

**Model 871PH
pH and ORP Sensors
—
Style A**

Give instrument Model Code when ordering.
*Parts preceded by an asterisk are recommended spare parts.
See Recommended Spare Parts Summary section for quantities.

TO ORDER PARTS, CALL 1-866-746-6477.

MODEL CODE

Description	Model
Rebuildable Style pH/ORP Sensor	871PH
<u>Sensor Body Material and Diagnostic Configuration</u>	
Ryton, Standard Configuration, Integral 6 m (20 ft) Cable, Integral Preamplifier (a)	-1
CPVC, Standard Configuration, Integral 6 m (20 ft) Cable, Integral Preamplifier (a)	-2
Ryton, Intelligent Configuration, Integral 6 m (20 ft) Cable, Integral Preamplifier (b)	-3
CPVC, Intelligent Configuration, Integral 6 m (20 ft) Cable, Integral Preamplifier (b)	-4
Ryton, Intelligent Configuration, Integral 6 m (20 ft) Cable, No Preamplifier (b)	-5
CPVC, Intelligent Configuration, Integral 6 m (20 ft) Cable, No Preamplifier (b)	-6
<u>Measuring Electrode and Body Material</u>	
None	X
Spherical Glass, pH, Ryton	A
Antimony, pH, Ryton	B
Platinum, ORP, Ryton	D
Gold, ORP, Ryton	E
Flat Ruggedized Glass, pH, Ryton (c)	F
Domed High Temperature Glass, pH, Ryton	G
Spherical Glass, pH, ptfe	P
Antimony pH, ctfe	Q
Platinum, ORP, ctfe	R
Gold, ORP, ctfe	S
Flat Ruggedized Glass, pH, ptfe (c)	T
Domed High Temperature Glass, pH, ptfe	U
<u>Sensor Wetted Metallic Parts Material</u>	
Titanium	1
Carpenter 20 Cb	2
AISI Type 316L Stainless Steel (316L ss)	3
Monel	5
Tantalum	6
<u>Reference Junction and Body Material</u>	
Ceramic, Ryton	A
Ceramic, ptfe	B
Ceramic, Double Junction, Ion Barrier, pvdf	D
<u>Optional Selections</u>	
<u>Cable: Integral to Sensor; Standard and High Temperature</u>	
Nonstandard Integral Cable Length, standard temperature at 85°C (185°F); not available with Option -Q (d)	-3
Nonstandard Integral Cable Length, terminated in generic connector plug; standard temperature at 85°C (185°F); specify length; not available with Options -4, -B, -Q, -H) (d)(e)(f)(g)	-5
Standard Integral Cable Length 6 m (20 ft), terminated in generic connector plug; standard temperature at 85°C (185°F); not available with Options -4, -B, -Q, -H) (e)(f)(g)	-7
Integral High Temperature Cable rated 125°C (255°F) (with Sensor Body -5, -6; Not available with Options -5, -7, -Q)	-H
<u>Variopin Quick Connector on Integral Cable or Sensor Body</u>	
Integral Cable Terminated w/Variopin Quick Connector (not available with Options -4, -5, -7) (f)(j)	-B
Variopin Quick Connector Integral to Sensor Body (not available with Options -3, -4, -5, -7) (f)(j)	-Q
<u>O-Rings</u>	
EPDM O-Rings (standard O-rings are Viton)	-E
Chemraz O-Rings (standard O-rings are Viton)	-C

MODEL CODE

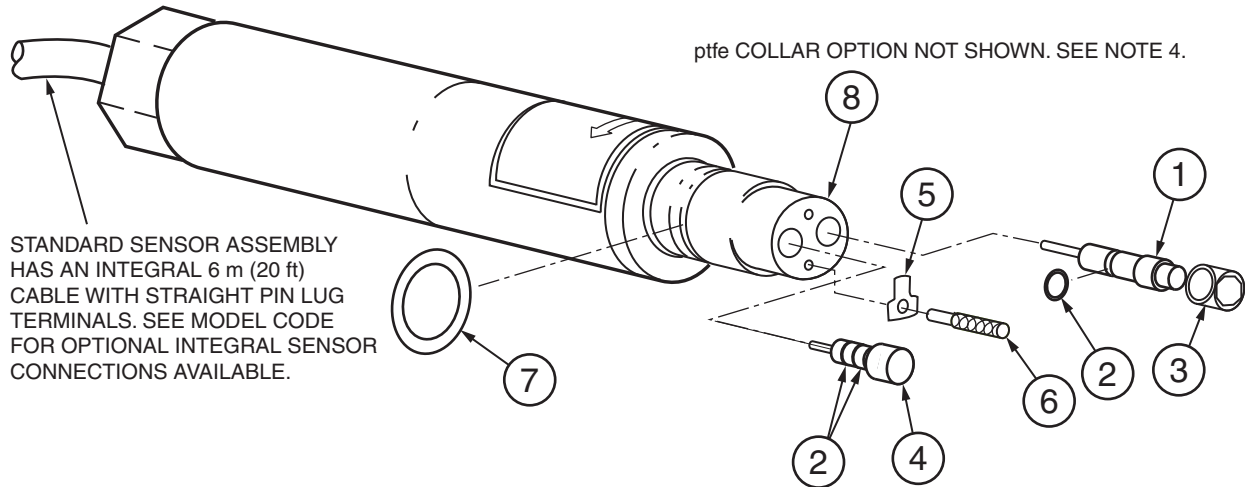
MODEL CODE (Continued)

