

Durafet[®] Non-Glass pH Electrodes

Specification

Description

Honeywell defines state-of-the-art pH measurement with the Durafet pH electrode, an industrial, non-glass, unbreakable, Ion Sensitive Field Effect Transistor (ISFET)-based pH sensor. This industry-proven pH electrode, with over 11 years of application experience, provides fast, accurate and dependable pH measurement in the most demanding applications. The Durafet electrodes include a connector, enabling easy and reliable electrode replacement without twisting of cables. Durafet III electrodes are designed with a rugged waterproof Vario Pin connector. Durafet II electrodes have a P.C board connector.

Durafet electrodes offer a reliable combination of measuring and reference electrodes together with an integral automatic temperature compensator in a 1-piece construction. The compact Durafet electrodes are available in two basic designs: a 3/4" NPT male threaded connection or a 12mm diameter electrode (Durafet II only). The type of design is based on the mounting.

Features

Durafet Electrode:

- **NEW!** Durafet III Vario Pin quick disconnect waterproof cable option
- Uses ISFET (Ion Sensitive Field Effect Transistor) technology for exceptionally fast response.



Durafet III pH Electrode with Vario Pin



Durafet III pH Electrode with PC Board Connector

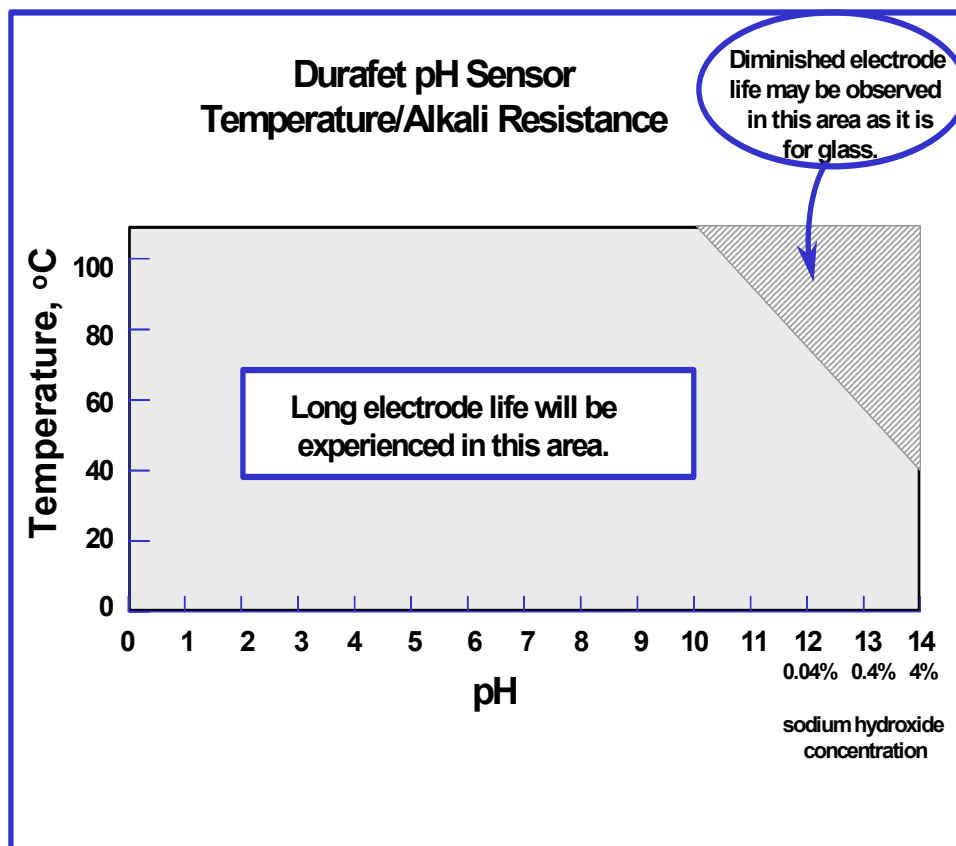
- Non-glass - virtually unbreakable, truly solid state.
- Stable pH signal over time for less frequent calibrations
- Cable connector designs for easy electrode installation/replacement
- Chemically resistant Ryton body
- KCl gelled reference for long life and reduced maintenance
- Reference junction frit and gel are replaceable, extending electrode lifetime
- Low impedance pH signal.
- 3/4" NPT mounting design with connections at top and bottom of electrode for in-line or immersion installations
- Durafet II 12mm diameter body design for use with various Honeywell installation mountings
- One electrode for entire pH and temperature ranges
- Can be used with entire Honeywell line of instrumentation: APT Series, 9782 Analyzers, DirectLine[®] Sensor modules

