## 1. PREFACE

#### 1.1 Introduction

The heart of a pH measuring loop are the electrodes. Yokogawa has designed a wide range of electrodes to ensure this heart keeps beating under the most severe conditions. A high degree of standardization makes it possible to mount any electrode in the standard program of fittings. Color coded strips on electrode and cable and clear identification of sensor specifications make incorrect installation virtually impossible.

# 1.2 Unpacking and Checking

Upon delivery, unpack the sensor carefully and inspect it to ensure it was not damaged during shipment. If damage is found, retain the original packing materials and then immediately notify the carrier and the relevant Yokogawa sales office.

Make sure the Model Code and Serial Number on the sensor are the same as on the packing list. Also, check any option(s) that were ordered are included and correct.

## 1.3 Warranty and Service

Yokogawa products and parts are guaranteed free from defects in workmanship and material under normal use and service for a period of (typically) 12 months from the date of shipment from the manufacturer. Individual sales organizations can deviate from the typical warranty period, and the conditions of sale relating to the original purchase order should be consulted.

Damage caused by wear and tear, inadequate maintenance, corrosion, or by the effects of chemical processes are excluded from this warranty coverage. In the event of warranty claim, the defective goods should be sent (freight paid) to the Service Department of the relevant sales Organization for repair or replacement (at Yokogawa's

The following information must be included in the letter accompanying the returned goods:

- · Model Code and Serial Number.
- · Original Purchase Order and Date.
- Length of time in service and description of the process.
- · Description of the fault and circumstances of the failure.
- Process/environmental conditions that may be related to the failure of the sensor
- Statement as to whether warranty or non-warranty service is
- · Complete shipping and billing instructions for return of material, plus the name and phone number of a contact person that can be reached for further information.
- Clean Statement

Returned goods that have been in contact with process fluids must be decontaminated and disinfected prior to shipment. Goods should carry a certificate to this effect, for the health and safety of our employees. Material Safety Data sheets must be included for all components of the process to which the sensor(options) have been exposed.

## 1.4 Serial number

The Serial number is defined by nine (9) alphanumeric characters:

X<sub>1</sub>X<sub>2</sub> X<sub>3</sub>X<sub>4</sub> X<sub>5</sub>X<sub>6</sub> X<sub>7</sub>X<sub>8</sub> X<sub>9</sub> Production location Year/Month code Tracking number Example: N3Z100034

Table 1:	Table:		
Year	Year code		Mont
2023	Z		Janua
2024	1		Febru
2025	2		March
2026	3		April
2027	4		May
2028	5		June
2029	6		July
2030	7		Augus
2031	8		Septe
2032	9		Octob
2033	Α		Nover
2034	В		Decer

2: Month code

Month	Month code
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	Α
November	В
December	С

## 2. General specifications

The specifications for the sensor are clearly shown on the type plate attached to the electrode cap. For detailed specification please download GS 12B06I01-00EN-P.

The resistance of the electrodes at different temperatures is shown in the tables 4 and 5.

## 3. Installation

## 3.1. Mounting

The electrode must be connected to an electrode cable (type WU20-PC..) marked with a green strip. The electrode fits any electrode cable of Yokogawa fitted with the standard nut of which the dimensions are shown in figure 1. The nut can be ordered under part number

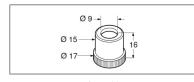
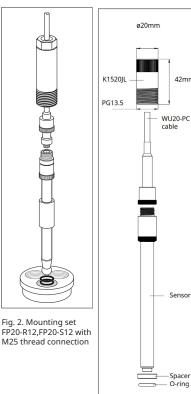


Fig. 1, K1500DW (set of 12 cable nuts)

The mounting of an electrode in an fitting should be carried out as shown in the figure 2 and 3.



M25 thread connection

Fig. 3. Mounting set with PG13.5 connection for Y-CAP sensors

## 4. Dimensions

For electrode dimensions refer to figure 4 or data in GS 12B06J01-00EN-P

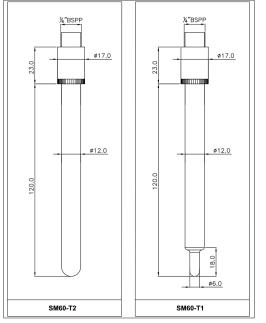


Fig.4. SM60 dimensions

# 5. Spare parts

Spare parts are listed in table 3.