<u>Description</u>	<u>Model</u>
<p>Miscellaneous Optional Selections</p> <p>No spade lug terminals attached to end of cable (not available with Option -5, -7, -B, -Q) (h) ptfe Collar</p> <p>Example: 871PH-1F1A-4</p>	<p>-4 -T</p>

- (a) Does not support the sensor diagnostic features of 870ITPH Transmitter and 875PH Analyzer.
- (b) Compatible with 870ITPH Intelligent Transmitter and 875PH Analyzer only.
- (c) Optimum accuracy is in the range of 2 to 12 pH. It can, however, be used with pH instruments ranged from 0 to 14 pH.
- (d) Standard cable length if not specified = 6 m (20 ft).
Maximum integral cable length with Transmitters or Analyzers is:
33 m (100 ft) for 870PH pH/ORP transmitters;
150 m (500 ft) for 870ITPH Transmitters, and for 873PH, 873APH, and 873DPX, and 875PH Analyzers.
- (e) Requires Patch Cable. See Accessories section.
- (f) Not compatible with ball valve assembly mountings.
- (g) Compatible with 870PH-1 and 870PH-2 only; this option is NOT a Variopin style connector.
- (h) All cables that do not have connectors, have leads terminated with straight pin lugs, and are now compatible with all Analyzers and Transmitters. Option -4 is no longer required for compatibility with 873 Series. Option -4 is included for customers who automatically order it.
- (j) When used with 871PH-3, -4, the standard 3-wire 1000 ohm RTD is supplied as a 2-wire, 1000 ohm RTD.

PARTS

Figure 1. 871PH pH AND ORP SENSOR ASSEMBLY



Item	Part No.	Qty.	Part Name
*1	--	1	Reference Junction (see Note 1)
2	Below	3	O-Ring, 5.3 mm (0.21 in) ID (see Note 2)
	2800-046		Viton O-Ring; Standard
	X0201FH		EPDM O-Ring; Option -E
	X0201JQ		Chemraz O-Ring; Option -C
3	1341-063	1	Cap, Reference Junction
*4	--	1	Measuring Electrode (see Note 3)
5	Below	1	Keeper (see Note 2)
	2805-018		Titanium
	2805-619		Carpenter 20 Cb -3
	2805-620		316L ss
	2805-618		Monel
	2805-621		Tantalum
6	Below	1	Keeper Screw, Knurled (see Note 2)
	2800-060		Titanium
	2800-683		Carpenter 20 Cb -3
	2800-684		316L ss
	2800-682		Monel
	2800-685		Tantalum
*7	Below	1	O-Ring, 18.8 mm (0.74 in) ID
	2800-062		Viton O-Ring; Standard
	X0201FY		EP O-Ring; Option -E
	X0201JA		Chemraz O-Ring; Option -C
8	BS812MY	1	ptfe Collar; Option -T; See Note 4.

Table 1. Measuring Electrode Code A Spherical Glass Electrode Kits; pH; Ryton; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022505
Carpenter 20 Cb	2		0022541
316L ss	3		0022540
Monel	5		0022512
Tantalum	6		0022515
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812AF	
316L ss	3	BS812AG	
Monel	5	BS812AH	
Tantalum	6	BS812AJ	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812AL
316L ss	3		BS812AM
Monel	5		BS812AN
Tantalum	6		BS812AP

Table 2. Measuring Electrode Code P Spherical Glass Electrode Kits; pH; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022510
Carpenter 20 Cb	2		BS812AQ
316L ss	3		BS812AR
Monel	5		BS812AS
Tantalum	6		BS812AT
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812AV	
316L ss	3	BS812AW	
Monel	5	BS812AX	
Tantalum	6	BS812AY	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812BA
316L ss	3		BS812BB
Monel	5		BS812BC
Tantalum	6		BS812BD

