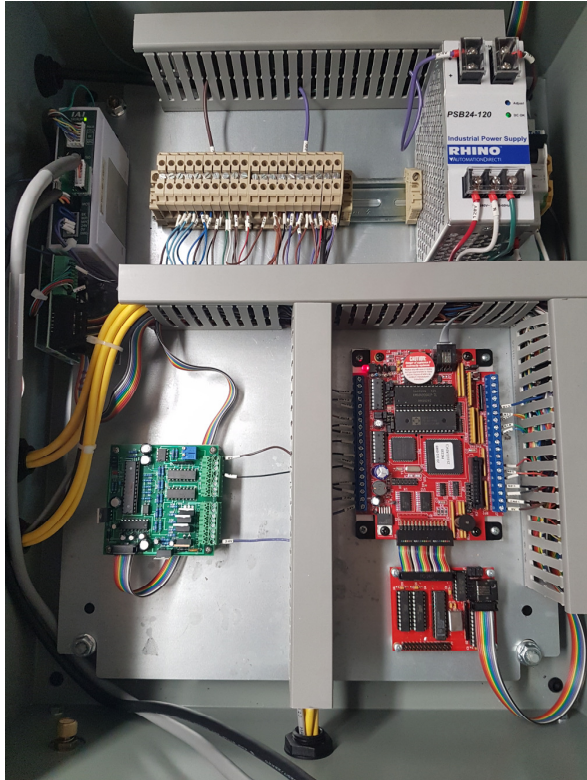


# AVR2560

## Retrofit Instructions for Single Head OA ServoJet

Due to the end-of-life status of the ZWorld PK2230 microcontroller, all ServoJet products are now controlled with a new microcontroller card based on the AVR2560 controller. This document aims to guide you through the installation of the new controller in an electrical box originally wired for the PK2230.



Electrical Box with PK2230

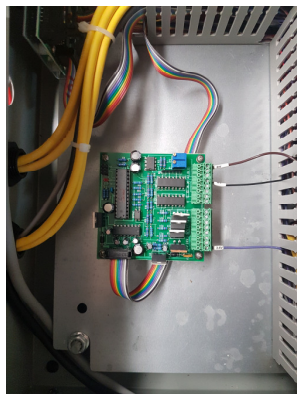


Electrical box with AVR2560

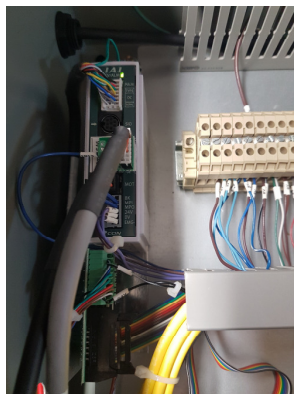
For reference, the following images identify key components in the electrical box