Table 3: Temperature electrodes spare part list

Part number	Description	
K1520JL	ADAPTER Y-CAP - PG13.5 SS	
K1523JA	Adapter PG13.5 in F*40 PPO	
K1523JB	Adapter PG13.5 to ¾"NPT PPO	
K1523JC	Adapter PG13.5-sensors in F*40 SS	
K1523JD	Adapter PG13.5 to ¾" NPT SS	
K1524AA	O-RING SIL. 10.77x2.62&SLIDE RING (1PC)	
K1598AC	Flow fitting (3.1), for SC4A	

Table 4: T1 / Pt1000 table R (Ω)

901.5

921.3

941

960.7

980.4

1000

1019.5

1039

1058.5

1078

1097.4

1116.8

1136.1

1155.4

1174.7

1194

1213.2

1232.4

1252.6

1270.8

1290

1309.1

1328.1

1347

1366

1385

1404

1422.9

1441.8

1460.7

1479.5

1498.3

1517.1

1535.9

1554.6

1573.3

1592

1610.6

1629.2

1647.8

1666.3

1684.8

1703.3

1721.8

1740.2

1758.6

195

200

174.02

175.86

°C

-25

-20

-15

-10

-5

0

10

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

105

110

115

120

125

130

135

140

145

150

155

160

165

170

175

180

185

190

195

200

°C	R (Ω)
-25	90.15
-20	92.13
-15	94.1
-10	96.07
-5	98.04
0	100
5	101.95
10	103.9
15	105.85
20	107.8
25	109.74
30	111.68
35	113.61
40	115.54
45	117.47
50	119.4
55	121.32
60	123.24
65	125.26
70	127.08
75	129
80	130.91
85	132.81
90	134.7
95	136.6
100	138.5
105	140.4
110	142.29
115	144.18
120	146.07
125	147.95
130	149.83
135	151.71
140	153.59
145	155.46
150	157.33
155	159.2
160	161.06
165	162.92
170	164.78
175	166.63
180	168.48
185	170.33
190	172.18
.55	1.720

Table 5: T2 / Pt100 table

YOKOGAWA ◆

## **EU DECLARATION OF CONFORMITY**

Yokogawa Process Analyzers Europe B.V. Euroweg 2, 3825 HD Amersfoort The Netherlands

6. Regulatory compliance

Herewith declare under our sole responsibility that the products, model:

SM29, SM29D SM60, SM60D

further specified with model suffix- and option codes: As listed in Annex-1 in this document

is manufactured in accordance with the requirements for CE-marking of products as stated in EC Decision:

768/2008/EC on a common framework for the marketing of products

by applying the following standards:

EN-ISO 9001: 2015 Quality management systems - Requirements

Subject product is:

Produced according to appropriate quality control procedures

. In compliance with the essential requirements of the specific product legislation

Commission Delegated Directive (EU) 2015/863 amending Annex II as regards the list of restricted substances, by applying the following standards:

EN-IEC 63000: 2018 Technical documentation for the assessment of electrical and electronic

products with respect to the restriction of hazardous substances

The CE-mark has been affixed on the product in 2019 for the first time

If applicable, the product is checked against the latest official released revision of the standards mentioned above; differences do not affect the certified product identified on this declaration.

