

**Sxx-MICRO-MODULE**  
**WITH MITSUBISHI M377xx**  
**16-BIT-SINGLE-CHIP-MICROCOMPUTER**  
(M37702, M37710, M37732 GROUP)

The Sxx-MICRO-MODULE is a fieldprogrammable miniature-controllermodule implementing a Mitsubishi M377xx 16-bit single-chip-microcomputer. It supports fast and easy development of a large variety of automation- and communication- applications, including applications that require frequent reprogramming, network features or interprocessor communication, while occupying minimal space.

**APPLICATION:**

industrial equipment  
robotics  
communication and measuring instruments

**FEATURES:**

small outline: 57 x 34 mm  
on-board operating-system  
5 Volt-operation  
128/512 KB flash-EPROM, 5 Volt field-programmable (no external 12 V required)  
sector erase functions (the flash-memory is divided into 8 sectors)  
127 Sxx-MICRO-MODULES can be connected to a network via RS485  
can be (re)programmed in network  
37 I/O-pins, 8 x 16-bit timer, 8 x 8-bit A/D-converter, motor control  
same pin-configuration as the M377xx-DEVELOPMENT-KIT (or MTK 7706)

**OPTIONS:**

- S02-MICRO-MODULE with Mitsubishi M37702 single-chip-computer
- S32-MICRO-MODULE with Mitsubishi M37732 single-chip-computer
- S10-MICRO-MODULE with Mitsubishi M37710 single-chip-computer
- 128 or 512 KB field-programmable flash-EPROM
- 8, 16 MHz clock-frequency
- 128 network-members (including PC)

**TECHNICAL DATA OF M377xx-CHIP-FAMILY:**

16-bit CPU with 8, 16 or 25 MHz clock frequency  
16-Mbyte address-space  
fastest instruction: 160 ns at 25 MHz  
up to 2048 byte internal RAM  
37 or 68 (single-chip-mode) programmable I/O-pins  
16 internal + 3 external interrupts  
2 USARTS (Universal Synchronous/Asynchronous Receiver/Transmitter),  
up to 5MBps synchronous data-transmission at 25 MHz  
8 x 16-bit universal timers  
12-bit programmable watchdog-timer  
8 x 8-bit A/D-converter

**ADDITIONAL FEATURES OF M37732:**

real-time-ports, for motor control

**ADDITIONAL FEATURES OF M37710:**

real-time-ports, for motor control

8 x 10-bit A/D-converter

2 x 8-bit D/A-converter

**TECHNICAL DATA OF Sxx-MICRO-MODULE:**

clock-frequency: 8/16/20/25 MHz (baud-rate versions 14,7456 MHz upon request)

5 V voltage-controller and supervisor (3,3 Volt versions upon request)

resetbutton

power-on-reset, power-down-reset

I/O-connector for 37 I/O-pins

**COMMUNICATION:**

on-board RS-485 up to 150 Kbps (special versions for up to 780 Kbps available)

up to 128 network-members

**MEMORY:**

128 or 512 KB field-programmable sector-erase flash-EPROM

no external 12 V supply required

**OPERATING SYSTEM:**

located in one sector of the flash-EPROM

features highspeed-download of the User-Software

7 user-interrupt-tables for 7 complete applications available

monitors memory and register contents

works together with the „LUCILLE“ development-environment-software

supports network programming

supports auto-start-application functions

**DEVELOPMENT-ENVIRONMENT-SOFTWARE „LUCILLE“:**

integrated development-environment-software for PC-AT

easy and comfortable operation through user-interface (turbo vision)