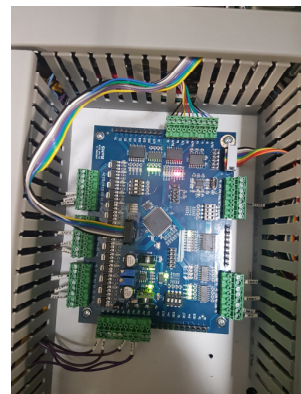
PK2230 / RS232 expansion



Valve Control Board



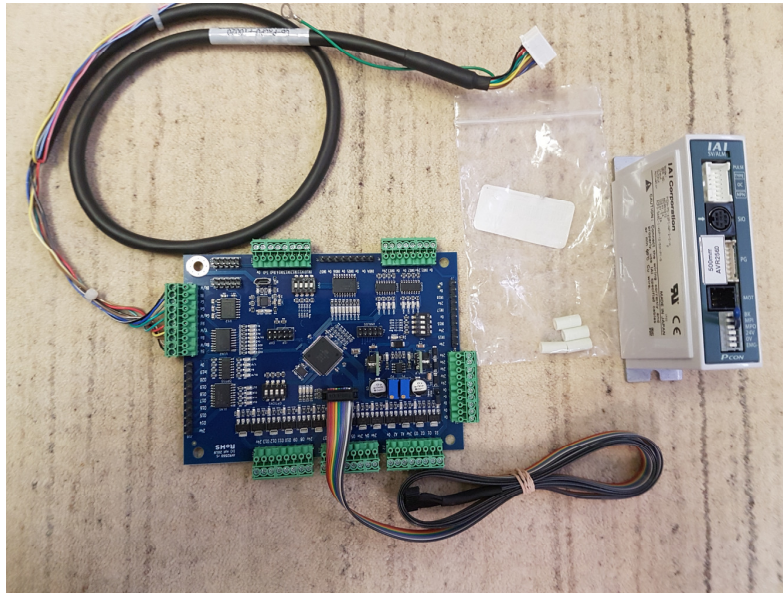
IAI Controller Assembly



AVR2560

## Contents of AVR2560 Controller Retrofit Kit

1. AVR 2560 Controller
2. IAI Actuator Controller
3. New Keypad Cable
4. IAI Control Cable
5. Standoffs (x4) for Board Mounting



**Note: IAI Controller is specific to the Actuator Model. There are 3 actuator models:**  
**500mm SA6    700mm SA7    700mm SA6**



**IAI Controllers (note label identification of actuator model)**



**500mm SA6**  
RCP2-SA6C-I-42P-12-500



**700mm SA6**  
RCP2-SA6C-I-42P-20-700



**700mm (SA7)**  
RCP2-SA7C-I-56P-16-700

**Wire Installation Guide**  
**ServoJet OA Fluxer (Flux valves mounted OUTSIDE the head)**

**Old ZWorld PK2230**

**New AVR2560**

**Outputs**

HV01 – Head Air  
HV02 – Tank Select  
HV03 – Head Purge  
HV04 – RC Pin 9  
HV05 – Flux Valve 1  
HV06 – Flux Valve 2  
HV07 – Solvent Valve  
HV08 – Air Knife  
HV09 – 3 Way Valve  
HV10 – RC Pin 3  
HV11 – No Connection (Alarm)  
HV12 – Membrane Keypad 2  
HV13 – Membrane Keypad 3  
HV14 – Membrane Keypad 4

O9  
O13  
O10  
No Connection  
O1  
O2  
O3  
O7  
O8  
No Connection  
No Connection (O14)  
No Connection  
No Connection  
No Connection

**Inputs**

+24V / K  
GND (0V)  
IN01 – Flux A Low Level  
IN02 – Incoming Photocell  
IN03 – Solvent Low Level  
IN04 – RC Pin 26  
IN05 – RC Pin 23  
IN06 – RC Pin 22  
IN07 – Flux B Low Level  
IN08 – No Connection  
IN09 – Membrane Keypad 5  
IN10 – Membrane Keypad 6  
IN11 – Membrane Keypad 7  
IN12 – Membrane Keypad 8  
IN13 – IAI Encoder  
IN14 – Flowmeter

J26 24V  
J26 0V  
IN01  
IN02  
IN03  
No Connection  
No Connection  
No Connection  
IN04  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
IN13

Keypad Cable

Install New Cable on Keypad Header

**Valve Control Board**

A1 – Tank Pressure Control

A1

**RS232 Expansion Board**

H1 – 10 pin header

COM0

**Options DIP Switches**

1-OFF 2-OFF 3-OFF 4-OFF

**Hold Enable Jumper**

Do NOT install

## Wire Installation Guide

### ServoJet High Speed Valve Fluxer (Flux valves mounted INSIDE the head)

#### Old ZWorld PK2230

##### Outputs

HV01 – Head Air  
HV02 – Tank Select  
HV03 – Head Purge  
HV04 – RC Pin 9  
HV05 – Flux Valve 1 Control Signal  
HV06 – Flux Valve 2 Control Signal  
HV07 – Solvent Valve Control Signal  
HV08 – Air Knife  
HV09 – 3 Way Valve  
HV10 – RC Pin 3  
HV11 – No Connection (Alarm)  
HV12 – Membrane Keypad 2  
HV13 – Membrane Keypad 3  
HV14 – Membrane Keypad 4

