

AR-6 Control System Modules

System Configurations



AR-6 Control System Modules

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AR-6 Control System Modules

Introduction

The AR-6 Control System is a compact, light-weight, rugged Control System mounted in an armrest configuration. Rates, Spreader, Spread Direction, Pre-Wet and Material Selection are controlled by Three Rotary controls with detents.

Features include System and Lighting fuses accessible under the Arm-Cushion and an eight button Joystick with two way trigger that has three operating modes. They are: No Trigger, Dead-Man's Trigger and Priority Front Plow Control.

There are four Lighting Switches and two double throw switches for Tarp and Tailgate control. The switches status' are displayed on the Operator Screen so the operator can see at a glance. The Back-lights of the switches are powered by the supply fuses so in the event a fuse blows the operator will note the light is off and the switch status disappears from the screen.

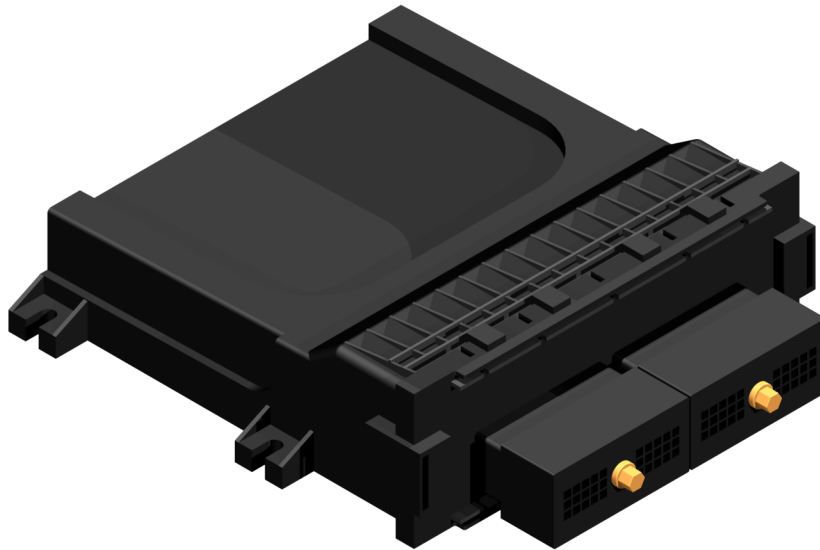
A single cable connects to the Valve Driver Modules Located in the Hydraulic Enclosure. These drivers also have Sensing Inputs (see below for descriptions). Each sensor has +12V, Ground and Signal connections except the Material Sense which is a two wire connection.

A single cable provides a Lighting / Electrical access point in the Hydraulic Enclosure.

AR-6 Control System Modules

SP Module

The AR-6 SP Module provides a complete Valve Driver and Sensing for a minimum configuration Sanding System. It is the core component of all configurations featuring Joystick Control.