comfortable text-editor for multiple text-windows including „copy & paste“

ASCII-terminal function

calls external compiler/cross-assembler

fast download of user-software to the Sxx-MICRO-MODULE

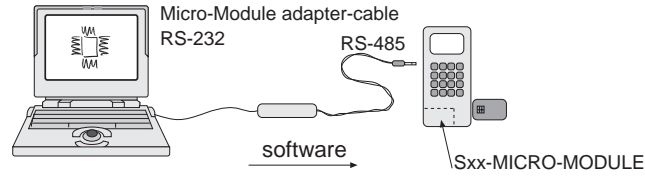
network programming

shortkeys for all important functions

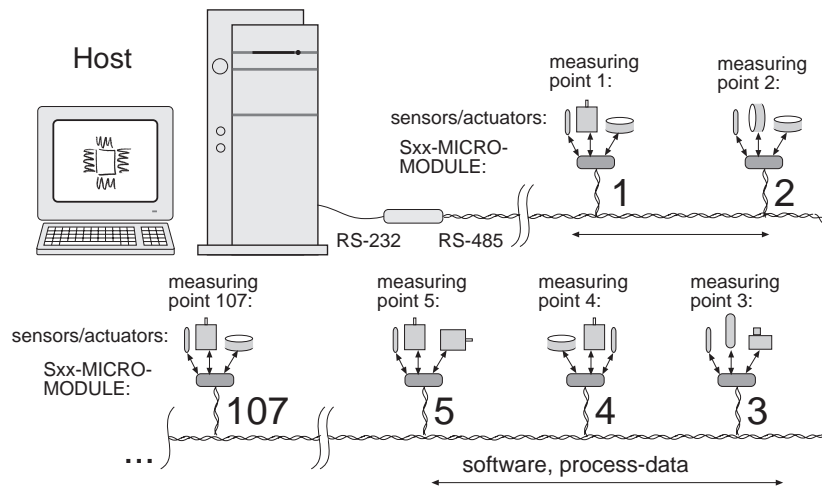
**INTERFACE-CABLE:**

the special MICRO-MODULE adapter cable is used to connect the PC RS-232 port to a single Sxx-MICRO-MODULE or to a Sxx-MICRO-MODULE network.

## Application 1: firmware-download to stand-alone instrument or prototype

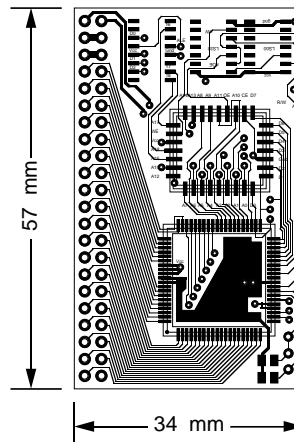


## Application 2: measuring-/control-system with permanent host-connection



## Sxx-MICRO-MODULE application example

A	44	43	B
Vcc	42	41	Vcc
Gnd	40	39	Gnd
8.7	38 <sub>7</sub>	37 <sub>6</sub>	
	36 <sub>5</sub>	35 <sub>4</sub>	
	34 <sub>3</sub>	33 <sub>2</sub>	8.0
	32 <sub>1</sub>	31 <sub>0</sub>	
7.7	30 <sub>7</sub>	29 <sub>6</sub>	
	28 <sub>5</sub>	27 <sub>4</sub>	
	26 <sub>3</sub>	25 <sub>2</sub>	7.0
	24 <sub>1</sub>	23 <sub>0</sub>	
6.7	22 <sub>7</sub>	21 <sub>6</sub>	
	20 <sub>5</sub>	19 <sub>4</sub>	
	18 <sub>3</sub>	17 <sub>2</sub>	6.0
	16 <sub>1</sub>	15 <sub>0</sub>	
5.7	14 <sub>7</sub>	13 <sub>6</sub>	
	12 <sub>5</sub>	11 <sub>4</sub>	
	10 <sub>3</sub>	9 <sub>2</sub>	
	8 <sub>1</sub>	7 <sub>0</sub>	5.0
4.7	6 <sub>5</sub>	5 <sub>4</sub>	
	4 <sub>3</sub>	3 <sub>2</sub>	
	2 <sub>1</sub>	1 <sub>0</sub>	4.2
			Reset



## Sxx-MICRO-MODULE pin configuration