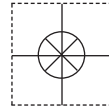


1 YEAR
WARRANTY



User's Guide



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DPT35

Dual Pulse Timer



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WARNING: These products are not designed for use in, and should not be used for, human applications.

GENERAL INFORMATION

The DPT35 digital counter-timer is designed to be used with Omega (or similar) meters and flow sensors that produce a pulse signal. It is typically used in water treatment and chemical dosing applications, most often in cooling towers and boilers. The DPT35 serves as either a single or a dual timer, depending on whether one or both of its independent accumulators and timed outputs are used.

In single timer applications, one accumulator counts pulses coming from the meter. When a pre-set number of pulses has been reached, output power turns on for a set time, and then the cycle repeats.

In dual timer applications (typically, one chemical feed and one water bleed), both accumulators and timers are set to operate independently with input from a single meter. A sequential function can be selected to lock one timer out while the other is operating. This prevents feed and bleed from occurring simultaneously.

The DPT35 can be used with dry contact meters, contacting-head meters with solid-state pickups, or insertion flow sensors.

SPECIFICATIONS*

Power	115 Vac
Sensor Power	12 Vdc
Output (2)	115 Vac
Enclosure	5" x 7" polycarbonate
Accumulator Range	1 - 9999 pulses
Timer Range	1 - 9999 seconds
Maximum Input Frequency	1000 Hz
Relay Contact Rating	5 A resistive @ 115 Vac, or 1/4 HP
Temperature	32° - 130° F (0° - 55° C)

*Specifications subject to change

INSTALLATION and CONNECTION

Mounting. Use a secure surface that will accept screws. Remove the front clear cover by use of the thumb screws to access the mounting holes at the four corners. Using the box as a template, mark the centers of the holes with a pencil and drill. Insert screws through the four corner holes and tighten.

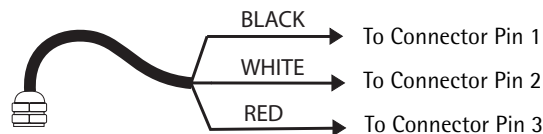
Connect the Meter. Because the DPT35 comes standard with a built-in meter connector, the simplest method of connecting your Omega meter to the DPT35 is to order a mating connector pre-installed on your meter or flow sensor. If your meter does not have a mating connector, there are three alternatives: 1) Any wire ends can be connected to the DPT35 terminal block (see Connections diagram at right). 2) A cable-with-connector can be factory-ordered and field-wired to your meter. 3) A connector can be factory-ordered and field-installed on your meter output cable (see Connector Field Installation diagram below).

Connector Field Installation

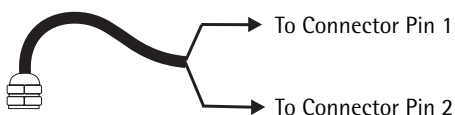
INPUT CONNECTOR



- 1 POWER GND
- 2 INPUT SIGNAL
- 3 POWER OUTPUT +12Vdc

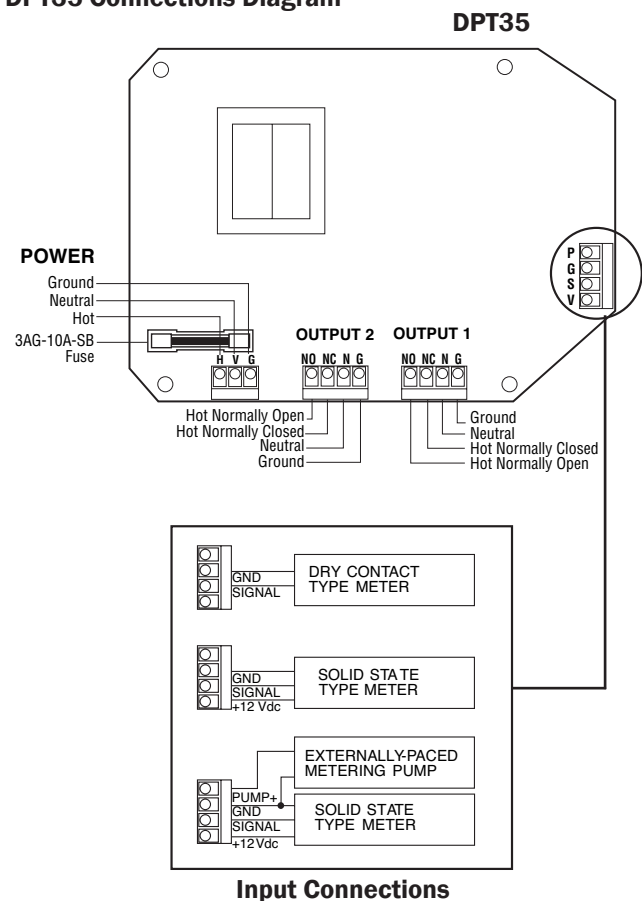


Hall-effect or transistor switch



Dry contact

DPT35 Connections Diagram



Connect the Load. Two output cords are provided for connection of 115 Vac loads. The unit can be hard-wired if necessary, using the terminals inside.

