

# Installation Manual



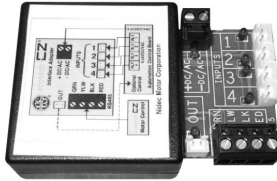
## ECOTECH EZ<sup>®</sup> Interface Adapter

<http://www.nidec-motor.com/Industry-Applications/Pool-Spa.aspx>



## ECOTECH EZ<sup>®</sup> Interface Adapter Kit includes

- ECOTECH EZ<sup>®</sup> Interface Adapter



- RS-485 Cable



- RJ12 Power Tap



- Input/output Cables (22 AWG), qty. 5



- Interface Adapter Manual



## **⚠ WARNING**

**To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.**



## **NOTICE**

**ECOTECH EZ® Interface Adapter is not serviceable.**

## Installation

ECOTECH EZ® Interface Adapter installation and all components of the control system shall conform to Class II circuits per the NEC code.

Interface Adapter must be mounted inside the low voltage compartment of pool control systems. **If there is not an existing suitable enclosure for pool control system, a separate NEMA 4 enclosure is required.**

**⚠ WARNING** Interface adapter wiring is all low voltage; choose a location away from all high voltage.

1. Use the double face mounting tape on back of interface adapter for mounting.
2. Recommended orientation is with input/output cables downward.

## Wiring Connections

Refer to equipment manufacturer's instructions for all wiring other than interface adapter wiring. For wiring to the interface adapter, see **BASIC CONFIGURATION** section.

### POWER (9-24 VAC/VDC)

+DC/AC.....Positive for DC or AC

-DC/AC.....Negative for DC or AC

Note: Polarity only applicable for DC

### RS485

GRN..... Green wire on RS485 cable

YLW..... Yellow wire on RS485 cable

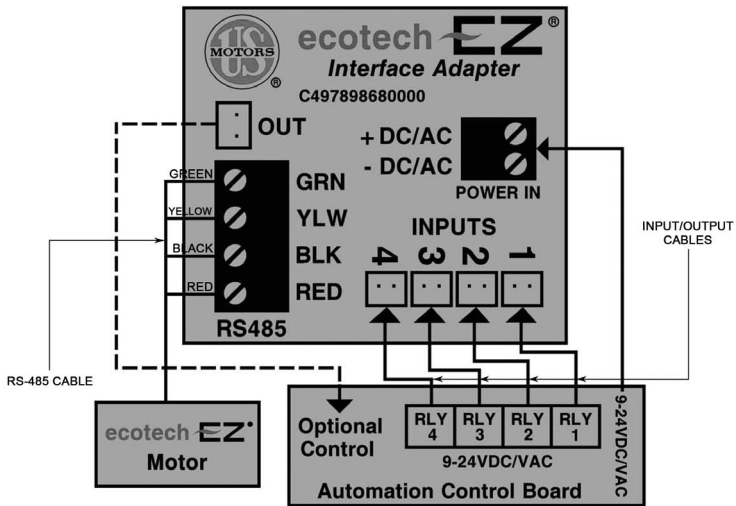
BLK..... Black wire on RS485 cable

RED..... Red wire on RS485 cable

**INPUTS 1-4 (9-24 VAC/VDC)** – Connect to relay coil output or valve control output of pool control system

**OUTPUT (9-24 VAC/VDC, 200 mA Max)** – “ON” when ECOTECH EZ® motor speed is greater than 1600RPM  
See page 4, Item 6 for further information.

FIG. 1



Nidec Motor Corporation

## Basic Configuration

This page provides a summary of the basic set-up of the **ECOTECH EZ® Interface Adapter** with the **ECOTECH EZ®** variable speed pool motor.

