

# MULTI-PARAMETER INPUT TRANSMITTER

## For pH/ORP



### DPU91-pH/ORP Series



- ✓ Large Auto-Sensing Backlit Display
- ✓ “Dial-Style” Digital Bar Graph
- ✓ Intuitive and “User-Friendly” Interface
- ✓ Optional Field Upgradable Relays
- ✓ Warning LED Indicator
- ✓ Custom 13-Character Label Capabilities
- ✓ Factory Reset Capability

The DPU91 transmitter provides a single channel interface for many different parameters including flow, pH/ORP, conductivity/resistivity, salinity and temperature. The DPU91-BC transmitter has the added capability of supporting the batch module for batching control. The extra-large (3.90 x 3.90") autosensing backlit display can be viewed at 4 to 5 times the distance over traditional transmitters. The highly illuminated display and large characters reduce the risk of misreading or misinterpreting the displayed values. The display shows separate lines for units, main and secondary measurements as well as a “dial-style” digital bar graph. The DPU91 is offered in both panel or field-mount versions. Both configurations can run on 12 to 32 Vdc power (24 Vdc nominal). Designed for complete flexibility, plug-in modules allow the unit to easily adapt to meet changing customer needs. Optional modules include relay, direct conductivity/resistivity, batch and a PC communications configuration tool. The unit can be used with default values for quick and easy programming or can be customized with labeling, adjustable minimum and maximum dial settings, and unit and decimal measurement choices.



DPU91 shown smaller than actual size.

## SPECIFICATIONS

### General

**Input Channels:** 1

**Input Types:** Digital serial ASCII, TTL level, 9600 bps

**Frequency Range:** 0.5 to 1500 Hz

**Accuracy:** 0.5% of reading (display)

**Measurement Types:** Flow, pH/ORP, conductivity/resistivity, salinity, pressure, temperature or batch

### Enclosure and Display

**Case Material:** PBT

**Window:** Shatter-resistant glass

**Keypad:** 4 buttons, injection-molded silicone rubber seal

**Display:** Backlit, 7 and 14-segment

**Update Rate:** 1 second

**LCD Contrast:** 5 settings

**Indicators:** “Dial-style” digital bar graph, LEDs for open collector, relays and warning indicator

**Enclosure:** ¼ DIN, NEMA 4X/IP65

**Mounting Panel:** ¼ DIN, ribbed on four sides for panel mounting clip inside panel, silicon gasket (included)

**Field Mounts:** Specified to OMEGA® field mount junction boxes

**Weight:** 0.63 kg (1.38 lb)

### Display Ranges

For flow version visit [omega.com/dpu91\\_flow](http://omega.com/dpu91_flow)

For conductivity/resistivity version visit [omega.com/dpu91\\_conductivity](http://omega.com/dpu91_conductivity)

**pH:** 0.00 to 15.00

**pH Temperature:** -99 to 350°C (-146 to 662°F)

**ORP:** -1999 to 1999.9 mV

**Temperature:** -99 to 350°C (-146 to 662°F)

### Environmental

#### Ambient Operating Temperature:

**Backlit LCD:** -10 to 70°C (14 to 158°F)

**Storage Temperature:** -15 to 70°C (5 to 158°F)

**Relative Humidity:** 0 to 100% condensing for field mount; 0 to 95% non-condensing for panel mount

**Maximum Altitude:** 4000 m (13,123')

### Electrical Requirements

#### Power to Sensors:

**Voltage:** 4.9 to 5.5 Vdc @ 25°C, regulated short circuit protected

**Terminal Blocks:** Pluggable screw type 14 AWG maximum wire gauge

#### Input Power

**DC:** 10.8 to 35.2 Vdc, regulated

**DPU91 without Relay Module:** 200 mA @ 10.8 to 35.2 Vdc



**Raw Conductivity/Resistivity:**

Input directly from signet conductivity/resistivity electrodes via direct conductivity/resistivity module or via CDTX-2850

For conductivity/resistivity models visit [omega.com/dpu91\\_conductivity](http://omega.com/dpu91_conductivity)

**Input Specifications**

**Digital Serial:** ACSII, TTL level, 9600 bps

**Frequency Input:**

**Sensitivity:** 80 mV @ 5 Hz, gradually increasing with frequency

**Span:** 0.5 Hz to 1500 Hz @ TTL level input

**Accuracy:** ± 0.5% or reading maximum error @ 25°C (°77F)

**Resolution:** 1 µS

**Repeatability:** ±0.2% of reading

**DPU91 with Relay Module:** 300 mA @ 10.8 to 35.2 Vdc

**Overvoltage Protection:** 48 V transient protection device current limiting for circuit protection and reverse-voltage protection