Specifications

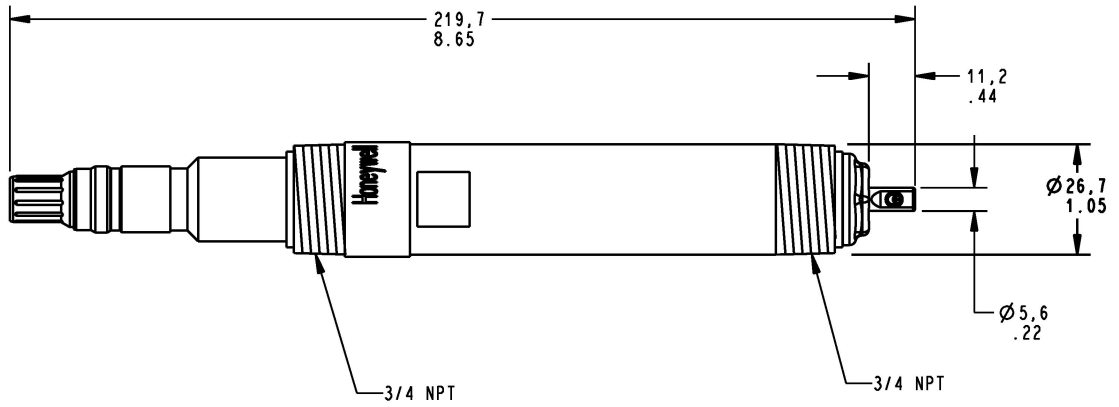
	Electrode Style	
	¾" NPT	12mm diameter
Operating Range	0-14 pH	
Pressure Rating	345 kPa (50 psig) @ 100°C, 690 kPa (100 psig) @ 50°C	
Temperature Rating	-10 to 110° C	-10 to 110° C (130° C for intermittent sterilizations)
Temperature Sensor	8550 ohm Thermistor and 1000 ohm RTD	
Wetted Materials	Ryton body, silicon ISFET die, Ceramic reference junction, Viton media seal, EPM reference frit seals	
Electrical Connection	Durafet III: Vario Pin, 11 conductor connector, IP68 rated Durafet II: PC Board Connector	
Acceptable Cables and Lengths (ordered separately)	DirectLine Remote Cable: 20 feet and 50 feet Cap Adapter (for 9782P and APT Series): 20 feet and 50 feet	
Weight	Durafet III: 0.23 kg (0.5 lb) Durafet II: 0.11 kg (0.25 lb)	Durafet II: 23 g (0.8 oz)

Operating Conditions

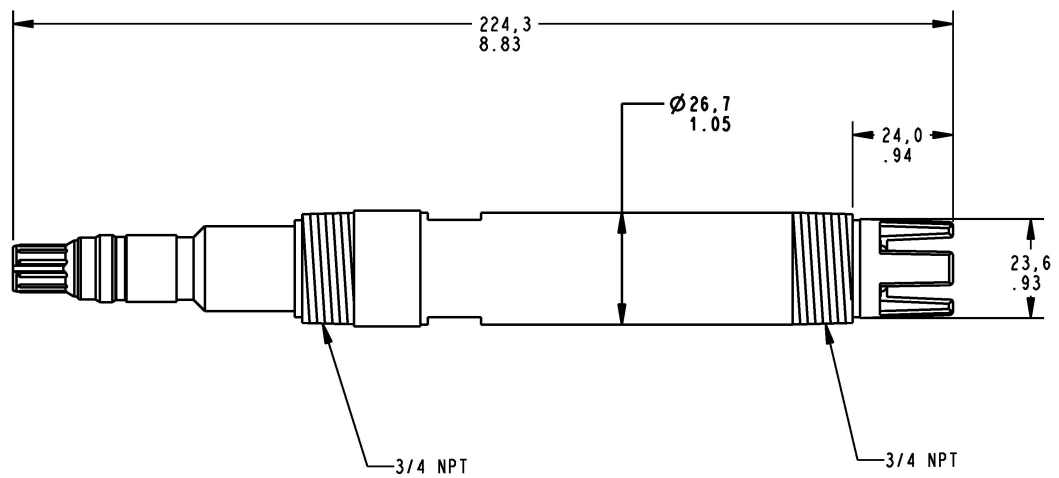
The lifetime of Durafet pH electrodes is adversely affected by hydrofluoric acid (HF) and conditions of high pH and high temperature. The graph below is a guideline for the Durafet electrode when exposed to the high pH and high temperature conditions.



