

MP300 C3

The most advanced production tester for NFC enabled U-SIM components

- ◆ Fast contact micro-module and smart card production tester
- ◆ Supports ISO/IEC 7816, USB 2.0, SWP components, and memory chips
- ◆ Accurate measurement features
- ◆ Adjustable electrical and protocolary parameters



OVERVIEW :

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

OS loading, pre-personalisation, or personalisation of micro-modules and smartcards
 Personalisation of SIM, U-SIM, and banking cards
 Reel to reel test handlers

The main features of the MP300 C3 are :

Possibility to install up to 4 MP300 C3 modules on the same mother board
 Support of the ISO/IEC 7816-3 and –4 protocols
 Full implementation of the T=0 and T=1 protocols
 Support of SWP, LLC (S-HDLC, CLT, ACT), and HCI layers
 Fully compatible with ETSI TS 102 613 and ETSI TS 102 622
 Support of numerous memory chips
 Open for implementation of custom protocols
 Endless possibilities of protocolary customisation
 Support of the fastest smartcards
 Compatible with wafers, micro-modules, smartcards, M2M components
 Fast hardware assisted data transmission mechanism, ensuring the maximum throughput for CPU and memory modules
 Advanced electrical test and measurement features (open/short, leakage, chip consumption, ...)
 Open platform : integrate the MP300 C3 inside your own personalisation environment
 Compatible with the MVPi production machine interface

SPECIFICATIONS :

Number of independent test heads per board : 1

Supported protocols

ISO/IEC 7816-3	
T=0 and T=1 protocols	100% implemented, managed by firmware

Hardware acceleration	Transmission and reception of characters managed by the MicroSmart technology
USB 2.0	
Available speeds	Low speed, full speed
Classes	ISO/IEC 7816-12, mass storage, custom protocols
SWP (ETSI TS 102 613 and TS 102 622)	
SWP transmission	Assisted by hardware
LLC layers support	ACT, CLT and S-HDLC realised by firmware
Evolutivity	This tester can be upgraded to support future evolutions of the standard
Synchronous chips (memory chips)	
Available libraries	T2G Eurochip SLE 4442 SLE 4407 AT24CXX
Custom protocols development	Available
Hardware acceleration	Available
Raw mode	
Gives the possibility to exchange frames without any protocolary encapsulation (all interfaces)	
Out of standard chips support	
Benefit from Micropross\experience in smart card programming	

Programmable parameters

Physical parameters	
Voltages	
Vcc	0V to 10V
Vol	0V to 5V
Voh	1V to 7V
Vil	0,2V to 5V
Vih	1V to 6,8V
Frequency	
ISO 7816 clock frequency	10kHz to 20MHz
ISO 7816 clock duty cycle	30% to 70%
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	5k Ω ; or 20k Ω ;
SWP communication parameters	
Available baudrates	106, 212, 424, 848 kbit/s, 1.6Mbit/s
S2 current level detection level	Adjustable from 1nA to 1.1mA
Activation time, P2, P3 timings	Adjustable

Available tests

Electrical tests	
Open/short test	
Available contacts	Contact C1, C2, C3, C4, C5, C6, C7, C8
Forced current	Adjustable between $\pm 500\mu\text{A}$ and $500\mu\text{A}$
Leakage current measurement	
Available contacts	Contact C1, C2, C3, C4, C6, C7, C8
Measurement ranges	$\pm 5\text{mA}$ $\pm 500\mu\text{A}$
Voltage measurement	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Range available	$\pm 10\text{V}$
Modes available	Dynamic mode : we give you an analog like vision of the voltage on the pin you chose from the moment you chose Static mode : we give you the instant voltage value
Current measurement	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Ranges available	$\pm 100\text{mA}$ $\pm 25\text{mA}$ $\pm 5\text{mA}$ $\pm 500\mu\text{A}$
Modes available	Dynamic mode : we give you an analog like vision of the current on the pin you chose from the moment you chose Static mode : we give you the instant current value on the selected contact
Parametric tests	
Available contacts	Contacts C1, C2, C3, C4, C6, C7, C8
Modes available	Force a current, measure a voltage Force a voltage, measure a current
SWP specific measurement functions	
S2 signal characterisation	Measurement of minimum and maximum values of the current on the S2 signal during a given period
Logical tests	
Anti tearing test	
Simulate the chip's immunity against tearing from the reader	
Timing measurement	
Measure the chip response to a command	
Personalisation assisted by hardware	
Do not lose a microsecond while sending data to the chip thanks to the hardware assisted data sending mechanism	

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 :

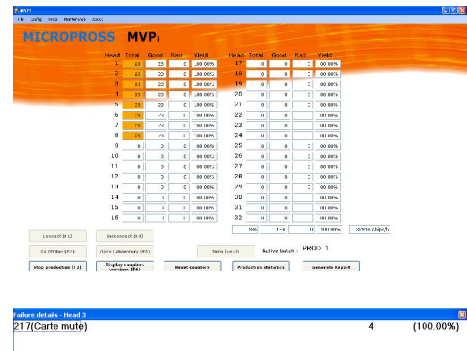
The MP300 C3 can be accessed using several ways :

First, using the driver dll that we supply, which enables the user to access all functionalities of the MP300 C3 from any programming language that supports Dll

For users preferring to embed their code directly inside the MP300 C3, 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.



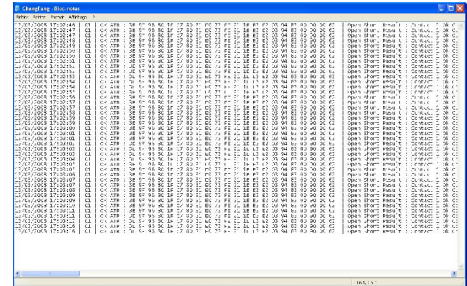
Head	Total	Good	Defect	Valid	Head	Total	Good	Defect	Valid
1	23	23	0	100.00%	17	0	0	100.00%	
2	23	23	0	100.00%	18	0	0	100.00%	
3	23	23	0	100.00%	19	0	0	100.00%	
4	23	23	0	100.00%	20	0	0	100.00%	
5	23	23	0	100.00%	21	0	0	100.00%	
6	23	23	0	100.00%	22	0	0	100.00%	
7	23	23	0	100.00%	23	0	0	100.00%	
8	23	23	0	100.00%	24	0	0	100.00%	
9	23	23	0	100.00%	25	0	0	100.00%	
10	23	23	0	100.00%	26	0	0	100.00%	
11	23	23	0	100.00%	27	0	0	100.00%	
12	23	23	0	100.00%	28	0	0	100.00%	
13	23	23	0	100.00%	29	0	0	100.00%	
14	23	23	0	100.00%	30	0	0	100.00%	
15	23	23	0	100.00%	31	0	0	100.00%	
16	23	23	0	100.00%	32	0	0	100.00%	
					Total	174	0	100.00%	

Summary statistics:
 - 217 (Carte mute) 4 (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.

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 C3, that include :

- Various sizes of rack housing, who allow to protect the Micropross testers from any kind of danger
- External smartcard readers, for application development, or integration into manual working places
- SIM to ISO converters
- Oscilloscope probe adapters
- The MVPi software interface, that allows to easily integrate our MP300 production tools inside production machines

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

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						