NEW ABSOLUTE DIGITAL SYLVAC PROBES

The new probes **S_Probe P12D** : The perfect combination of Sylvac Swiss ingeniuty and new technologies!



S_Probe P12D



VMUX SOFTWARE

- Measuring range 12.7mm (½in)
- **Resolution 0.1 and 0.01 micron**
- Absolute system with integrated correction, no more pairing needed
- **Patented dual inductive and capacitive system**
- Ball bearing
- **Very high accuracy and repeatability**
- Direct USB output

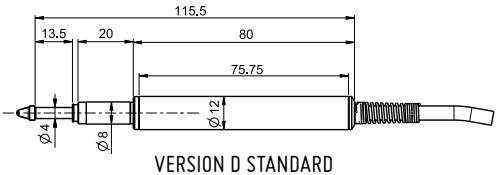
IP54

SWISS MADE

sylvac

SWISS MADE

S_Probe P12D



VERSION D STANDARD



USB CONNECTOR



SYLCOM SOFTWARE



D300S DISPLAY UNIT

0.1µm ONLY



STANDARD VERSION

TECHNICAL SPECIFICATIONS

Specifications	801.1012	801.1018	801.2012	801.2017
Resolution type	High resolution		Standard	
Type	P12D HR USB	P12D HR USB Constant force	P12D USB	P12D USB Low force
Force [1]	0.2-0.3N	0.06N	0.4-0.8N	0.2-0.3N
Measuring range	12.7mm		12.7mm	
Resolution	0.01µm		0.1µm	
Max. error	0.6µm		1µm	
Repeatatility	0.08µm		0.2µm	
Nb measures/s	1µm = 300 / 0.1 µm= 100 / 0.01 µm = 25 [2]		1µm = 300 / 0.1 µm= 100	
Output type	USB		USB	
Cable output	Straight		Straight	

[1] ± 20%, vertical position / [2] with D300S V2.0

IP54

P12D - Interface description

ASCII MODE

In ASCII mode each probe needs its master device, chaining multiple probes is not possible. The USB and the M8 version can both be used in ASCII mode. This mode is best suited to configure a device by using a simple RS232 terminal program like the "Terminal" integrated with Vmux LITE (1 instrument), available free of charge on **www.sylvac.ch**.

The USB version creates à virtual COM port (recent operating systems automatically install an appropriate FTDI driver) for direct communication with the probe. The M8 version needs an RS485 differential line driver. An USB-to-RS485 converter is available from Sylvac.

Connection parameters: 115'200Bd, 8 data bits, no parity, one stop bit (115'200 8N1)

Data packet description: An ASCII command is composed of one or more printable and case insensitive ASCII characters. Each command must be terminated by a carriage return character (ASCII 0x0D). The device's response follows the same format.

ASCII commands

?	Get the probe's present position
ID?	Get the instrument's identifier
MM / IN	Change the measurement unit to millimetres/inches
UNI?	Get the measurement unit
SET	Set zero at the current position (zero preserved, even if disconnected)
SN?	Get the device's serial number
SUM?	Get the filtering parameter value (number of samples for moving average filter)
SUM 1 / 16 / 256	Set the filtering parameter value
VER?	Get the firmware version

Error codes

Code	Error	Explanation	Solution
ERR1	Parity error	Parity error in RS-232 communication	Check your connection parameters
ERR2	Unknown command	The command is not supported	
ERRC	Condensation	Capacitive measurement error	Dry your device and try again
ERRD	Drops	Inconsistent capacitive measurement	Move the probe and try again
ERRE	Saturation	AD converter error	Restart the probe. If the error is still present, the probe must be reinitialised at the factory

Examples

Master (PC)	Device (probe)	Remarks
?\r	+09.52572\r	Typical response from P12DHR
VER?\r	r2.03 16.07.2018\r	Firmware version may be different

MBUS MODE

The MBus protocol allows the connection of up to 31 devices on the same data bus. Simple T-adapters can be used to extend the data bus. The master can use broadcast commands to address all the devices on the bus and get synchronised measurement values from multiple devices.

Connection parameters: 187'500Bd, 8 data bits, odd parity, one stop bit (187'500 8O1)

Data packet description :

Command frame

Break	Function code (1B)	Address (1B)	Data (0…n Bytes)

Response frame

Function code (1B)	Data (1…n Bytes)