1. Connections for the interface adapter:

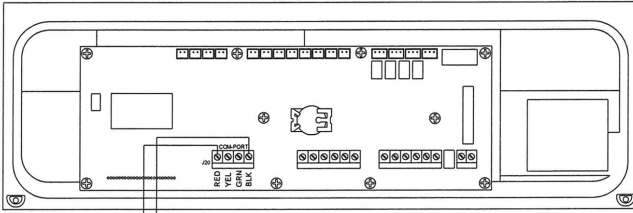
**⚠ WARNING DO NOT EXCEED 24V TO ANY TERMINALS.**

- 9-24 VDC or VAC power source (+DC/AC and –DC/AC terminals) can be supplied from the automation control system circuit board or an AC power transformer (not supplied)
  - One to four relay inputs (INPUT 1 through 4)
  - RS485 communication cable (Red, Yellow, Green, Black) - do not use voltage at RS485 terminals for powering this interface or other circuitry.
  - Low Voltage Relay Output
2. Connect low voltage power terminals (+DC/AC, -DC/AC).
  3. Determine appropriate connections between interface adapter and pool automation control board.
  4. Connect RS485 cable to ECOTECH EZ® RS485 connection port.
  5. Inputs 1-4 corresponds to custom flow settings 1-4 of ECOTECH EZ® motor/control. See ECOTECH EZ® motor/control manual for specific setup instructions.
  6. OUT Relay is available as required to signal an external control for auxiliary load (for example, relay to a booster pump). This relay does not provide power to the external load, only contact closure for switching power in an external circuit (24VAC/VDC, 200 mA Max). This output is “ON” when the motor speed is greater than 1600 RPM.
  7. When the LED near the “POWER IN” is blinking, the interface adapter is communicating with the ECOTECH EZ® motor/control.  
**NOTE:** Power should be “ON” to both interface adapter and motor/control.

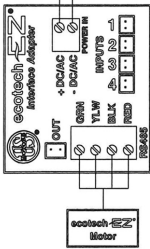
*See pages 5-7 for common control connections.  
Verify voltages prior to making all connections.*

*See page 8 for operation.*

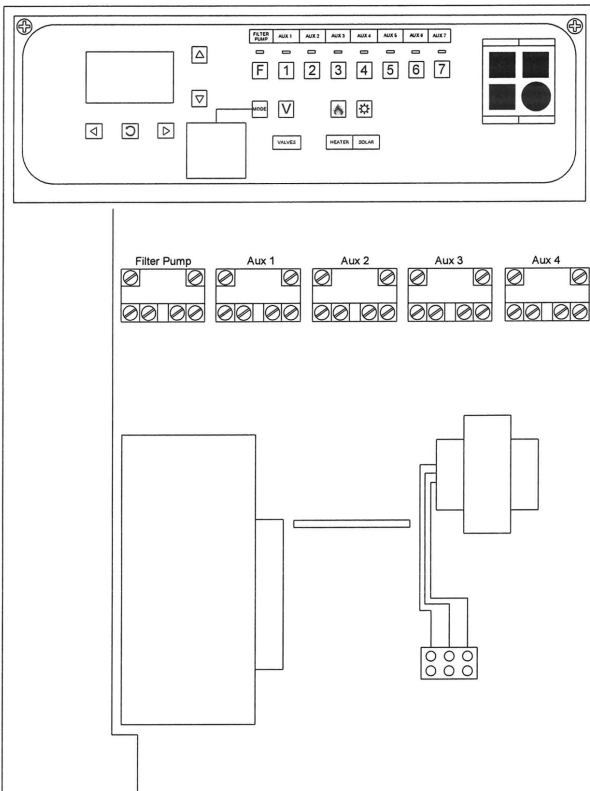
# Pentair EASYTOUCH<sup>®†</sup> Pool Control



BACK VIEW

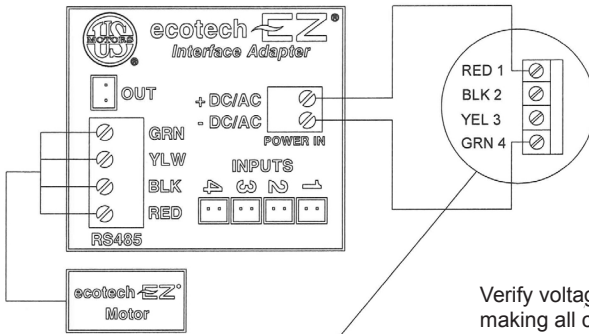


Verify voltages prior to making all connections.