— NOTE

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 3. Measuring Electrode Code F Flat Ruggedized Glass Electrode Kits; pH; Rytan;
One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS805MD
Carpenter 20 Cb	2		BS812BK
316L ss	3		BS812BL
Monel	5		BS812BM
Tantalum	6		BS812BN
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812BQ	
316L ss	3	BS812BR	
Monel	5	BS812BS	
Tantalum	6	BS812BT	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812BV
316L ss	3		BS812BW
Monel	5		BS812BX
Tantalum	6		BS812BY

Table 4. Measuring Electrode Code T Flat Ruggedized Glass Electrode Kits; pH; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS812BZ
Carpenter 20 Cb	2		BS812CA
316L ss	3		BS812CB
Monel	5		BS812CC
Tantalum	6		BS812CD
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812CF	
316L ss	3	BS812CG	
Monel	5	BS812CH	
Tantalum	6	BS812CJ	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812CL
316L ss	3		BS812CM
Monel	5		BS812CN
Tantalum	6		BS812CP

— NOTE —

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 5. Measuring Electrode Code G Domed High Temperature Glass Electrode Kits; pH; Ryton;
One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS812CY
Carpenter 20 Cb	2		BS812CZ
316L ss	3		BS812DA
Monel	5		BS812DB
Tantalum	6		BS812DC
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812DF	
316L ss	3	BS812DG	
Monel	5	BS812DH	
Tantalum	6	BS812DJ	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812DL
316L ss	3		BS812DM
Monel	5		BS812DN
Tantalum	6		BS812DP

Table 6. Measuring Electrode Code U Domed High Temperature Glass Electrode Kits; pH; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS812DQ
Carpenter 20 Cb	2		BS812DR
316L ss	3		BS812DS
Monel	5		BS812DT
Tantalum	6		BS812DU
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812DW	
316L ss	3	BS812DX	
Monel	5	BS812DY	
Tantalum	6	BS812DZ	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812EB
316L ss	3		BS812EC
Monel	5		BS812ED
Tantalum	6		BS812EE

— NOTE

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 7. Measuring Electrode Code B Antimony Electrode Kits; pH; Ryton; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022506
Carpenter 20 Cb	2		0022521
316L ss	3		0022522
Monel	5		0022520
Tantalum	6		0022523
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812EN	
316L ss	3	BS812EP	
Monel	5	BS812EQ	
Tantalum	6	BS812ER	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812ET
316L ss	3		BS812EU
Monel	5		BS812EV
Tantalum	6		BS812EW

Table 8. Measuring Electrode Code Q Antimony Electrode Kits; pH; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS812EX
Carpenter 20 Cb	2		BS812EY
316L ss	3		BS812EZ
Monel	5		BS812FA
Tantalum	6		BS812FB
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812FD	
316L ss	3	BS812FE	
Monel	5	BS812FF	
Tantalum	6	BS812FG	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812FJ
316L ss	3		BS812FK
Monel	5		BS812FL
Tantalum	6		BS812FM

— NOTE —

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 9. Measuring Electrode Code D Platinum Electrode Kits; ORP; Ryton; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022507
Carpenter 20 Cb	2		0022525
316L ss	3		0022526
Monel	5		0022524
Tantalum	6		0022527
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812GZ	
316L ss	3	BS812HA	
Monel	5	BS812HB	
Tantalum	6	BS812HC	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812HE
316L ss	3		BS812HF
Monel	5		BS812HG
Tantalum	6		BS812HH

Table 10. Measuring Electrode Code R Platinum Electrode Kits; ORP; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022532
Carpenter 20 Cb	2		BS812HJ
316L ss	3		BS812HK
Monel	5		BS812HL
Tantalum	6		BS812HM
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812HP	
316L ss	3	BS812HQ	
Monel	5	BS812HR	
Tantalum	6	BS812HS	
Titanium	1	Chemraz - Option -C	
Carpenter 20 Cb	2		BS812HU
316L ss	3		BS812HV
Monel	5		BS812HW
Tantalum	6		BS812HX

— NOTE

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 11. Measuring Electrode Code E Gold Electrode Kits; ORP; Ryton; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	0022508
Carpenter 20 Cb	2		0022529
316L ss	3		0022530
Monel	5		0022528
Tantalum	6		0022531
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812FU	
316L ss	3	BS812FV	
Monel	5	BS812FW	
Tantalum	6	BS812FX	
Titanium	1	Chemraz - Option -C	BS812FY
Carpenter 20 Cb	2		BS812FZ
316L ss	3		BS812GA
Monel	5		BS812GB
Tantalum	6		BS812GC