##### Inputs

+24V / K  
GND (0V)  
IN01 – Flux A Low Level  
IN02 – Incoming Photocell  
IN03 – Solvent Low Level  
IN04 – RC Pin 26  
IN05 – RC Pin 23  
IN06 – RC Pin 22  
IN07 – Flux B Low Level  
IN08 – No Connection  
IN09 – Membrane Keypad 5  
IN10 – Membrane Keypad 6  
IN11 – Membrane Keypad 7  
IN12 – Membrane Keypad 8  
IN13 – IAI Encoder  
IN14 – Flowmeter

Keypad Cable

#### Valve Control Board

S/H – Black Wire in Valve Control Cable

*Note: on older Valve Control Boards the black wire is connected to 0V. It should be removed from 0V on the valve control board and connected to S1 on the AVR2560 board*

V1 – Brown Wire in Valve Control Cable  
V2 – Blue Wire in Valve Control Cable  
V3 – White Wire in Valve Control Cable  
A1 – Tank Pressure Control

#### RS232 Expansion Board

H1 – 10 pin header

#### Options DIP Switches

1-ON 2-OFF 3-OFF 4-OFF

#### New AVR2560

O9  
O13  
O10  
No Connection  
No Connection  
No Connection  
No Connection  
O7  
O8  
No Connection  
No Connection (O14)  
No Connection  
No Connection  
No Connection

J26 24V  
J26 0V  
IN01  
IN02  
IN03  
No Connection  
No Connection  
No Connection  
IN04  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
IN13

Install New Cable on Keypad Header

S1

O1  
O2  
O3  
A1

COM0

#### Hold Enable Jumper

Install

## ServoJet OA Fluxer DUAL HEAD

### Old ZWorld PK2230

#### Outputs

HV01 – Head Air A  
HV02 – Tank Select  
HV03 – Head Purge  
HV04 – RC Pin 9  
HV05 – Flux Valve 1  
HV06 – Flux Valve 2  
HV07 – Solvent Valve  
HV08 – Air Knife  
HV09 – 3 Way Valve  
HV10 – RC Pin 3  
HV11 – Head Air B  
HV12 – Membrane Keypad 2  
HV13 – Membrane Keypad 3  
HV14 – Membrane Keypad 4

#### Inputs

+24V / K  
GND (0V)  
IN01 – Flux A Low Level  
IN02 – Incoming Photocell  
IN03 – Solvent Low Level  
IN04 – RC Pin 26  
IN05 – RC Pin 23  
IN06 – RC Pin 22  
IN07 – Flux B Low Level  
IN08 – No Connection  
IN09 – Membrane Keypad 5  
IN10 – Membrane Keypad 6  
IN11 – Membrane Keypad 7  
IN12 – Membrane Keypad 8  
IN13 – IAI Encoder  
IN14 – Flowmeter

### Head Select Relay (CR1)

HV051 – Flux Valve 1 Head A  
HV061 – Flux Valve 2 Head A (on dual valve systems)  
HV091 – 3 Way Valve Head A  
HV052 – Flux Valve 1 Head B  
HV062 – Flux Valve 2 Head B (on dual valve systems)  
HV092 – 3 Way Valve Head B  
LS21 – Solvent Tank A Level  
LS22 – Solvent Tank B Level  
Keypad Cable

### Valve Control Board

A1 – Tank Pressure Control

### RS232 Expansion Board

H1 – 10 pin header

### Options DIP Switches

1-OFF 2-OFF 3-OFF 4-OFF

### New AVR2560

O9  
O13  
O10  
No Connection  
No Connection  
No Connection  
O3  
O7  
No Connection  
No Connection  
O12  
No Connection  
No Connection  
No Connection

J26 24V  
J26 0V  
IN01  
IN02  
No Connection  
No Connection  
No Connection  
No Connection  
IN04  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
IN13