Connect Power. A power cord is provided. Connect by plugging in to any standard grounded outlet. (See Connections Diagram above for conduit connection.)

INSTALLATION and OPERATION

INSTALLATION

Setting. Using the thumb screws, remove the front cover.

- 1) **Press the SET button.** The green ACC (accumulator) light at the upper left corner of the display will begin blinking, indicating that the accumulator is ready to be set.
Turn the knob clockwise to increase or counter-clockwise to decrease until the desired number of pulses is reached.
Press SET again. The red TIMER indicator will light.
- 3) **Set the desired time in seconds** for output power to
- 4) turn on.
Repeat the process to set Accumulator 2 and Timer 2
- 5) as needed.
Press SET again to display "SEq" (sequential).
- 6) **Turn the knob** in either direction to switch from "SEq" to
- 7) "nSEq" (non-sequential). Sequential operation prevents the Timer 2 output from operating while Timer 1 is on, so that chemical feed does not occur during bleed. Non-sequential operation allows either timer to operate immediately when its count is reached.
Press SET again to return to normal operation.
- 8)

Test for Timer Output. To test the timed output(s), press the "TEST 1" or "TEST 2" button. The red output indicator should light and remain on for the pre-set number of seconds.

How To Determine Accumulator Setting(s):

If the meter pulses once every gallon, set the accumulator for the number of gallons desired between timer cycles. For meters with multiple pulses per gallon, multiply the desired number of gallons by the pulses per gallon. For meters with multiple gallons between pulses, divide the desired gallons by the gallons per pulse.

Example:

The goal is one timer output every 60 gallons. The meter has a 5 gallons per pulse (G/P) output.

$$\frac{60 \text{ gallons}}{5 \text{ gallons/pulse}} = 12 \text{ pulses (accumulator setting)}$$

How To Determine TIMER (Power On Time) Setting(s).

The TIMER time is set to release the desired amount of chemical to be fed or water to be bled, and is specific to the pump, valve, etc. being used. When determining the power on time, check that it isn't more than the expected time between cycles, to avoid feeding and bleeding out of order or possible overlap conditions, by calculating:

$$\frac{\text{Cycle Size (Gallons)}}{\text{Max. Flow Rate (GPM)}} \times \frac{60 \text{ sec}}{\text{Min.}} = \text{minimum seconds between cycles}$$

If this result is greater than the determined power on time, enter the determined power on time into the TIMER setting.

OPERATION

After setting (when the unit has returned to normal operation, indicated by no blinking indicators), any display can be selected at any time by turning the knob. Turning the knob clockwise causes clockwise rotation among the indicator lights. Stop turning the knob after arriving at the desired display. This is the display that will remain until another display is selected.

Possible Overlap Conditions. If the power on time is longer than the time between on cycles, the on time won't elapse before the next on cycle is supposed to start. If this happens, the power output will remain on, and "OUF" (Overlap, Under wait time, Failure) will appear on the screen, to alert the user that a problem has occurred. This situation can be avoided by following the equation above in "How To Determine TIMER

(Power On Time) Setting(s)". Also note that if in sequential mode, the sum of the on time, must be less than the minimum seconds between cycles. Otherwise, one relay will hold up the other and an overlap condition will occur.

Accumulator Function. The accumulator adds received pulses once every second, and when the accumulator number is reached or exceeded, the power will turn on. However, any pulses above the accumulator number will not roll over to the next cycle, so if the accumulator is set to 20, with 19 pulses already having been received, and 2 more are received in the next second, the accumulator will read 0 once the power is turned on, and not 1.

TROUBLESHOOTING

Problem	Probable Cause	Try...
On/Off switch is fully in "On" position, but display is not lighted	Unit does not have power	Check for power at the cord and outlet
There is power, the On/Off switch is fully in "On" position, but display is not lighted	Fuse may be blown	Remove front panel and check fuse. If it is blown, replace with a 3AG-10A-SB fuse
There is power, the On/Off switch is fully in "On" position, the fuse is good, but display is not lighted	Circuit board component may be bad	Contact your supplier or the factory to return unit for repairs
The display is lighted, but the unit seems to be functioning abnormally	<p>No input from the meter</p> <p>Unit improperly set</p> <p>Output improperly connected to load</p>	<p>Check flow, check the input indicator light (if the meter is set for a low pulse rate, several minutes may pass between blinks)</p> <p>Press the "Set" button to review each setting</p> <p>Press the appropriate "Test" button to force an output and check (each "Test" button is located directly above the output it forces)</p>
Unit appears to be functioning properly, the test button causes the timer indicator to light, but the appropriate output does not become powered	Possible relay failure	Contact your supplier or the factory to return unit for relay replacement

NOTES



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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