend that your power supply is capable of supplying 12V DC at 3 A, or 24V DC at 1.5 A - TDK Lambda produces a range of suitable power supplies:

- For 12V operation, use TDK Lambda model SWS50-12. This power supply is available from a variety of suppliers including Farnell (stock code 1184645) and RS (stock code 466-5869).
- For 24V operation, use TDK Lambda model SWS50-24. This power supply is also available from a variety of suppliers including Farnell (stock code 1184646) and RS (stock code 466-5875).

It is recommended that a ferrite cable clamp be used on the cable to the NV200, with the cable having a single turn around the ferrite. The suggested ferrite is as follows:

- Manufacturer: Fair-Rite
- Manufacturer Part Number: 0443166651
- Impedance (100MHz @ 1 turn): 225 Ohms

Logic Levels:

Interface Logic Levels	Logic Low	Logic High
Inputs	0 V to 0.5 V	+3.7 V to +12 V
Outputs (2.2 kΩ pull-up)	0.6 V	Pull-up voltage of host interface
Maximum current sink	50 mA per output	

General Specifications:

Note Sizes	Minimum	Maximum
Width	60 mm	85 mm
Length	115 mm	170 mm

Capacity	
Storage	500 or 1000 notes

Weight	
NV200	2.9 kg

Interface Protocol	
	eSSP; ccTalk; SIO ** MDB; Parallel; Pulse; Binary

Information

Additional interface required.

** NOTE: Using the NV200 with any of the following protocols will require an additional external interface unit:

MDB; Binary; Parallel; Pulse

See the table below for details of the external interface unit required.

Interface Protocol	External Interface
eSSP	---
ccTalk	---
SIO	---
MDB	IF5
Binary	IF9
Parallel	IF10
Pulse	IF15

APPENDIX C – GLOSSARY OF TERMS

Term	Meaning
A	Ampere
AC	Alternating Current
ACK	Acknowledge
AES	Advanced Encryption Standard
ASSY	Assembly
AV	Average
AWG	American Wire Gauge
AWP	Amusement With Prizes
BNV	Bank Note Validator
ccTalk	Coin Controls Talk
COMMS	Communications
CRC	Cyclic Redundancy Check
DC	Direct Current
DIA	Diameter
DIP	Dual Inline Package
ECB	Electronic Code Book
EEPROM	Electrically Erasable Programmable Read Only Memory
eSSP	Encrypted Smiley® Secure Protocol
FAQ	Frequently Asked Questions
GA	General Assembly
GND	Ground
Hz	Hertz
ITL	Innovative Technology Ltd

Term	Meaning
LED	Light Emitting Diode
mA	milliampere
max	maximum
MDB	Multi Drop Bus
min	minimum
mm	millimetre
ms	millisecond
MOD	Modified (or Modification)
NV	Note Validator
PCB	Printed Circuit Board
PDF	Portable Document Format
PiPS	Pay-in Pay-out System
PROM	Programmable Read Only Memory
PSU	Power Supply Unit
QTY	Quantity
RAM	Random Access Memory
ROM	Read Only Memory
Rx	Receive
RoHS	Restriction of the use of certain Hazardous Substances
SIO	Serial Input Output
SSP	Smiley® Secure Protocol
SWG	Standard Wire Gauge
SWP	Skill With Prizes
SYNC	Synchronize

Term	Meaning
TTL	Transistor Transistor Logic
Tx	Transmit
USB	Universal Serial Bus
V	Volt
V_In	Voltage In
WEEE	Waste Electrical and Electronic Equipment

APPENDIX D – ORDERING INFORMATION

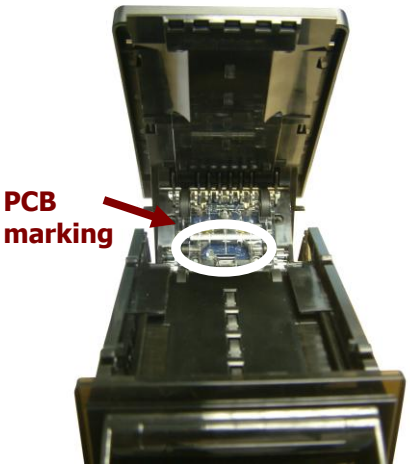
The following information is required to order an NV200 validator:

Product	NV200	Consists of NV200 validator and cash box chassis
Dataset	Country code and variant	Alternatively supply details of the currency and note types you wish to use
Bezel Size	82mm; 85 mm	These are the only bezel sizes available
Bezel Colour	RGB code or text description	
Cash Box	500 or 1000 note capacity	
Interface	eSSP; ccTalk; SIO; MDB; Parallel; Pulse; Binary	Using the NV200 with any of the following protocols will require an additional external interface unit: **MDB; Parallel; Pulse; Binary**

APPENDIX E – IDENTIFYING THE NV200 ISSUE NUMBER

Early revisions of the NV200 did not allow the use of a 24V DC supply. You need to check the NV200 issue number to see if the validator has 24V compatibility:

Open the NV200 validator lid and check the marking on the PCB where shown in this picture – the marking needs to read **PB00266_4** or higher



If the PCB issue (the last digit) is lower than **4**, the NV200 validator can only be used with a 12V DC supply.

MAIN HEADQUARTERS

Innovative Technology Ltd
Derker Street – Oldham – England - OL1 4EQ
Tel: +44 161 626 9999 Fax: +44 161 620 2090
E-mail: support@innovative-technology.co.uk
Web site: www.innovative-technology.co.uk

Innovative Technology
INTELLIGENCE IN VALIDATION

Bellis Technology
INTELLIGENCE IN VALIDATION

BRAZIL
suporte@bellis-technology.com.br

CHINA
support@innovative-technology.co.uk

GERMANY
supportDE@innovative-technology.eu

SPAIN
supportES@innovative-technology.eu

UNITED KINGDOM
support@innovative-technology.co.uk

UNITED STATES OF AMERICA
supportusa@bellis-technology.com

REST OF THE WORLD
support@innovative-technology.co.uk