

MP300 TC2

Laboratory Range

The ultimate solution for contact smart card testing



- ✓ Numerous adjustable parameters
- ✓ Perfect repeatability of test scenarios
- ✓ Trace visualization & analysis
- ✓ Advanced measurements capabilities
- ✓ Injection of perturbations in the dialog
- ✓ Support of ISO/IEC 7816-3 (T=0 and T=1), USB 2.0

MP300 TC2 Overview

Beyond the application testing, the MP300 TC2 brings you the right solution to get the diagnosis of your smart card.

Carefully designed, its accuracy will enlighten the smallest details, whether the issue is timing or electrical related. Exclusive hardware features allow an unmatched flexibility. And, when confronted to the toughest test scenarios, you can rely on the MP300 TC2 repeatability. The MPScope software driving the MP300 TC2 not only will guide you through the numerous features but also provides its own set of testing functions: test scripts, shmoo plots, timing analysis and many more.

MP300 TC2

Technical specifications

■ Protocols

ISO/IEC 7816-3

T=0 and T=1 protocols implemented by firmware, communication managed by hardware

Support of synchronous cards (T2G, Eurochip, Sle4442, AT26CXX, ...) (communication assisted by hardware for highest performance)

USB 2.0

(Low speed/full speed) and USB-IC: ISO 7816-12, mass storage, custom,...

Raw mode

Gives the possibility to exchange frames without any protocolary encapsulation

Support of out of standard chips:

benefit from Micropross' experience in smartcard programming

■ Programmable parameters

Voltages

Vcc: 0 to 10V (step: 5mV)
Vol/Voh: 0 to 5V/1 to 7V (step: 5mV)
(each pin can be adjusted independantly)
Vil/Vih: 0.2 to 5V/1 to 6.8V (step: 5mV) (allows drivability checking)
Vpp: 0V to 25V (step: 25mV)

Rise and fall times

Vcc: from 20ns to 1.8V/ms
All other pins: from 10ns to 5us (500us on C2)
(each pin can be adjusted independantly)

Frequency

Clock frequency: 10kHz to 20MHz (step: 10Hz)
Clock duty-cycle: 30% to 70%

Pin States

All pins are independent from each other, and can be directly managed

ISO 7816 Communication Parameters

Clock divider from 1 to 4096 (bit sampling adjustable)
BGT, Initial ETU width on ATR reception (clock cycles)
BWT, CWT, EGT, RGT, WWT (ETUs)
Clock stop high/low state, t_{c, t_h} adjustable (clock cycles)
Parity control: force to 0,1,odd, even.
Possibility to disable parity checking
Pull-up resistor adjustable (5k/22k Ω are fixed, any value from 1k Ω and 100k Ω)

■ Spy

Accuracy: 20ns

Display of pin states (all pins)

ETU width modification

I/O direction, and more...

■ Others

Communication

USB 2.0

TCP/IP 10/100 Mb/s

Development

Development in C, C++, VB, Java, .NET environments

■ Tests

Open/Short test

(all pins, measurement of both diodes, forced current adjustable)

Leakage current measurement

(all pins, 2 ranges: +/-5mA, +/-500uA (accuracy: +/-1uA)

Voltage measurement (all pins, +/-10V (accuracy: 20mV))

Dynamic mode: we give you an analog like vision of the voltage on the pin you chose

Static mode: we give you the instant voltage value

Current measurement (all pins, 5 ranges: +/- 250mA, +/-100mA, +/-25mA, +/-5mA, +/-500uA)

Dynamic & static mode

Burst mode

(C1 only, up to 512000 samples, minimum sample period: 40ns)

Force a current, measure a voltage

Force a voltage, measure a current

Anti tearing

Timing measurement: measure the response time of your chip

Personalisation assisted by hardware: do not lose a microsecond while sending data to the chip thanks to the hardware assisted data sending mechanism

■ Tests with sequencer

Generation of glitches on Vcc, C3

Modification at a user defined moment of the state of a pin

Sending out of standard frames/provoking collisions

Creation of custom activation/deactivation sequences

Generation of parity errors on transmission, simulation of parity errors on reception

Management of triggers

Sudden modification of an electronic parameter

■ Triggers

The MP300 TC2 offers 5 different triggers, to synchronize with other laboratory equipments (oscilloscope,...)

■ Our service

We provide you not only a useful product but also an efficient technical support and our experience. Micropross is at your disposal for any user requirement.

Micropross is an ISO 9001 V 2000 certified company.