MICROPROSS IS NOW NATIONAL INSTRUMENTS

MP300 TC3

The most complete test hardware for test of contact smart cards and (U-)SIM components

The MP300 TC3 Advantage

The MP300 TC3 is the worldwide reference for test of contact smart cards and secure elements. Shipped to hundreds of units worldwide, its numerous test features make this tool the ideal companion for characterisation of components, and type approval at validation laboratories.

1. **Slot for Spy probe (external spy feature)**
2. **Slot for external smart card reader**
3. **Slot for ID-1 format card**
4. **Input for external clock generator**
5. **Plug for synchonisation with external devices**

GLOBALPLATFORM PTCRB PCS Type Certification Review Board ISO EMVCo QUALIFIED

"As a secure chip design expert, working with a large range of customers and industries, we needed a universal tester able to execute electrical measurement to characterize the performance of our design. The MP300 TC3 fulfills this mission, offering static and dynamic electrical tests as well as other parametric tests. Moreover it also allows us to reproduce any condition of card communication, which is a key point when supporting customers during their development, and their qualification.
Finaly thanks to a huge diffusion of this tester in the lab of our partners, our clients can go with EMVCo/ISO conformance without any doubt."

Starchip, part of SAFRAN Group

The Ideal Tool

Available test

Electrical tests

- Open/short test (all contacts, forced current adjustable)
- Leakage current measurement (all contacts)
- Voltage measurement (all contacts, static, dynamic and burst modes)
- Current measurement (all contacts, static, dynamic and burst modes)
- Parametric tests (V=f(I), I=f(V))
- SWP specific measurement functions (statistics on SWP C2 current values)

Logical tests

- Anti tearing test (simulate the chip's immunity against tearing from the reader)
- Timing measurement
- Concurrent I/O testing: send frames in ISO and SWP simultaneously

Application Fields

- Compliance testing
- Qualification
- Deep electrical testing
- Personalization
- Pre-personalization
- OS loading

Available accessories

- Software licence for external spy
- Software licence for support of I2C protocol
- Spy Flex probes:ID1, SIM (2FF), micro SIM (3FF), nano SIM (4FF)
- Measurement probes (with oscilloscope plugs)
- M2M probe

Key Points

- Emulation of a contact smart card reader or a CLF
- Compatible with smart cards, micro-modules, M2M components
- Support of the ISO/IEC 7816-3 and -4, USB 2.0 and –IC, SWP/SHDLC/HCI protocols and various types of memory chips
- Completely supports the ETSI TS 102 613 and TS 102 622 specifications
- Integrates the support of the I2C protocol (spy and reader), with definition of all timing parameters
- Possibility to adjust all electrical parameters
- Accurate timing measurement features
- Possibility to turn the MP300 TC3 into an external spy

BUSINESS AREAS


Telecom


Banking


E-health


M2M


Contact micro-Module


USB Stick

NFC enabled U-SIM

Supported protocols

ISO/IEC 7816-3	
T=0 and T=1 protocols:	100% implemented, managed by firmware and FPGA, accelerated by hardware
USB 2.0 (+USB-IC)	
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
I2C	
Modes supported:	Standard mode, Fast mode
	Fast mode plus
	Supports clock stretching, multi master arbitration, anti tearing
SPI	
Data width: 8 bits	
Synchronous chips (memory chips)	
Raw mode: implementation of custom protocols and support of out of standard chips	

Programmable parameters

Physical Parameters
- Voltages: Vcc, Vol, Voh, Vil, Vih adjustables
Frequency: ISO 7816: 100kHz to 20MHz (duty cycle adjustable between 30% and 70%)
- Rise & fall times of signals adjustable
- Pin states: all pins are managed separately
ISO 7816 communication parameters
Adjustable parameters: All normative timings (WWT, BGT, …), parity, pull-up resistor, …
SWP communication parameters
Available baudrates: Adjustable from 49kbps to 1.9Mbps (duty cycle adjustable from 0% to 50%)
Adjustable parameters: Activation time, P2, P3, S2 current detection level
USB-IC parameters
Voltage classes supported: 1.8V and 3.0V
I2C
Setup time, hold time, start and stop condition, clock high and low states, address width (7 and 10 bits, Nack condition
SPI
Phase, polarity, anti tearing

Spy Feature

Resolution: 20ns
Signals displayed: All 8 pins + SWP S1, S2 + USB + triggers
Type of events displayed: Logical state change, bytes, change of conditions, analog measurements

NI Services and Support

- Maintenance contracts :
  - Firmware/software updates
  - Hardware repair
  - Onsite customer support
  - Replacement tool
- Technical support located in Asia, Europe and Americas
- Training courses customizable :
  - knowledge level based
  - Time constraints
  - Topics of interest
- Debug and pre-certification of contact and contactless devices

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