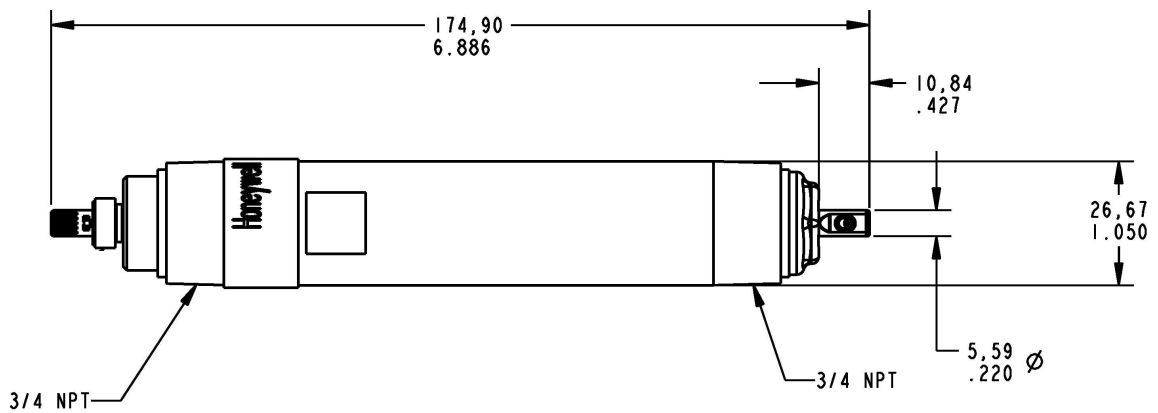
Dimensions



Durafet III (Vario Pin Connector) pH Electrode for In-Line Mountings (Smooth Tip)

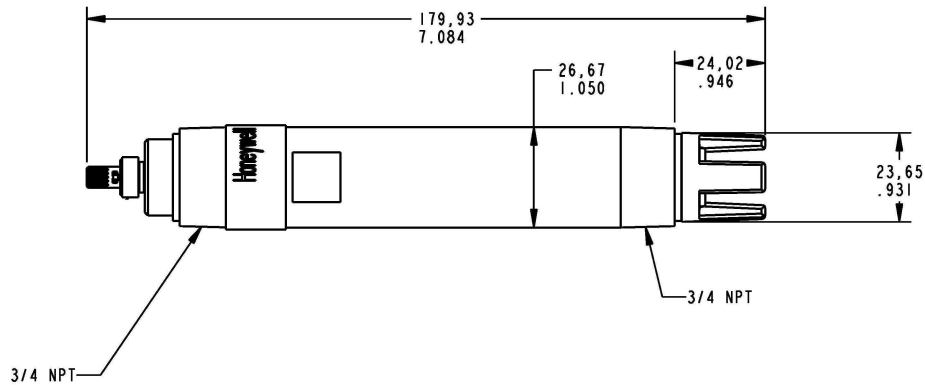


Durafet III (Vario Pin Connector) pH Electrode for Immersion Mountings (Guarded Tip)

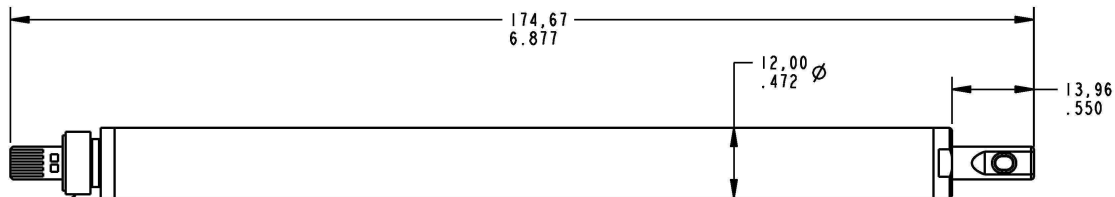


Durafet II (PC Board Connector) pH Electrode for In-Line Mountings (Smooth Tip)

Dimensions (cont'd)



Durafet II (PC Board Connector) pH Electrode for Immersion Mountings (Guarded Tip)



Durafet II (PC Board Connector) pH Electrode 12mm diameter

Cable Compatibility

The Durafet pH electrodes are designed with a connector for easy installation and replacement. Two connectors are available:

- Durafet II with PC Board Connector
- Durafet III with Vario Pin Connector










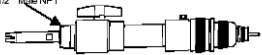


Use a DirectLine Remote Cable to connect to a DirectLine module. Use Cap Adapter cable to connect to a 9782 Series Analyzer or to an APT Series Transmitter or Analyzer.