Conveyor Forward PWM

Conveyor Reverse PWM

Gate Up PWM

Gate Down PWM

Spinner Left PWM

Spinner Right PWM

Pre-Wet PWM

Pre-Wet Purge Control

Pre-Wet Pulse Sense

Conveyor Pulse Sense

Low Oil Sense

Material Sense

Joystick 1 (Front Plow) Up PWM

Joystick 1 (Front Plow) Down PWM

Joystick 1 (Front Plow) Left PWM

Joystick 1 (Front Plow) Right PWM

Power Float A Control

Power Float B Control

Joystick 2 (Hoist) Up PWM

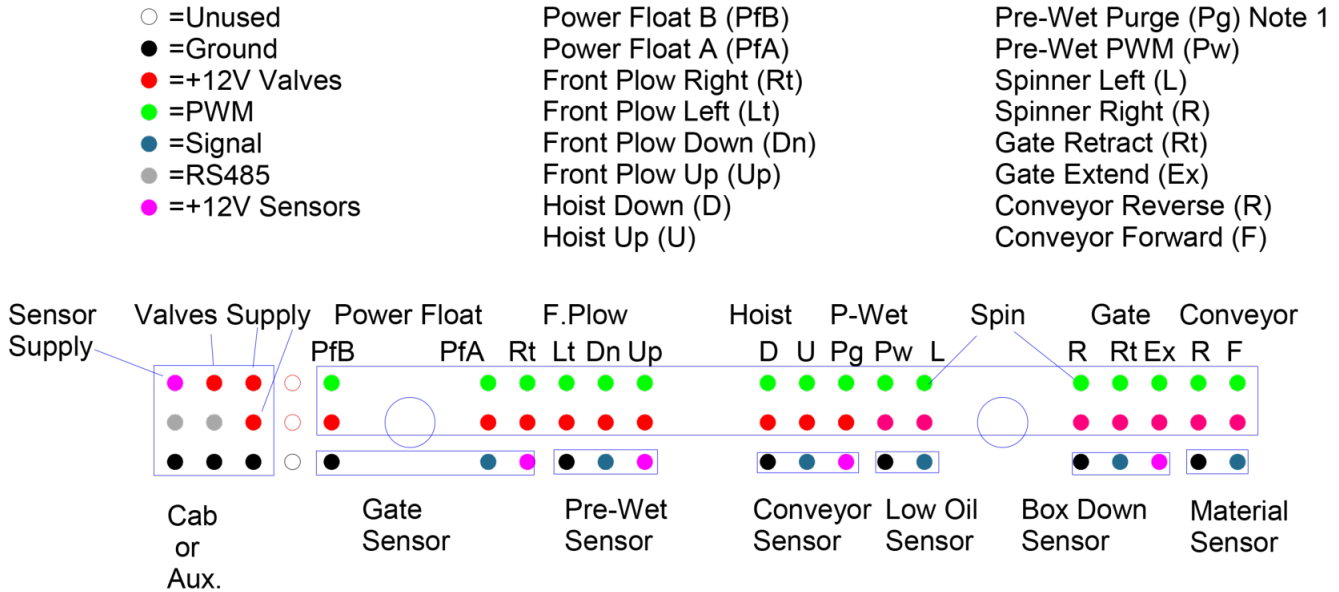
Joystick 2 (Hoist) Down PWM

AR-6 Control System Modules

SP Module

Sander & Plow

Connector Configuration



Note 1:

Future Expansion

Pre-wet Purge can be reassigned to operate a second Spinner.

AR-6 Control System Modules

Aux Module

Auxiliary Joysticks

The AR-6 AUX Module provides two four-way Valve Drivers for two added Plow Functions. The AUX Module also shares control with the main Hoist to operate a Pup Hoist.



Joystick 2 (Pup Up) Left PWM
Joystick 2 (Pup Down) Right PWM

Joystick 3 (Aux 1) Up PWM
Joystick 3 (Aux 1) Down PWM
Joystick 3 (Aux 1) Left PWM
Joystick 3 (Aux 1) Right PWM

Joystick 4 (Aux 2) Up PWM
Joystick 4 (Aux 2) Down PWM
Joystick 4 (Aux 2) Left PWM
Joystick 4 (Aux 2) Right PWM

Aux 1 Down Sense
Aux 2 Down
Aux 2 Position Sense

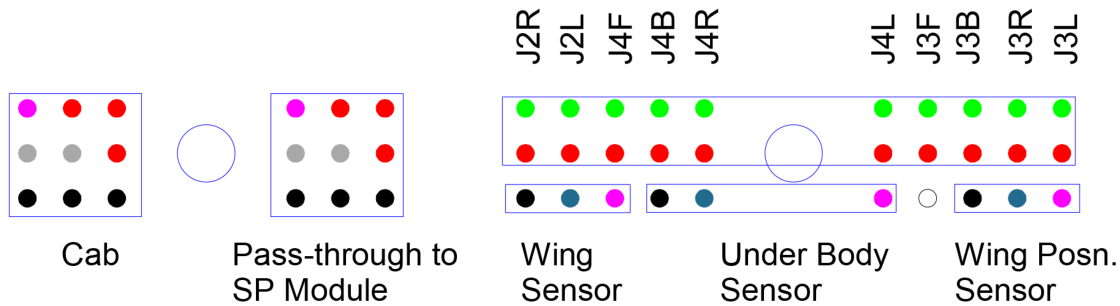
AR-6 Control System Modules

Auxiliary Joystick Module

Connector Configuration

- =Unused
- =Ground
- =+12V Valves
- =PWM
- =Signal
- =RS485
- =+12V Sensors

- Joystick 2 Pup Hoist Down (J2R)
- Joystick 2 Pup Hoist Up (J2L)
- Joystick 4 Wing Down (J4F)
- Joystick 4 Wing Up (J4B)
- Joystick 4 Wing Right (J4R)
- Joystick 4 Wing Left (J4L)
- Joystick 3 Underbody Down (J3F)
- Joystick 3 Underbody Up (J3B)
- Joystick 3 Underbody Right (J3R) Note 1
- Joystick 3 Underbody Left (J3L) Note 1



Note 1:

Joystick 3 L/R can be reassigned to operate on the Wing if a six way plow is required.