O1  
O2  
O8  
O4  
O5  
O11  
IN03  
IN05  
Install New Cable on Keypad Header

A1

COM0

### Hold Enable Jumper

Do NOT install

## ServoJet High Speed Valve Dual Head

### Old ZWorld PK2230

#### Outputs

HV01 – Head Air  
HV02 – Tank Select  
HV03 – Head Purge  
HV04 – RC Pin 9  
HV05 – Flux Valve 1 Control Signal  
HV06 – Flux Valve 2 Control Signal  
HV07 – Solvent Valve Control Signal  
HV08 – Air Knife  
HV09 – 3 Way Valve  
HV10 – RC Pin 3  
HV11 – No Connection  
HV12 – Membrane Keypad 2  
HV13 – Membrane Keypad 3  
HV14 – Membrane Keypad 4

#### Inputs

+24V / K  
GND (0V)  
IN01 – Flux A Low Level  
IN02 – Incoming Photocell  
IN03 – Solvent Low Level  
IN04 – RC Pin 26  
IN05 – RC Pin 23  
IN06 – RC Pin 22  
IN07 – Flux B Low Level  
IN08 – No Connection  
IN09 – Membrane Keypad 5  
IN10 – Membrane Keypad 6  
IN11 – Membrane Keypad 7  
IN12 – Membrane Keypad 8  
IN13 – IAI Encoder  
IN14 – Flowmeter  
Keypad Cable

#### Valve Control Board

S/H – Black Wire in Valve Control Cable  
V1 – Brown Wire in Valve Control Cable  
V2 – Blue Wire in Valve Control Cable  
V3 – White Wire in Valve Control Cable  
A1 – Tank Pressure Control

#### Head Select Relay (CR1)

S/H – Black Wire for Head A cable  
S/H – Black Wire for Head B cable  
V11 – Brown Wire for Head A cable  
V21 – Blue Wire for Head A cable  
V31 – White Wire for Head A cable  
V21 – Brown Wire for Head B cable

### New AVR2560

O9  
O13  
O10  
No Connection  
No Connection  
No Connection  
No Connection  
O7  
No Connection (see CR2 below)  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
J26 24V  
J26 0V  
IN01  
IN02  
No Connection  
No Connection  
No Connection  
No Connection  
IN04  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
No Connection  
Install New Cable on Keypad Header  
  
no connection (see CR1 below)  
no connection (see CR1 below)  
no connection (see CR1 below)  
no connection (see CR1 below)  
A1  
  
S1  
S1  
O1  
O2  
O3  
O4

|                                   |      |
|-----------------------------------|------|
| V22 – Blue Wire for Head B cable  | O5   |
| V32 – White Wire for Head B cable | O6   |
| IN141 - Flowmeter Head A          | IN13 |
| IN142 – Flowmeter Head B          | IN14 |

### Head Select Relay (CR2)

|                               |      |
|-------------------------------|------|
| 3 Way Valve A – Head A        | O8   |
| 3 Way Valve B – Head B        | O11  |
| LS21 – Solvent A Level Switch | IN03 |
| LS22 – Solvent B Level Switch | IN05 |

### RS232 Expansion Board

|                    |      |
|--------------------|------|
| H1 – 10 pin header | COM0 |
|--------------------|------|

### Options DIP Switches

1-ON 2-OFF 3-OFF 4-OFF

### Hold Enable Jumper

Install

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### IAI Controller Installation

- Transfer 24V, 0V, 24V power wires from old controller to new controller
- Remove the small green Encoder circuit board – IN13 (no longer required)  
(This board is not installed on older machines. Make sure the IN13 wire soldered to older encoder cables is disconnected and not shorted to any other wires or metal – cut any bare wire at end)
- Transfer the 2 actuator cables from old to new controller
- Install the actuator control cable from the AVR2560 board

Remove existing IAI Controller Assembly. New controller will be secured to the electrical backplate by a single screw (Top). Install green ground wire on this screw.

