# Small Instrumentation Modules

SIM900 — Mainframe



- · Rugged, compact design
- · 8 module slots
- · 9th port for remote module
- · 10 MHz reference with ext. sync
- · Cascade multiple mainframes
- · GPIB and RS-232 interfaces
- · Start-up script memory

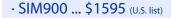
# SIM900 Mainframe

SIM (Small Instrumentation Modules) is a robust, flexible platform in which up to eight high-performance instruments share the same compact mainframe and computer interface. Unlike other modular systems, both front-panel and computer operation are possible. With SIM you get the functionality you need while avoiding the cost of unnecessary features. You configure your own system from a broad and growing selection of modules.

The SIM900 Mainframe is the platform on which a SIM system is assembled. The mainframe provides power, computer interfaces, clock synchronization, and individual module status. Eight internal module slots accommodate single-width and double-width modules. For the occasional application needing a module right next to an experiment, a rear-panel connector and an interconnect cable permit operation of a 9<sup>th</sup> module outside the mainframe.

### Communications

The mainframe comes with a standard RS-232 host interface and GPIB (IEEE-488.2) as an option. All commands and queries to individual modules are routed through the mainframe host interface. Messages are routed based on their port number, with the mainframe seamlessly relaying data to and from the appropriate destination. This messaging system is also used to communicate through the two auxiliary RS-232 ports. Using these ports, any number of SIM900 mainframes and other RS-232 instruments may be controlled through one host interface in the master mainframe.





Each port in the mainframe has independent 511-byte input and output queues. The mainframe also performs any rate adaptation needed when communicating through the ports. A dedicated "eavesdrop" RS-232 port provides an echo of all communications to and from the mainframe to ease debugging of new setups.

#### Timebase

The mainframe provides a master 10 MHz clock to the modules which lock their internal timebases to this reference. The master clock in the SIM900 is based on a low-noise crystal oscillator. The optional timebase input (option 02) permits phase-locking the master clock to an external 10 MHz reference (like the SIM940 Rubidium Standard) through a rear-panel BNC input.

#### Start-Up Script

A 4000 byte start-up script is maintained in non-volatile memory in the SIM900. When enabled, the commands stored in the script are executed each time the mainframe is turned on. This provides a simple way to ensure all modules are automatically set to a desired starting configuration.

#### **Front Panel**

Front-panel LED indicators provide status information for the mainframe and also monitor communications between the host and installed modules. Indicators display host interface, timebase, communications status, start-up script, and power information.

#### **Power Supplies**

All modules operate from various combinations of  $\pm 5$  V,  $\pm 15$  V, and  $\pm 24$  V. These well regulated and filtered DC voltages are supplied by the mainframe power supply which is forced air cooled to maintain stable performance. All supplies are current limited with a trip-off circuit in case of an over voltage or short circuit.

## **Ordering Information**

SIM900 \$1595	Mainframe with RS-232	
Option 01	GPIB interface	\$595
O900RM	Rack mount kit for SIM900	\$100

#### SIM900 Specifications

Module slots Mainframe voltages Current limits (max.) Power limit	8 ±15 VDC, ±5 VDC, +24 VDC 5 A +5 VDC 3 A for -5 VDC, ±15 VDC, +24 VDC 70 W total of all voltages	
	$\pm 0.5\%$	
Voltage regulation Internal timebase		
Host interfaces	10 MHz VCXO, ±10 ppm RS-232 (DB9/F DCE), GPIB (opt.)	
	KS-252 (DB9/F DCE), GPIB (opt.)	
Module connector pins		
(DB15/F)	(0) Classic success	
(1) Signal ground	(9) Chassis ground	
(2) -Status/service		
(3) RTS flow ctrl	(11) RXD async data	
(4) CTS flow ctrl	(12) $+10 \text{ MHz ref}$	
(5) $-10 \text{ MHz ref}$	(13) +5 VDC	
(6) $-5$ VDC	(14) +15 VDC	
(7) $-15 \text{ VDC}$	(15) + 24  VDC	
(8) Power ground		
Indicator lights		
Interface	RS-232, GPIB	
Timebase	Internal, External Lock, Fault	
Activity	8 slots, Remote SIM, Aux A, Aux B,	
	Mainframe, Data Send, Data	
	Receive, Data Error	
Start script	Enabled	
Power	On, Standby, Overload, Trip	
Other connections	Remote SIM (DB15/F)	
	Aux. RS-232 (DB9/M DTE, 2 ports)	
	Eavesdrop RS-232 (DB9/F DCE)	
	10 MHz timebase input (BNC)	
	DIP switch for RS-232, GPIB &	
	script enable	
	Chassis ground terminal	
Operating temperature	0°C to 40°C, non-condensing	
Power requirements	90 to 260 VAC, 47 to 63 Hz, 150 W	
Dimensions		
Mainframe	17.0"×5.3"×9.0" (WHD)	
Single-width mod.	1.5"×3.6"×7.0" (WHD)	
	3.0"×3.6"×7.0" (WHD)	
Weight (empty)	12.6lbs.	
Warranty	One year parts and labor on defects	
-	in materials and workmanship	



SIM900 rear panel



phone: (408)744-9040 www.thinkSRS.com