

## MP300 MCL1

Low cost, multi-protocol contactless smartcard reader/writer

- ◆ 3 independent couplers on the same board
- ◆ Supports ISO/IEC 14443 A/B, ISO/IEC 15693, Mifare™ protocols
- ◆ Optionnal extention to manage the full production cycle of a FeliCa™ smartcard
- ◆ Can be combined with Micropross production couplers for contact technology



## OVERVIEW :

**This production tester will typically be used in the following contexts :**

OS loading, pre-personalisation, or personalisation of micro-modules and smartcards  
Reel to reel test handlers (micro-modules, RFID tags, ...)

**The main features of the MP300 MCL1 are :**

Access to 3 contactless devices simultaneously  
Compatible with ISO/IEC 14443-3 and -4, ISO/IEC 15693, Mifare™, FeliCa™, Innovatron™ specifications  
Full coverage of the production cycle of a FeliCa™ smartcard, from initial physical tests, until finished personalised product  
Full management of the T=CL protocol  
Supports the highest data rates (up to 848 kbps)  
Many physical parameters adjustable (field strength, modulation index, rise and fall time of the modulation, ...)  
All logical parameters adjustable (data rate, duration of the bits, waiting time)  
Open for implementation of custom protocols  
Compatible with wafers, micro-modules, e-Passports, smartcards, M2M components, RFID tags, inlays  
Presence of 3 ISO/IEC 7816-3 SIM card readers, for SAM (security access module) usage  
Open platform : integrate the MP300 MCL1 inside your own personalisation environment  
Compatible with the MVPi production machine interface

## SPECIFICATIONS :

**Number of independent test head per board : 3**

### Supported protocols

ISO/IEC 14443-3 (proximity cards)	
Type A	Supported
Type B	Supported

Anticollision	Managed
T=CL protocol	Managed
Supported data rates	106, 212, 424, 828 kbps Asymmetrical data rates supported
<b>B<sup>v</sup> (Innovatron)</b>	
Supported	
<b>ISO/IEC 15693 (vicinity cards)</b>	
Supported speeds	Low data rate High data rate
Encoding modes	1 out of 4 1 out of 256
<b>ISO 18000-3 Mode 1</b>	
Supported	
<b>Mifare TM</b>	
Types supported	Classic Light Ultra Light Ultra Light C Many more
Encryption	Assisted by hardware
<b>FeliCa TM (optional through a hardware add-on)</b>	
Available data rates	212 and 424 kbps
Scope of the FeliCa hardware option	Covers Test 1, Test 2, Issuance 0, Issuance 1, Issuance 2 (manufacturing, formatting, personalisation) Suitable for each step of the production of a FeliCa TM smartcard, including personalisation using Sony's proprietary protocol
<b>Raw mode</b>	
Gives the possibility to exchange frames without any protocolary encapsulation	
<b>Out of standard chips</b>	
Benefit from Micropross's experience in smartcard programming	

## Programmable parameters

<b>Physical parameters</b>	
Field strength	Adjustable
Modulation index	From 0% to 100%
Field rise time	0ms to 5ms
Modulation rise and fall times	0µs to 10µs
<b>Logical parameters</b>	
Type A pause width	0 to 4.4µs
Frame waiting time	Adjustable in ETU
Type B framing (SOF, EGT, EOF, bit duration)	Adjustable in clock cycles
Communication speed	106, 212, 424, 848 kbps

## SAM (Security access module) plug available

Three ISO 7816-3 compliant SIM chip readers are available on each MCL1 module (one per test head), in case security features are needed

## Communication parameters

USB 2.0
TCP/IP 10/100 Mbps
RS 232

### Software development

Remote development (the code is executed from the PC)	
Elements available	MPSDK .NET library available on demand Communication Dll supplied
Supported programming languages	C, C++, VB, Java, .NET Any language that supports Dll
Embedded development (the code is executed directly by the MP300)	
Recommended cross compiler	Windriver compiler (preferred version : 4.4b)

### User Interface

MPManager
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## SOFTWARES :

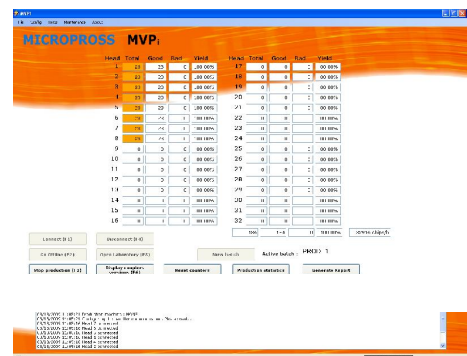
The MP300 MCL1 can be accessed using several ways :

First, using the driver dll that we supply, which enables the user to access all functionalities of the MP300 MCL1 from any programming language that supports Dll

For users preferring to embed their code directly inside the MP300 MCL1, Micropross has designed the SORB interface, which completely encapsulates all programming tasks related to the management of embedded applications, and lets the user focus on the smartcard oriented code

Finally, we can also supply our own user interface, MVPi, which elegantly conciliates convenience of use, high throughput and stability.

MVPi is able to handle up to 32 test heads at the same time, but upgrades are easily possible.

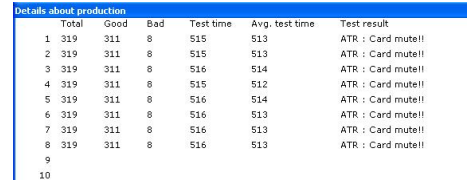


Statistics are available, either separated between all test heads, or displayed for the whole system



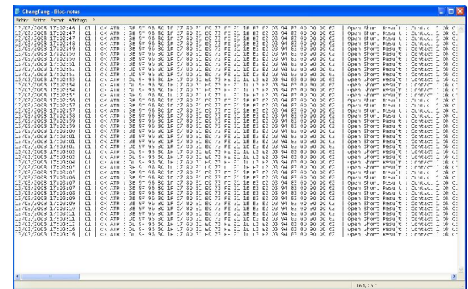
Head	Count	Percentage
217(Carte mute)	4	100.00%

More statistics are available, showing the current test time, as well as the average one.



	Total	Good	Bad	Test time	Avg. test time	Test result
1	319	311	8	515	513	ATR : Card mute!!
2	319	311	8	515	513	ATR : Card mute!!
3	319	311	8	516	514	ATR : Card mute!!
4	319	311	8	515	512	ATR : Card mute!!
5	319	311	8	516	514	ATR : Card mute!!
6	319	311	8	516	513	ATR : Card mute!!
7	319	311	8	516	513	ATR : Card mute!!
8	319	311	8	516	513	ATR : Card mute!!
9						
10						

As smartcards are being produced, logfiles are also generated, that allow to keep track of the produced components. The content of this logfile is controlled by the user.



## ACCESSORIES :

Micropross supplies a complete range of accessories for the MP300 MCL1, that include :

- Various sizes of rack housing, which allow to protect the Micropross testers from any kind of hazard
- Different types of antennas
- Software for production machines (MVPi)

We also supply packages to extend the warranty of the tester. Please ask us for the maintenance contracts available.