AR-6 Control System Modules

DLA Module

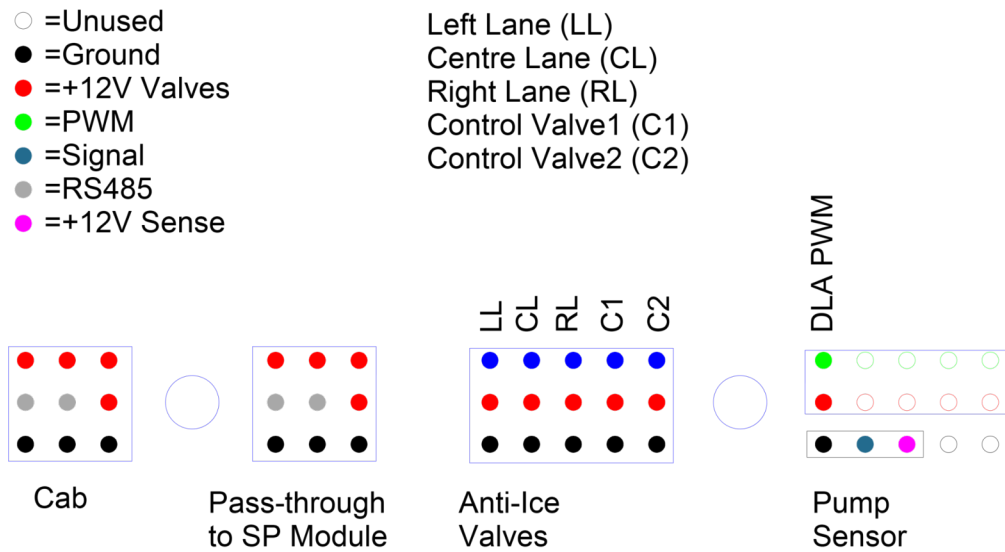
The AR-6 DLA Module provides PWM for the Liquid Pump, Pump Speed Sensing, three Lane Controls and two Offload Valve Controls for versatility.



- Anti Ice PWM
- Anti-Ice Pulses
- Left Lane Control
- Centre Lane Control
- Right Lane Control
- Offload 1 Valve Control
- Offload 2 Valve Control

AR-6 Control System Modules

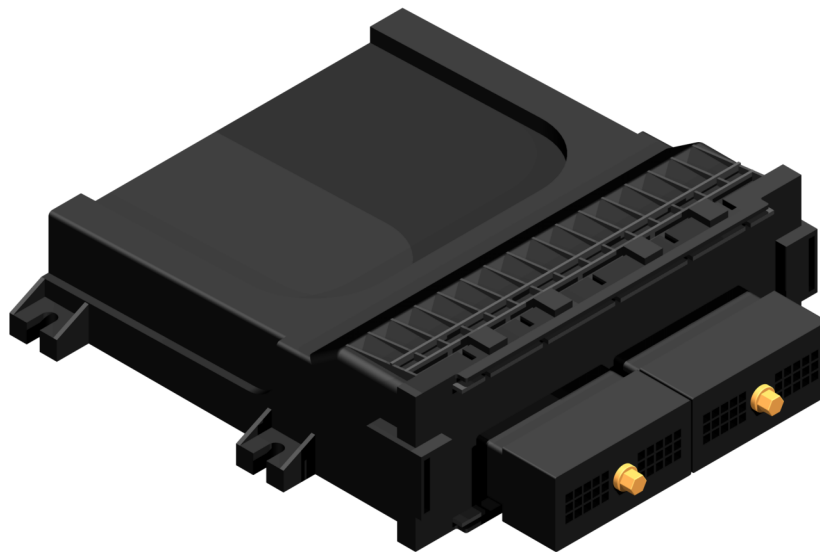
Direct Liquid Application Connector Configuration



AR-6 Control System Modules

EJ Module

The AR-6 EJ Module provides the Auxiliary Joystick functions and then adds the ability to extend/retract the Under Body Plow and Wing Plow as well as providing Side Dump capability (Joystick 2 Extend Retract).