The table below identifies the different cable part numbers.

Cable	Durafet II	Durafet III	
Cap Adapter			
8'	51205965-007	-	
12'	51205965-001	-	
20'	51205965-002	51453388-001	
50'	51205965-005	51453388-002	
DirectLine			
20'	51500270-001	51453225-001	
50'	51500270-002	51453225-002	

Electrode Mounting Compatibility

The various styles of Durafet electrodes are compatible with specific mounting designs, marked by X in the table below.

Electrode Mounting ↓	Electrode Style →	3/4" NPT Durafet III 	3/4" NPT Durafet II 	12 mm diameter Durafet II 	3/4" NPT Integral DirectLine Durafet II 
7777DVP 		X			
DirectLine – Integral 					X
DirectLine – Remote 		X	X		
7777D 			X		
7774D (SS) 				X	
7774D (CPVC)  <small>1 1/2" Male NPT</small>			X		
7773D 				X	
7758D 				X	

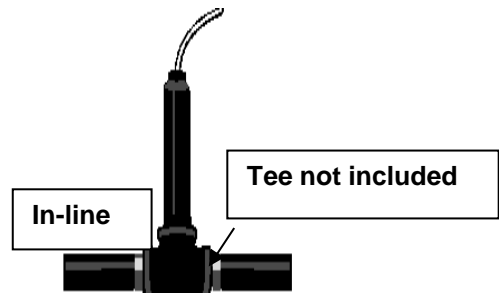
Distributor :

Industrial Measurement and Control
Honeywell
1100 Virginia Drive
Fort Washington, PA

Series 7777D Durafet® II Electrode w/PC Card Connector for In-line Tee Mounting

Model Selection Guide

- Includes Electrode and Cable
- Features state-of-the-art non-glass, ISFET technology
- The Durafet II with UDA cable can only be used with the UDA2182 (Direct pH Input)
- The Durafet II with Cap Adapter Cable can be used only with the following instruments:
 - UDA2182 (Preamp Input)
 - APT2000 Transmitter
 - APT4000 Analyzer
- Suitable for in-line mounting
- Combination measuring and reference electrode
- 3/4" NPT Threaded connection at top and bottom of electrode



Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make one selection each per table using the column below the proper arrow.
- A dot (•) denotes unrestricted availability.

Key Number I II III IV
 [] - [] - [] - [] - [000]

KEY NUMBER

Selection Availability

Description	Selection	Availability
7777 Durafet II Electrode Mounting	07777D	↓

TABLE I - Mounting Type, Temperature Sensor, Part No.

Mounting	Temperature Sensor	Reference Fill	Electrode P/N		
Immersion	<i>Use Durafet III (MSG# 51-52-16-82) for all immersion applications.</i>				
In-Line	8550 Ohm Thermistor	KCl	51205554-501	04	•
	1000 Ohm RTD	KCl	51205554-509	06	•

07777D ↓

TABLE II - Instrumentation to Sensor Cables

Selection

Cable Length	Cable Type	Part Number	Selection	
None			00	•
20 feet (6,10 meters)	Cap Adapter	51205965-502	04	•
50 feet (15,24 meters)	Cap Adapter	51205965-505	05	•
20 feet (6,10 meters)	UDA2182 (Direct Input)	50005631-501	06	•
50 feet (15,24 meters)	UDA2182 (Direct Input)	50005631-502	07	•

TABLE III - Options

Tagging	None	00 __	•
	Linen Customer I.D. Tag - 3 lines, 22 characters per line	LT __	•
	Stainless Steel Customer I.D. Tag - 3 lines, 22 characters per line	SS __	•
Certificate	None	-- 00	•
	Calibration & Conformance	-- CC	•

TABLE IV - OPTIONS

Factory Use Only		000	•
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Series 7777D