**Current Output:** 4 to 20 mA (10.8 to 35.2 Vdc, 30 mA maximum)

**Relay Specifications**

**Dry-Contact Relays:** 2

**Open Collector:** 1

**Type:** SPDT N/A

**Form C:** N/A

**Maximum Current Rating:** 5 A resistive 50 mA DC

**Maximum Voltage Rating:** 30 Vdc or 250 Vac

**Hysteresis Adjustable:** Absolute in engineering units (EUs)

**Latch Reset:** In test screen only

**Delay:** 9999.9 seconds (maximum)

**Test Mode:** Set on/off

**Cycle Time:** 99999 seconds (maximum)

**Maximum Pulse Rate:**

400 pulses/minute

**Proportional Pulse:** 400 pulses/minute

**Volumetric Pulse Width:** 0.1 to 3200 s

**Pulse Width Modulation:** 0.1 to 320 s

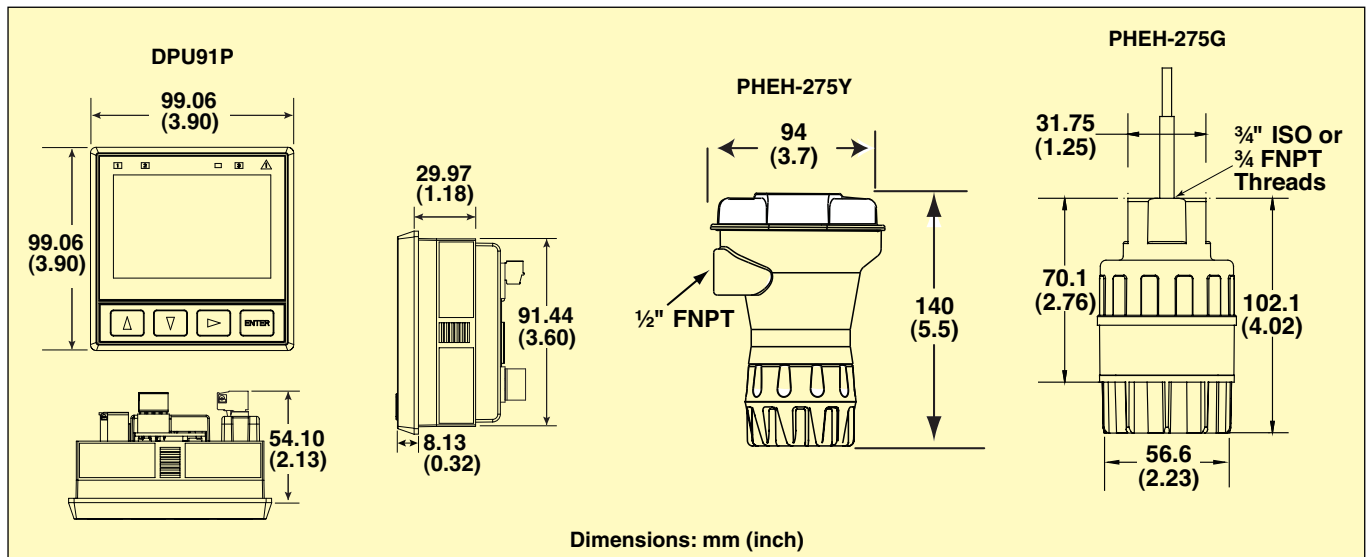
**Input Types**

**Digital or AC Frequency:** pH/ORP input via the digital output from the PHTX-2750 pH/ORP sensor electronics  
For flow models visit [omega.com/dpu91\\_flow](http://omega.com/dpu91_flow)

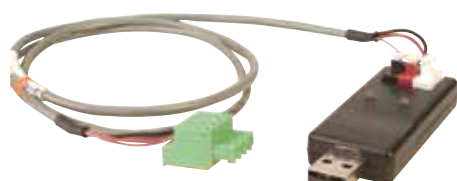


DPU91 Series with Mating pH/ORP Sensors		
	DPU91	DPU91P
<b>Submersible Mounted</b> PHE-2724, PHE-2726, ORE-2725	FP90UM, PHEH-275G DPU90-AK (optional)	PHEH-275G
<b>In-Line Mounted</b> PHE-2724, PHE-2726, ORE-2725	PHEH-275Y, *Sensor installation fitting, DPU90-AK (optional)	Panel mount displays cannot be mounted integrally to the sensor

\* Sensor installation fitting information can be found at [omega.com/fp\\_fittings](http://omega.com/fp_fittings).



To Order	
Model No.	Description
DPU91	DC powered field mount multi-parameter display and transmitter
DPU91P	DC powered panel mount multi-parameter display and transmitter
PHE-2724	Flat surface pH electrode, ¼ MNPT thread
PHE-2726	Bulb style pH electrode, ¼ MNPT thread
ORE-2725	Flat surface ORP electrode, ¼ MNPT thread
PHEH-275Y	In-line sensor fitting
PHEH-275G	Submersible sensor fitting



DPU90-COMM



DPU90-AK



DPU90-R

### Accessories

Model No.	Description
DPU90-R	Programmable dual relay output module, SPDT form C, 5 A resistive load
DPU90-COMM	Communications module, HART® protocol super imposes digital signal onto of 4 to 20 mA
DPU90-AK	Angle adjustment kit for field mount and conductivity/resistivity/salinity input units
DPU90-CT	PC configuration tool, includes software
FP90UM	Universal mounting bracket for remote mounted display
FPM-5000-LTCK	Liquid tight connector kit for liquid tight wiring feed-thru
PHA-4	4.00 pH buffer solution 500 mL (1 pint) bottle
PHA-4-GAL	4.00 pH buffer solution 4 L (1 gal) bottle
PHA-7	7.00 pH buffer solution 500 mL (1 pint) bottle
PHA-7-GAL	7.00 pH buffer solution 4 L (1 gal) bottle
PHA-10	10.00 pH buffer solution 500 mL (1 pint) bottle
PHA-10-GAL	10.00 pH buffer solution 4 L (1 gal) bottle
PHA-DI	Deionized water 500 mL (1 pint) bottle
PHA-DI-GAL	Deionized water 4 L (1 gal) bottle
PHAB-DI	20 single use deionized water packets
PHAB-PH	5 each 4, 7 and 10 buffer packs with 5 deionized water packs

Comes complete with operator's manual (sensors and mounting kits sold separately).

**Ordering Examples:** DPU91, display/transmitter, PHEH-275G submersible mounting fitting, and FP90UM universal mounting kit for display. DPU91P, panel mount display/transmitter, PHEH-275Y in-line mounting and electronics kit, and FP-5310 PVC in-line mounting tee 2".