Table 12. Measuring Electrode Code S Gold Electrode Kits; ORP; ptf; One Pack Kits

Sensor Wetted Parts		O-Ring Material	Kit Part Number
Material	Code		
Titanium	1	Viton - Standard	BS812GD
Carpenter 20 Cb	2		BS812GE
316L ss	3		BS812GF
Monel	5		BS812GG
Tantalum	6		BS812GH
Titanium	1		EPDM - Option -E
Carpenter 20 Cb	2	BS812GK	
316L ss	3	BS812GL	
Monel	5	BS812GM	
Tantalum	6	BS812GN	
Titanium	1	Chemraz - Option -C	BS812GP
Carpenter 20 Cb	2		BS812GQ
316L ss	3		BS812GR
Monel	5		BS812GS
Tantalum	6		BS812GT

— NOTE —

Each One Pack Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 13. Measuring Electrode Kits; pH; Ten Pack Kits

Measuring Electrode			Sensor Wetted Parts		O-Ring	Kit Part No.
Type	Body Mat'l	Code	Material	Code		
Spherical Glass	Ryton	A	Titanium	1	Viton	BS805WC
Spherical Glass	ptfe	P	Titanium	1	Viton	BS805YN
Flat Glass	Ryton	F	Titanium	1	Viton	BS805WD
High Temperature Glass	Ryton	G	Titanium	1	Viton	BS812KZ
High Temperature Glass	ptfe	U	Titanium	1	Viton	BS812KY
Antimony	Ryton	B	Titanium	1	Viton	BS805WM

— NOTE

Each Ten Pack Measuring Electrode Kit contains ten measuring electrodes with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.

Table 14. pH Reference Junction Kits; pH; One Pack Kits

Reference Junction			Sensor Wetted Parts		O-Ring	Kit Part No.
Type	Body Mat'l	Code	Material	Code		
Ceramic	Ryton	A	Titanium	1	Viton	0022703
			Carpenter 20 Cb	2	Viton	0022707
			316L ss	3	Viton	0022708
			Monel	5	Viton	0022721
			Tantalum	6	Viton	0022709
			Ceramic	Ryton	A	Titanium
Carpenter 20 Cb	2	EPDM				BS812JD
316L ss	3	EPDM				BS812JE
Monel	5	EPDM				BS812JF
Tantalum	6	EPDM				BS812JG
Ceramic	Ryton	A				Titanium
			Carpenter 20 Cb	2	Chemraz	BS812JJ
			316L ss	3	Chemraz	BS812JK
			Monel	5	Chemraz	BS812JL
			Tantalum	6	Chemraz	BS812JM
			Ceramic	ptfe	B	Titanium
Carpenter 20 Cb	2	Viton				BS812JN
316L ss	3	Viton				BS812JP
Monel	5	Viton				BS812JQ
Tantalum	6	Viton				BS812JR
Ceramic	ptfe	B				Titanium
			Carpenter 20 Cb	2	EPDM	BS812JT
			316L ss	3	EPDM	BS812JU
			Monel	5	EPDM	BS812JV
			Tantalum	6	EPDM	BS812JW
			Ceramic	ptfe	B	Titanium
Carpenter 20 Cb	2	Chemraz				BS812JY
316L ss	3	Chemraz				BS812JZ
Monel	5	Chemraz				BS812KA
Tantalum	6	Chemraz				BS812KB

— NOTE

Each One Pack Reference Junction Kit contains a replacement reference junction and O-ring, locking keeper, locking screw, silicone grease, cotton swabs, extractor tool, a 50 mL bottle of saturated potassium chloride (KCl), and complete instructions.

Table 15. pH Reference Junction Kits - Ten Pack Kits

Reference Junction			Sensor Wetted Parts		O-Ring	Kit Part No.
Type	Body Mat'l	Code	Material	Code		
Ceramic	Ryton	A	Titanium	1	Viton	BS805YP
Ceramic	ptfe	B	Titanium	1	Viton	BS805YQ

— NOTE —

Each Ten Pack Reference Junction Kit contains ten replacement reference junctions and O-rings, one locking keeper, one locking screw, silicone grease, cotton swabs, extractor tool, a 500 mL bottle of saturated potassium chloride (KCl), and complete instructions.