Error frame

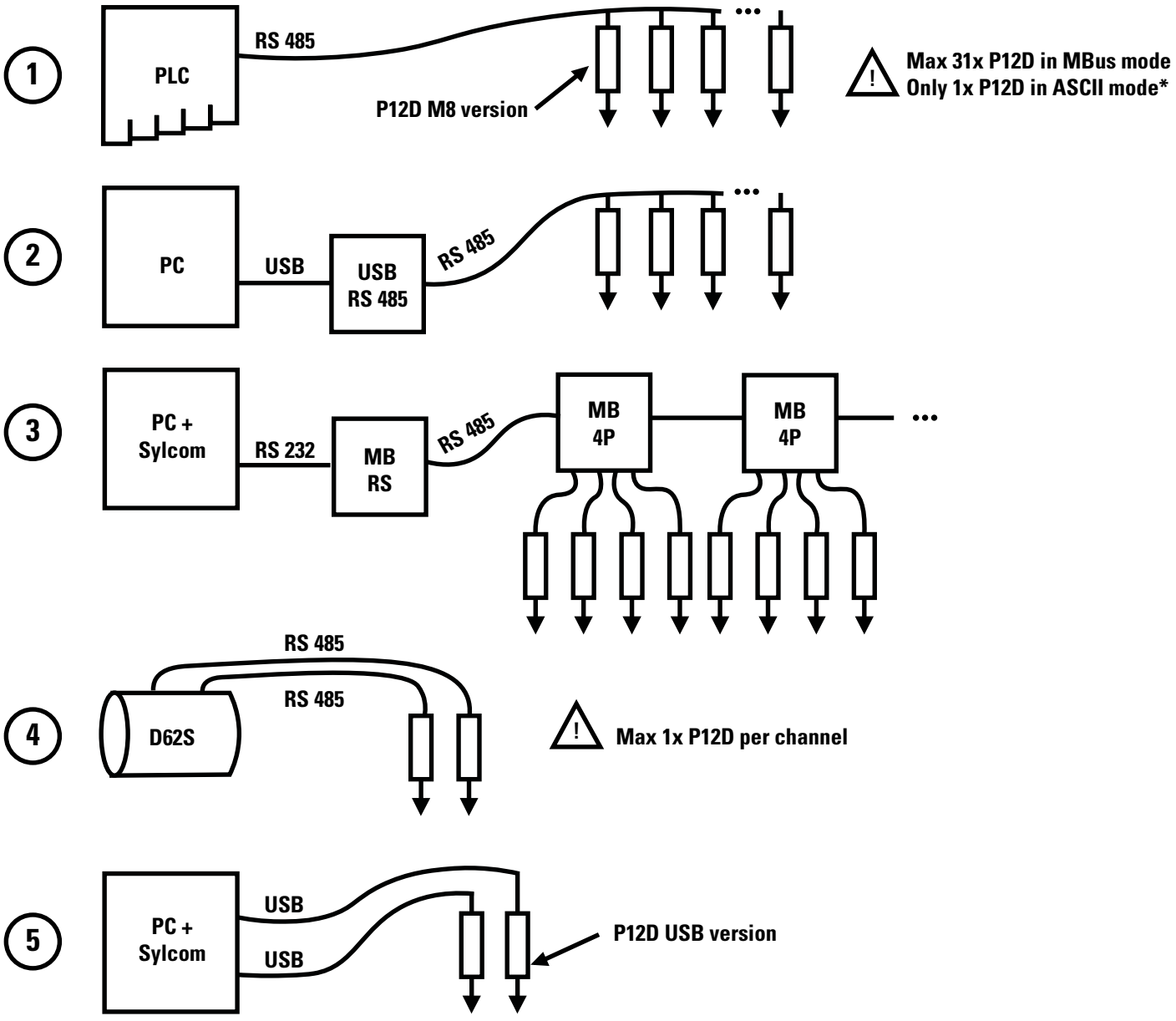
'!' (ASCII 0x21)	Exception code (1B)

New devices on the data bus can be found using the Notify command. The freshly connected probe will respond to the command if it is moved at least 1mm. The answer contains its identifier which is needed to set a temporary, short address for the new device by issuing the SetAddress command.

The MBus protocol is compatible with Solartron ORBIT® protocol. For a complete list of supported commands see ORBIT® Protocol Description.

Connection examples

The following picture illustrates some possible connections of the Sylvac digital probes

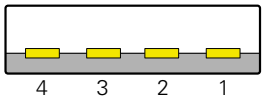


Only the USB version of the probe can be connected directly to a PC using one USB port per device (example no. 5). The M8 version is intended for industrial equipment, such as Programmable Logic Controllers (PLC) or the Sylvac D62S display unit. It needs a converter to be connected with a PC.

* Digital probes in ASCII mode are not addressable, thus only one device can be used on each bus.

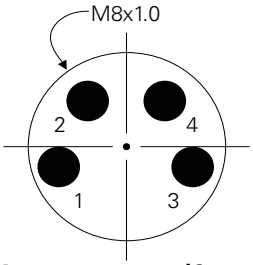
Hardware

Connectors



USB Type-A (front view)

PIN	Signal	Description
1	VCC	Positive power supply (5V)
2	D-	Negative data line
3	D+	Positive data line
4	GND	Negative power supply (0V)



M8 male connector (front view)

PIN	X [mm]	Y [mm]
1	-1.70	-0.50
2	-1.08	1.45
3	1.70	-0.50
4	1.08	1.45

PIN	Color	Signal	Description
1	Brown	VCC	Positive power supply (3.5...25V)
2	White	A	RS-485 negative data line
3	Yellow	GND	Negative power supply (0V)
4	Green	B	RS-485 positive data line
Shield	Braid	PE	Protective Earth (shielding)

Cables

USB cable length must not exceed 5m. Any USB 2.0 compatible extension can be used.
The M8 version supports up to 100m total bus length. Use only shielded 4 pin M8 extension cables.

Electrical specifications

Power supply voltage (VCC)	3.5 V – 25 V	device can be USB-bus-powered
Current consumption (ICC)	2.5 mA	VCC = 5V (add 17 mA for USB interface)
Differential output voltage (VOD)	min 1.5 V	R ≥ 27Ω (only for M8 version)

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EU DECLARATION OF CONFORMITY (DoC)

We, Sylvac SA, hereby declare under our sole responsibility that the product

Name	P12D Inductive probe
Description	Inductive probe RS485 and USB
Part Numbers	801-1012, 801-1018, 801-1212, 801-1218, 801-2012, 801-2017, 801-2212

has been submitted to a conformity assessment and fulfils the essential requirements of the following European directives/re.

2001/95/EU	General product safety
2014/30/EU	EMC
2011/65/EU & 2015/863/EU	RoHS

and complies with the following harmonized standards or other normative documents

EN 61326-1:2021	Electrical equipment for measurement, control and laboratory use – EMC requirements
EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic, products with respect to the restriction of hazardous substances

Person authorized to compile the technical file and issue the declaration of conformity: Eric Schnyder

Place and date of issue	Yverdon-Les-Bains, September 28, 2023
Name (position)	Eric Schnyder (CEO)
Signature	