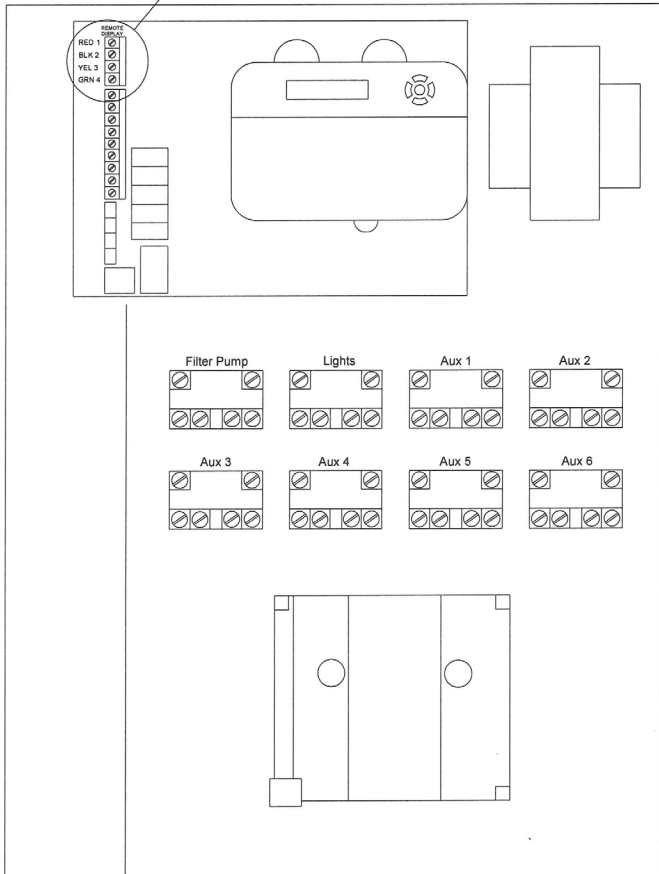


FRONT VIEW

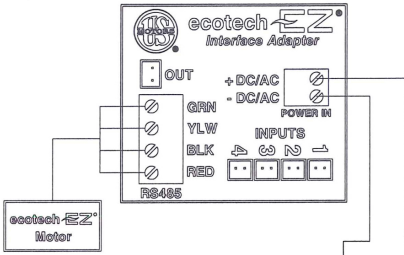
# Hayward Pool Products<sup>®†</sup> Goldline<sup>®†</sup> Pro Logic<sup>®†</sup> Control



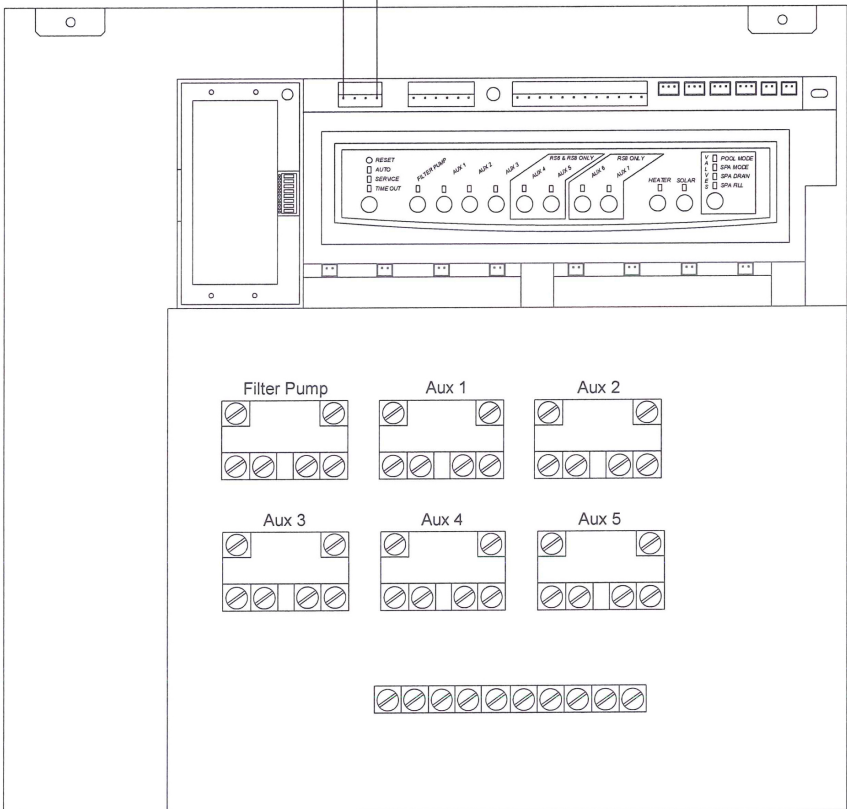
Verify voltages prior to making all connections.