Table 16. pH Ion Barrier Reference Junction Kits - One Pack Kits

Reference Junction			Sensor Wetted Parts		O-Ring	Kit Part No.
Type	Body Mat'l	Code	Material	Code		
Ceramic, Double Junction	pvdf	D	Titanium	1	Viton	BS812KG
			Carpenter 20 Cb	2	Viton	BS812KH
			316L ss	3	Viton	BS812KJ
			Monel	5	Viton	BS812KK
			Tantalum	6	Viton	BS812KL
Ceramic, Double Junction	pvdf	D	Titanium	1	EPDM	BS812KM
			Carpenter 20 Cb	2	EPDM	BS812KN
			316L ss	3	EPDM	BS812KP
			Monel	5	EPDM	BS812KQ
			Tantalum	6	EPDM	BS812KR
Ceramic, Double Junction	pvdf	D	Titanium	1	Chemraz	BS812KS
			Carpenter 20 Cb	2	Chemraz	BS812KT
			316L ss	3	Chemraz	BS812KU
			Monel	5	Chemraz	BS812KV
			Tantalum	6	Chemraz	BS812KW

— NOTE —

Each One Pack Ion Barrier Reference Junction Kit contains a replacement reference junction and O-ring, locking keeper, locking screw, silicone grease, cotton swabs, extractor tool, a 50 mL bottle of saturated potassium chloride (KCl), and complete instructions.

Table 17. pH Ion Barrier Reference Junction Kits - Ten Pack Kit

Reference Junction			Sensor Wetted Parts		O-Ring	Kit Part No.
Type	Body Mat'l	Code	Material	Code		
Ceramic, Double Junction	pvdf	D	Titanium	1	Viton	BS812KX

— NOTE —

Each Ten Pack Ion Barrier Reference Junction Kit contains ten replacement reference junctions and O-rings, one locking keeper, one locking screw, silicone grease, cotton swabs, extractor tool, a 500 mL bottle of saturated potassium chloride (KCl), and complete instructions.

Table 18. Measuring Electrode and Reference Junction Kits Intended for Use with the Electrode Cleaning System (ECS)

Electrode Type			Sensor Wetted Parts		O-Ring	Kit Part No.
Description	Body Mat'l	Code	Material	Code		
Measuring Electrode, Spherical Glass, pH; see Notes 1 and 3	Ryton	A	Titanium	1	Viton	0022504
			Carpenter 20 Cb	2	Viton	0022517
			316L ss	3	Viton	0022518
			Monel	5	Viton	0022516
			Tantalum	6	Viton	0022519
			Reference Junction, Ceramic; see Notes 2 and 3	Ryton	A	Titanium
Carpenter 20 Cb	2	Viton	0022715			
316L ss	3	Viton	0022716			
Monel	5	Viton	0022714			
Tantalum	6	Viton	0022717			

NOTES

- Each Measuring Electrode Kit contains a measuring electrode with O-rings, locking keeper, keeper screw, silicone grease, cotton swabs, extractor tool, and instructions.
 - Each Reference Junction Kit contains a replacement reference junction and O-ring, locking keeper, locking screw, silicone grease, cotton swabs, extractor tool, a 50 mL bottle of saturated potassium chloride (KCl), and complete instructions.
 - These ECS kits are supplied with a short keeper screw, rather than the longer knurled keeper screw.
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Table 19. pH Electrode ptfе Collar Kits (a)

Description		Keeper and Screw Material	Kit Part No.
Material	Code		
ptfe Collar (b)	Option -1	Titanium	BS812MT
		Carpenter 20 Cb	BS812MV
		316L ss	BS812MW
		Monel	BS812MU
		Tantalum	BS812MX

(a) Kit includes collar, keeper, and short keeper screw.

(b) ptfе collar is also known as Teflon collar.

RECOMMENDED SPARE PARTS SUMMARY

Figure Number	Item Number	Part Number	Part Name	Number of Parts Recommended for		
				1 sensor	5 sensors	20 sensors
1	1	Note (a)	Reference Junctions	1	5	20
	4	Note (b)	Measuring Electrodes	1	5	20
	7	Below 2800-062 X0201FY X0201JA	O-Ring, 18.8 mm (0.74 in) ID Viton - standard EP - Option -E Chemraz - Option -C	2	10	40
	8	BS812MY	ptfe (Teflon) Collar - Option -T (c)	1	5	20

(a) Reference junction kits are listed in Tables 14 to 18. Select at least one kit for each sensor configuration ordered.

(b) Measuring electrode kits are listed in Tables 1 to 13, and Table 18. Select at least one kit for each sensor configuration ordered.

(c) Refer to Table 19 for ptfе Collar Kits.

— NOTE —

Many kits are offered with ten replacement measuring electrodes or ten replacement reference junctions. These are available in titanium material only. See Tables 13, 15, and 17.