	SYLVAC SA		No. :	SPE-PM 292-1744-01
			Date :	29/06/2021
	Simple Data Service Specification		Par :	dwa
			Version :	C
			Statut:	Valide

Simple Data Service (UUID : 0x5000)

Bluetooth Base UUID: 0x0000XXXX-0000-1000-8000-00805F9B34FB

Characteristic	UUID	Properties	Format	Example
Measurement	0x5020	Notify	SINT32*	-2'147'483'648
Parameters	0x5021	Notify	UINT16, bitmap	mm, res 0.001, mode max

*) The format of the characteristic value is defined by the characteristic presentation format descriptor (UUID 0x2904)

Measurement definition

Measurement values are always transmitted in units defined by the descriptor. Transformation to display units and resolution specified in the Parameters characteristic must be done by the client.

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
MEASUREMENT (LSB)								MEASUREMENT							
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
MEASUREMENT								MEASUREMENT (MSB)							

Short example to convert measured value from SDS Measurement characteristic:

Value read is 0xA0063A01
 Descriptor unit is 0x0127 (meter)
 Descriptor exponent is 0xF7 (-9)
 Set to Little Endian 0x013A06A0 = 0d20580000
 Apply Descriptor $20'580'000 \cdot 10^{-9} \text{m} = 0.02058 \text{m} (20.58 \text{mm})$

Ensure to enable notification on Measurement characteristic to get the correct value else in case of read, a non-valid measurement will be output (0xFFFFFFFF7F -> 0x7FFFFFFF = 2'147'483'648).


Measurement values are also broadcasted while advertising, in this case the unit is undefined and the raw value must be converted with factor 10^{-4} to reflect the displayed value.

Short example to convert broadcasted value from advertisement packets:

Value read is 0xE8230300
 Set to Little Endian 0x000323E8 = 0d205800
 Convert with factor 10^{-4} 20.58

Byte	Description	Data
...
28	Measurement (LSB)	0xE8
29	Measurement	0x23
30	Measurement	0x03
31	Measurement (MSB)	0x00



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Parameters bitmap definition

15	14	13	12	11	10	9	8
UNIT				RES			
7	6	5	4	3	2	1	0
Unused						MODE	

UNIT	Bits 15-12	Measurement unit 0000 Undefined 0001 mm 0010 Inch 0011 Reserved 0100 Radians 0101 Degrees 0110 Degrees – minutes 0111 Reserved ⋮ 1111 Reserved
RES	Bits 11-8	Resolution 0000 Undefined 0001 100µm / 5mil 0010 10µm / .5mil / 0.01° / 0.0001rad 0011 1µm / .05mil 0100 0.1µm / .005mil 0101 0.01µm 0110 Reserved ⋮ 1111 Reserved
MODE	Bits 1-0	Measuring mode 00 Undefined 01 Minimum mode 10 Maximum mode 11 Delta / TIR mode
Unused	Bits 7-2	Reserved for future use. Always read as 0