# YOKOGAWA ◆

Model	Suffix Code	Option code	Description	
SB20			Salt bridge	
	- VC		Flow diaphragm: ceramic	
	- VP		Flow diaphragm: PTFE	
	- VS		Flow diaphragm: sleeve	
Model	Suffix Code	Option code	Description	
SM29			Metal electrodes	
	- PT9		Solid Platinum beaker	
	- ZZZ		Tokuchu	
	· ·	/Z	Tokuchu	
Model	Suffix Code		Description	
SM29D			Metal electrodes with DIN connector	
	- PT9		Solid Platinum beaker	
Model	Suffix Code	Option code	Description	
SM60			Measuring sensor temperature	
	- T1		Meas. Temp, pt1000	
	- T2		Meas. Temp, pt100	
Model	Suffix Code	Option code	Description	
SM60D			Measuring sensor temperature with DIN con	
	-T1		Meas. Temp, pt1000	
	- T2		Meas. Temp, pt100	
Model	Suffix Code	Option code	Description	
SR20			Reference sensor	
	- AC22		Ref. pH, non flow, ceramic	
	- AC32		Ref. pH, refill, bellomatic	
	- AC52		Ref. pH, refill, ceramic	
	- AP24		Ref. pH, non flow, PTFE	
	- AP26		Ref. pH, non flow, PTFE, DJ	
	- AS52		Ref. pH, refill, sleeve	
	- ZZZZ		Tokuchu	
		/Z	Tokuchu	
Model	Suffix Code	Option code	Description	
SR20D			Reference sensor with DIN connector	
	- AC22		Ref. pH, non flow, ceramic	
	- AC32		Ref. pH, refill, bellomatic	
	- AC52		Ref. pH, refill, ceramic	
	- AC52 - AP24 - AP26		Ref. pH, refill, ceramic  Ref. pH, non flow, PTFE  Ref. pH, non flow, PTFE, DJ	

# CA

## YOKOGAWA ◆

## **UK DECLARATION OF CONFORMITY**

We:

Manufacturer: Yokogawa Process Analyzers Europe B.V. Euroweg 2, 3825 HD Amersfoort The Netherlands

Yokogawa UK Ltd. 17 Stuart Road, Runcom WA7 1TR United Kingdom

Herewith declare under our sole responsibility that the products, model: SB20

SM29, SM29D SM60, SM60D SR20, SR20D

further specified with model suffix- and option codes: As listed in Annex-1 in this document

is manufactured/imported in accordance with the requirements for UKCA-marking of products by applying

EN-ISO 9001: 2015 Quality management systems - Requirements

Produced according to appropriate quality control procedures.

In compliance with the essential requirements of the specific product legislation:

The Restriction of the Use of Certain Hazardous Substances in **Electrical and Electronic Equipment Regulations 2012** 

The UKCA-mark has been affixed on the product in 2022 for the first time.

If applicable, the product is checked against the latest official released revision of the standards mentioned above; differences do not affect the certified product identified on this declaration

Amersfoort - November 14, 2022

S. Kiyono General Manager Yokogawa Process Analyzers Europe B.V.

Instruction Manual

SC21, SC25V, SC25F, SC29, SM21, SM23, SM60, SR20, FU20, FU20F, FU24, FU24F, PH21

Protection of Environment (Use in China)

This manual is valid only in China

## 产品中有害物质的名称及含量

部件名称	有害物质					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯
	(Pb)	(Hg)	(Cd)	(Cr (VI))	(PBB)	醚
						(PBDE)
传感器	×	0	0	0	0	0
电缆	×	0	0	0	0	0

○: 表示该有害物质在该部件中所有均质材料中的含有量都在GB/T26572所规定的限量要求以下。

× , 表示该有害物质至少在该部件的某一均质材料中的含有量超出 09/T26572 新提定的限量要求

环保使用期限: 这个标志是基于SJ/T11364, 在中国(不包括台湾,香港,澳门)贩售的电子电器 产品所适用的环保使用期限。

只要遵守产品上关于安全及使用上的注意事项,从制造之日起计算在该年限内, 不会发生制品内的有害物质外泄,突然变异,对环境或人体以及财产产生重大影

(注) 该年限是《环境保护使用期限》,不是产品的保质期限。 另外,关于替换部件的推荐替换周期,请阅读使用说明书。

**Production date** 

关于生产日期

生产日期在产品铭牌上9位数的序列号中,用以下形式表示生产日期。

R:2015, S:2016, T:2017, U:2018, V:2019, W:2020, X:2021, Y:2022, Z:2023,

1:2024, 2:2025, 3:2026, ...

从左数第4位数: 生产月份

1: 1月, 2: 2月, 3: 3月, …, 9: 9月, A: 10月, B: 11月, C: 12月 (示例) N3S700001: 2016年7月



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The Guroweg 2, 3825 HD, Amersfoort The Netherlands Principle in The Netherlands Principle in The Netherlands

**User Manual** 

# Directions for use SM60 **Temperature Electrodes**





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