# Jandy Aqualink®† RS Series Control



Verify voltages prior to making all connections.





## General Connection Instructions

**POWER:** Within the low voltage area of the pool automation system, identify a source of 9-24 VAC or VDC for interface power and connect to +DC/AC and -DC/AC terminals. This should be a continuous source of voltage. This can usually be supplied from the pool automation system, but a dedicated supply may be needed in some installations.

**INPUTS:** Connect to desired relay coil voltages (NOT RELAY OUTPUTS!) to control speed as desired. Inputs are low voltage, 9-24 VAC or VDC.

**OUTPUT:** Low voltage output is "ON" when motor speed is greater than 1600 RPM. This can be used to switch a relay for line voltage loads. This output does not provide power to the external load, only contact closure for switching power in an external circuit (9-24 VAC/VDC, 200 mA Max). Use of this output is optional.

## Input Priorities and Operation

Determine appropriate connections between interface adapter and pool automation control board. If more than one interface adapter "Flow Setting" is activated, the highest flow number activated will have priority. Time and day function will still operate on the ECOTECH EZ<sup>®</sup> motor/control but the pool automation system will override when one of the flow rates is activated on the ECOTECH EZ<sup>®</sup> interface adapter.

Vacuum and custom flow keys on the ECOTECH EZ<sup>®</sup> motor/control will override inputs 1, 2, or 3 but not 4. Any equipment that requires a specific flow rate should use input 4 to prevent user activated flow rate changes.

## ECOTECH EZ<sup>®</sup> Interface Adapter Specifications

Size 3.75" x 2.5" x 1.0"  
Supply Voltage 9-24 VDC or VAC,  $\pm 10\%$ , (40 mA typical)

Temperature Range:  
Operating 0°C to 50°C  
Storage -30°C to +80°C

Inputs:  
Auxiliary 1: 9-24 VDC or VAC,  $\pm 10\%$ , (5 mA typical)  
Auxiliary 2: 9-24 VDC or VAC,  $\pm 10\%$ , (5 mA typical)  
Auxiliary 3: 9-24 VDC or VAC,  $\pm 10\%$ , (5 mA typical)  
Auxiliary 4: 9-24 VDC or VAC,  $\pm 10\%$ , (5 mA typical)

Outputs:  
MTR "ON": Contact Closure 24 VAC/VDC, 200 mA  
Maximum  
Closed when motor speed is greater than  
1600RPM.

Please refer to ECOTECH EZ<sup>®</sup> manual for set-up and installation of the ECOTECH EZ<sup>®</sup> pool motor. A copy of the manual can be found at [www.niddec-motor.com](http://www.niddec-motor.com).

## ECOTECH EZ® Interface Adapter Troubleshooting

### Power LED lit?

Yes – board is powered

No – check power to +DC/AC and –DC/AC terminals

### Power LED flashing?

Yes – Indicates communication to ECOTECH EZ® motor

No – check power to ECOTECH EZ® motor, RS485 connections between motor and Interface Adapter

### Input LEDs on when functions are active?

Yes – Indicates interface Adapter is receiving pool control system signals

No – check connections and voltages for input signals

## RJ12 Power Tap

The RJ12 power tap is provided to facilitate power connections to some pool control panels where the power terminals may not be readily accessible. This includes some Compool control panels. The RJ12 plug in the panel is unplugged and inserted into the power tap. Then the plug on the power tap is inserted into the panel where the original RJ12 plug had been. Before powering up the system, make sure the black, red, and yellow wires are not touching anything. Then power up the system and measure the voltage between the Black and Yellow wires and the Black and Red wires to determine which pair should be used for power. Then power off system and connect the selected wires to the interface adapter:

- DC/AC Black

+DC/AC Red or Yellow

**NOTICE:** Do not connect the Red and Yellow together or allow them to contact the case or other circuitry. Circuit damage may result.

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For more information about the U.S. Motors brand,  
visit [www.nidec-motor.com](http://www.nidec-motor.com) or [www.usmotors.com](http://www.usmotors.com).

For our Pool Motor Experts, contact us at:  
Phone: 866-278-6920  
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Email: [nidecpool@nidec-motor.com](mailto:nidecpool@nidec-motor.com)

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