

# General Specifications

Model SM23  
Industrial electrodes for single pNa measurement

GS 12B06J07-20EN-P

## ■ Overview

The SM23 is suitable for long term, reliable Sodium ion monitoring. Another application is to use the pNa sensor as reference electrode for pH measurement in combination with an analyzer with dual high input impedance specification.

This may considerably save maintenance costs in application where the salt content is constant, and the pH is 2-3 units higher than the pNa value. pNa measurement is used in many applications, but the most frequent applications are found in pure water applications, where Sodium is measured to detect carry-over of salts in steam, leakage of salt through cation filters, leakage of salt from leaking condensers.

Other applications where the pNa electrode is used for measurement is in brine solutions.

## ■ Features

- Dimensions and design meet the requirements of DIN 19263
- Temperature range 0 ... 100°C (-AN4), 15 ... 125°C (-AN6)
- Pressure range 1,5... 1000 KPa
- Shock-proof and heavy-duty (dome shaped) membranes
- pNa range < 0 to 4
- pH 2 units higher than the pNa (pH-pNa>2)
- Na+ range is 0.0001M up to saturation



## 1. General Specification SM23

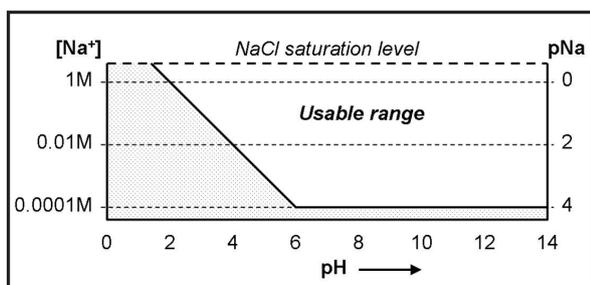
### Characteristics of SM23-AN4

- Glass resistance @ 25°C 100...300MΩ
- Suitable (Ultra-, pure-) water application
- Shock-proof glass membrane with fast response

### Characteristics of SM23-AN6

- Glass resistance @ 25°C 450...700MΩ heavy-duty membrane guarantees great strength retaining the necessary sensitivity
- Especially suitable for the harsh processes

**Note:** The resistance may not exceed 1000 MΩ under measuring and calibrating conditions (according DIN the resistance of the glass may not exceed 1GΩ). As a general rule, the glass resistance will increase by 100% with every temperature decrease of 10°C (likewise, the glass impedance will decrease by 50% with every temperature increase of 10°C).



**Figure 1:** Application range for the SM23 as a reference electrode in pH measurement

### 1.1 Measuring Elements

Sensor type : pNa glass electrode  
Membrane : Na-glass

Glass Shape  
-AN4 : Bulb  
-AN6 : Dome

Glass Impedance range @25°C  
-AN4 : 100...300 MΩ  
-AN6 : 450...700 MΩ

### 1.2 Wetted parts construction material

Sensor body : Glass  
O-rings : N/A

### 1.3 Dynamic specifications

Response time pNa 90% step change 0 to 40 at 25°C  
-AN4 : <60 sec.  
-AN6 : <60 sec.

- Stabilisation time 0.02 pNa / 10 sec: < 2 min.

### 1.4 Operating range

pNa	
-AN4	: 0...4
-AN6	: 0...4
Temperature	
-AN4	: 0°C ... 100°C
-AN6	: 15°C ... 125°C
Pressure	
-AN4	: 1,5... 1000 KPa
-AN6	: 1,5... 1000 KPa
Conductivity	
-AN4	: > 50 μS/cm
-AN6	: > 50 μS/cm

### 1.5 Shipping Details

Package size (LxWxH) : 260 x 45 x 45 mm  
: (10.2 x 1 x 1 inch)

### 1.6 Environmental conditions

Storage temp. : -10 to 50 °C  
: (14 to 122 °F)

### 1.7 Regulatory standards

CE  
- RoHS Directive 2011/65/EU  
Commission Delegated Directive (EU) 2015/863 amending Annex II as regards the list of restricted substances, and by applying following standards:  
EN-IEC 63000: 2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

- Pressure Equipment Directive 2014/68/EU  
by applying Article 4.3: Sound Engineering Practice

UKCA  
- RoHS Directive 2011/65/EU  
The restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012  
- Pressure Equipment Pressure Equipment (Safety) Regulation 2016  
by applying Article 8: Sound Engineering Practice