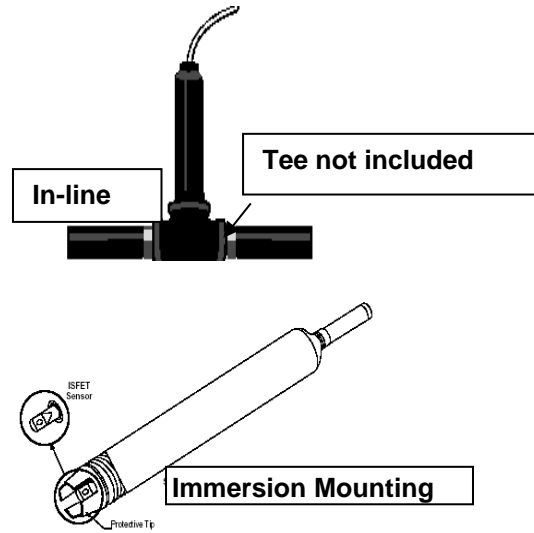
Accessories and Replacement Parts

Description	Part Number
Directions - Durafet II Electrode	70-82-25-87
Directions - Durafet II 7777 Electrode Assembly	70-82-25-86
pH Buffer Solutions	
4.01	31103001-501
6.86	31103002-501
9.18	31103003-501
Smooth Electrode Tip - In-line Mounting	51204993-501
Guarded Tip - Immersion Mounting	51204992-501
Special CPVC pipe tee for 3/4" in-line mounting	31120167-501
Durafet Cap Adapter Junction Box and Terminals	50034477-501
Durafet Cap Adapter Extension Cables	
20 feet	50033807-501
50 feet	50033807-502
100 feet	50033807-503
200 feet	50033807-504
Durafet Gel Re-fill Kit	51205807-502
Cap Adapter Cables	
20 foot length (6,10 meters)	51205965-502
50 foot length (15,24 meters)	51205965-505
UDA2182 Cables	
20 foot length (6,10 meters)	50005631-501
50 foot length (15,24 meters)	50005631-502

Series 7777DVP Durafet III Electrode with Vario Pin Connector for In-line Tee or Immersion Mounting

Model Selection Guide

- Includes Electrode and Mounting
- Features state-of -the-art non-glass, ISFET technology
- The Durafet III with UDA cable can only be used with the UDA2182 (Direct pH Input)
- The Durafet III with Cap Adapter cable can be used only with the following instruments:
 - UDA2182 (Preamp Input)
 - APT2000 Transmitter
 - APT4000 Analyzer
- Suitable for in-line or immersion mounting
- 3/4" Threaded connections at top and bottom of electrode
- Combination measuring and reference electrode
- Instruction books on CD included



Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make one selection each per table using the column below the proper arrow.
- A dot (•) denotes unrestricted availability.

Key Number I II III IV

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KEY NUMBER

Description	Availability	
	Selection	
7777DVP Durafet III Electrode w/Vario Pin Connector In-line or Immersion Mtg.	07777DVP	↓

TABLE I - Mounting Type, Temperature Sensor, Part No.

Mounting	Temperature Sensor	Electrode P/N		
Immersion (w/Tip Guard)	8550 Ohm Thermistor	51453503-505	01	•
	1000 Ohm RTD	51453503-506	02	•
In-Line (w/o Tip Guard)	8550 Ohm Thermistor	51453503-501	03	•
	1000 Ohm RTD	51453503-502	04	•

0777DVP

TABLE II - Instrumentation to Sensor Cables

Cable length	Cable Type	Part Number	Selection	
None			00	•
20 ft (6,10 m)	UDA2182	50001391-501	01	•
50 ft (15,24 m)	UDA2182	50001391-502	02	•
20 ft (6,10 m)	Cap Adapter	51453388-501	04	•
50 ft (15,24 m)	Cap Adapter	51453388-502	05	•

TABLE III - Options

Tagging	None	00 __	•
	Linen Customer I.D. Tag - 3 lines, 22 characters/line	LT __	•
	Stainless Steel Customer I.D.Tag - 3 lines, 22 characters/line	SS __	•
Certifications	None	__ 00	•
	Calibration & Conformance	__ CC	•

TABLE IV - Factory Use

Factory Use Only		000	•
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Series 7777DVP

Accessories and Replacement Parts

Description	Part Number
pH Buffer Solutions	
4.01	31103001-501
6.86	31103002-501
9.18	31103003-501
Smooth Electrode Tip - In-line Mounting	51204993-501
Guarded Tip - Immersion Mounting	51204992-501
Special CPVC pipe tee for 3/4" in-line mounting	31120167-501
Cap Adapter Cables	
20 foot length (6,10 meters)	51453388-501
50 foot length (15,24 meters)	51453388-502
UDA2182 Cables	
20 foot length (6,10 meters)	50001391-501
50 foot length (15,24 meters)	50001391-502
Instruction Manuals	
CD with Manuals	51453555-501
Paper Manual - 7777 DVP Mounting	70-82-25-116
Paper Manual - Durafet III pH Electrode	70-82-25-115
Durafet Cap Adapter Junction Box and Terminals	50034477-501
Durafet Cap Adapter Extension Cables	
20 feet	50033807-501
50 feet	50033807-502
100 feet	50033807-503
200 feet	50033807-504
Durafet Gel Refill Kit	51205807-502