

MP300 MT1

High performance industrial contactless reader/writer and parametrical tester

- ◆ Supports ISO/IEC 14443 A/B, ISO/IEC 15693, Mifare™, and FeliCa™ protocols
- ◆ Tests and personalises wafers, micromodules, smartcards, e-Passports, RFID tags, inlays
- ◆ Optimised to get the fastest throughput
- ◆ Physical testing features, like resonance frequency measurement and chip impedance measurement



OVERVIEW :

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

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

The main features of the MP300 MT1 are :

- Up to 2 MP300 MT1 testers can be installed on one MP300 mother board
- Compatible with ISO/IEC 14443-3 and -4, ISO/IEC 15693, Mifare™, FeliCa™, Innovatron™ specifications
- Full management of the T=CL protocol
- Supports the highest data rates (up to 848 kbps)
- All physical parameters adjustable (field strength, carrier frequency, modulation index, rise and fall time of the modulation, ...)
- All logical parameters adjustable (data rate, duration of the bits, waiting time)
- Endless possibilities of protocolary customisation
- Compatible with wafers, micro-modules, smartcards, e-Passports, M2M components, RFID tags, inlays
- Presence of a high quality ISO/IEC 7816-3 smart card reader, for personalisation of the contact interface of a dual interface smartcard
- Advanced logical test features (response time measurement, modulation alternance, short time between two commands, ...)
- Advanced electrical measurement features : chip impedance, resonance frequency and Q factor of a smartcard
- Open platform : integrate the MP300 MT1 inside your own personalisation environment
- Compatible with the MVPi production machine interface

SPECIFICATIONS :

Number of independent test head per board : 1

Supported protocols

ISO/IEC 14443 (proximity cards)	
Type A	Supported
Type B	Supported
Anticollision	Supported
T=CL protocol	Supported
Supported data rates	106, 212, 424, 828 kbps Asymmetrical data rates supported
B ^v (Innovatron)	
Supported	
ISO/IEC 15693 (vicinity cards)	
Supported data rates	Low data rate High data rate
Encoding modes	1 out of 4 1 out of 256
ISO 18000-3 Mode 1	
Supported	
Mifare TM	
Types supported	Classic Light Ultra Light Ultra Light C Many more
Encryption	Assisted by hardware
FeliCa TM	
Available data rates	212 and 424 kbps
Encryption	Available through an external device
Raw mode	
Gives the possibility to exchange frames without any protocolary encapsulation	
Out of standard chips	
Benefit from Micropross\experience in smartcard programming	
ISO/IEC 7816-3 and -4	
T=0 and T=1 protocols	100% implemented, managed by firmware
Hardware acceleration	Transmission and reception of characters managed by the MicroSmart technology

Programmable parameters

Physical parameters (contactless interface)	
Field strength	Adjustable
Modulation index	From 0% to 100%
Field rise time	0ms to 5ms
Carrier frequency	12.56MHz to 14.56MHz
Modulation rise and fall times	0µs to 10µs
Logical parameters (contact interface)	
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
Physical parameters (contact interface)	

Voltages	
Vcc	0V to 6V
Frequency	
ISO 7816 clock frequency	100Hz to 10MHz
ISO 7816 clock duty cycle	50%
Pin states	
All pins are independent from each other, and can be separately managed	
ISO 7816 communication parameters	
ETU width	From 1 to 4096 clock cycles (bit sampling adjustable)
BGT, initial ETU width	Adjustable in clock cycles
BWT, CWT, EGT, RGT, WWT	Adjustable in ETUs
Clock stop at high or low state	Adjustable
Clock stop tG and tH timings	Adjustable in clock cycles
Parity control	Can be forced to 0, 1, odd, even
Input parity error checking	Can be disabled
Pull-up resistor	4.7k Ω ; or 20k Ω ;

Available tests

Electrical measurement	
Resonance frequency measurement	
Range	11 to 24 MHz
Chip impedance	
Done at 13.56 MHz	
Logical testing	
Automatic testing	
Send type A command, wait, send type B command and receive answer (for type B cards)	
Send type B command, wait, sent type A command and receive answer (for type A cards)	
Switch on field, wait, send request command (A or B), receive answer	
Send request, wait, send request, receive the answer	
Antitearing	
PICC reset characterization	
Check minimum FDT (frame delay time)	
Testing through API manipulation	
Response time measurement	
Sending of out of standard frames	
Sending misformed blocks (wrong number of bits)	
Retro modulation ratio measurement	
Distance simulation checking	
Field measurement	

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

SOFTWARES :

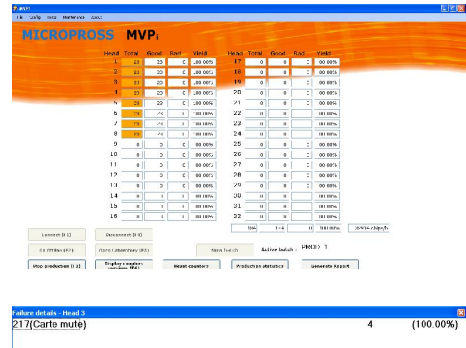
The MP300 MT1 can be accessed using several ways :

First, using the driver dll that we supply, which enables the user to access all functionalities of the MP300 MT1 from any programming language that supports Dll

For users preferring to embed their code directly inside the MP300 MT1, 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.



The screenshot shows the MICROPROSS MVPi interface with a table of test head statistics. The table has columns for Head, Type, Model, Card, Valid, Head, Total, Good, Bad, and Error. The data is as follows:

Head	Type	Model	Card	Valid	Head	Total	Good	Bad	Error
1	21	22	C	88 00%	17	0	0	0	00 00%
2	21	22	C	88 00%	18	0	0	0	00 00%
3	21	22	C	88 00%	19	0	0	0	00 00%
4	21	22	C	88 00%	20	0	0	0	00 00%
5	20	22	C	88 00%	21	0	0	0	00 00%
6	20	22	C	88 00%	22	0	0	0	00 00%
7	20	22	C	88 00%	23	0	0	0	00 00%
8	20	22	C	88 00%	24	0	0	0	00 00%
9	8	3	C	88 00%	25	0	0	0	00 00%
10	8	3	C	88 00%	26	0	0	0	00 00%
11	8	3	C	88 00%	27	0	0	0	00 00%
12	8	3	C	88 00%	28	0	0	0	00 00%
13	8	3	C	88 00%	29	0	0	0	00 00%
14	8	3	C	88 00%	30	0	0	0	00 00%
15	8	3	C	88 00%	31	0	0	0	00 00%
16	8	3	C	88 00%	32	0	0	0	00 00%
Total					112	0	0	0	00 00%

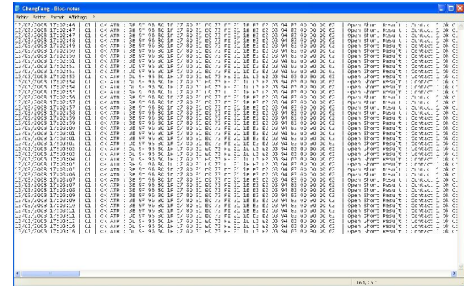
Below the table, there are buttons for 'Commande Dll', 'Commande Dll', 'New Test', 'Action Test', and 'PROSS 1'. At the bottom, there is a status bar showing 'Suban details - Head 3', '21 (Carte mute)', '4', and '(100.00%)'.

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

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

Details about production						
	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 MT1, that include :

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

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