## 2. Dimensions (Units in mm)

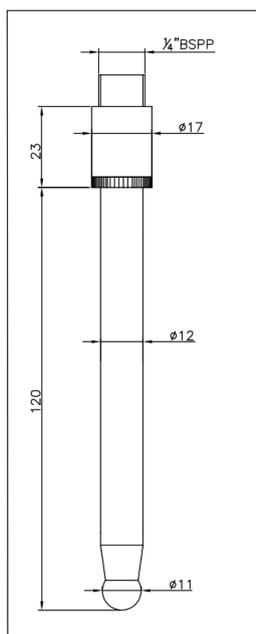


Figure 2: SM23-AN4 dimension (mm)

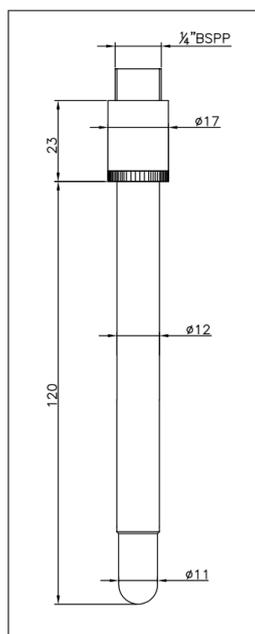


Figure 3: SM23-AN6 dimension (mm)

## 3. Model Codes & Parts

Table 1: Model & Suffix codes SM23

Model	Suffix Code	Option code	Description
SM23			Ion selective sensor
	-AN4		Sodium sensitive (pNa)
	-AN6		Sodium sensitive (pNa) Heavy duty

Table 2: Spare parts SM23

Part number	Description
K1520BF	Buffer Solution pH4/7/9+pNa 0 (3x 0.5L)
K1520BG	Buffer Solution pH 2 + pNa 0 (3x 0.5L)
K1520BH	Buffer Solution pH 4 + pNa 0 (3x 0.5L)
K1520BJ	Buffer Solution pH 7 + pNa 0 (3x 0.5L)
K1520BK	Buffer Solution pH 9 + pNa 0 (3x 0.5L)
K1520JL	Adapter Y-CAP - PG13.5 SS
K1520JN	Adapter M25x1.5 - PG13.5 PVC
K1523JA	Adapter PG13.5 in F*40 PPO
K1523JB	Adapter PG13.5 to 1/4"NPT PPO
K1523JC	Adapter PG13.5-sensors in F*40 SS
K1523JD	Adapter PG13.5 to 1/4" NPT SS
K1524AA	O-ring Sil. 10.77x2.62&Slide Ring (1 pc.)
K1598AC	Flow fitting (3.1), for SC4A
K1500DW	Set of 12 cable nuts for WU20

## 4. Cables

Table 3: Model & Suffix codes WU20

Model	Suffix Code	Option code	Description
WU20			Industrial pH/ORP cable
	-PC		Coax
		01	1 meter cable
		02	2 meter cable
		05	5½ meter cable
		10	10 meter cable
		15	15 meter cable
		20	20 meter cable
		25	25 meter cable

## Addendum 1: Typical Installation

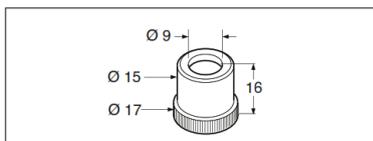


Figure 4: K1500DW (set of 12 cable nuts)

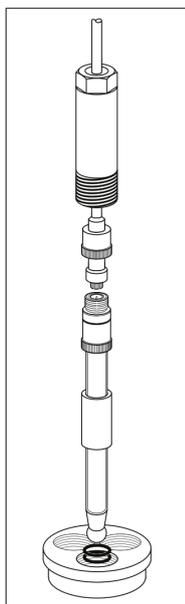


Figure 5: With mounting set FP20-R12, FP20-S12

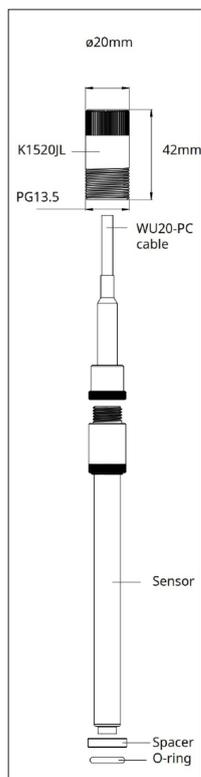


Figure 6: Mounting PG13.5 for Y-CAP sensors

## Addendum 2: Available Models

Table 4: SM23 Available models

MS-code	Model
	SM23-AN4
	SM23-AN6

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