Joystick 2 Pup Up PWM
Joystick 2 Pup Down PWM
Joystick 2 Extend PWM
Joystick 2 Retract PWM
Joystick 3 (Aux 1) Up PWM
Joystick 3 (Aux 1) Down PWM
Joystick 3 (Aux 1) Left PWM
Joystick 3 (Aux 1) Right PWM
Joystick 3 (Aux 1) Extend PWM
Joystick 3 (Aux 1) Retract PWM

Joystick 4 (Aux 2) Up PWM
Joystick 4 (Aux 2) Down PWM
Joystick 4 (Aux 2) Left PWM
Joystick 4 (Aux 2) Right PWM
Joystick 4 (Aux 2) Extend PWM
Joystick 4 (Aux 2) Retract PWM

AR-6 Control System Modules

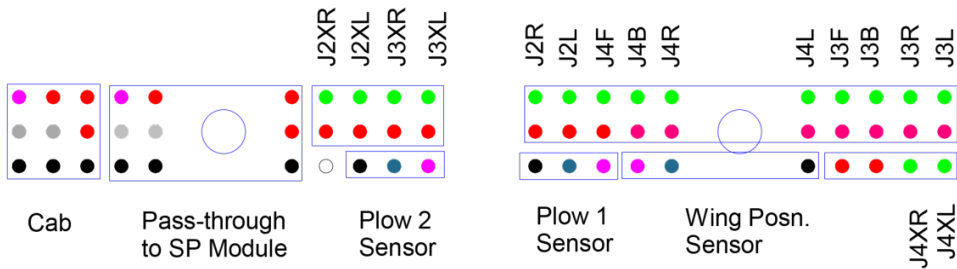
Extended Joystick Module Connector Configuration

- =Unused
- =Ground
- =+12V Valves
- =PWM
- =Signal
- =RS485
- =+12V Sensors

Joystick 2 X Right (J2XR)
Joystick 2 X Left (J2XL)
Joystick 3 X Right (J3XR)
Joystick 3 X Left (J3XL)
Joystick 4 X Right (J4XR)
Joystick 4 X Left (J4XL)

Joystick 2 Pup Hoist Down (J2R)
Joystick 2 Pup Hoist Up (J2L)
Joystick 4 Wing Down (J4F)
Joystick 4 Wing Up (J4B)
Joystick 4 Wing Right (J4R)
Joystick 4 Wing Left (J4L)

Joystick 3 Underbody Down (J3F)
Joystick 3 Underbody Up (J3B)
Joystick 3 Underbody Right (J3R) Note 1
Joystick 3 Underbody Left (J3L) Note 1



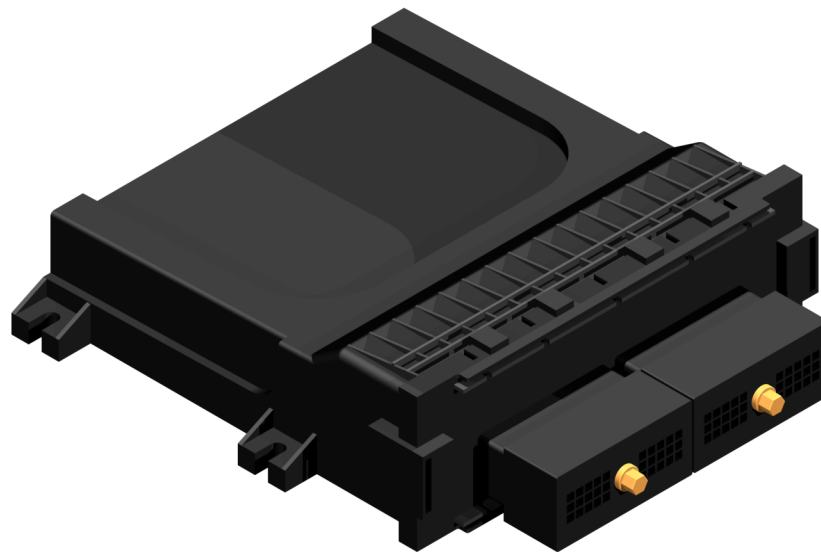
Note 1:

Joystick 3 L/R can be reassigned to operate on the Wing if a six way plow is required.

AR-6 Control System Modules

DLAJ Module

The AR-6 DLAJ Module provides the Auxiliary Joystick functions and the DLA functions in one package to reduce wiring and maintain a small footprint.



Joystick 2 (Pup Up) Left PWM
Joystick 2 (Pup Down) Right PWM
Joystick 3 (Aux 1) Up PWM
Joystick 3 (Aux 1) Down PWM
Joystick 3 (Aux 1) Left PWM
Joystick 3 (Aux 1) Right PWM
Joystick 4 (Aux 2) Up PWM
Joystick 4 (Aux 2) Down PWM
Joystick 4 (Aux 2) Left PWM
Joystick 4 (Aux 2) Right PWM

Anti Ice PWM
Anti-Ice Pulses
Left Lane Control
Centre Lane Control
Right Lane Control
Offload 1 Valve Control
Offload 2 Valve Control

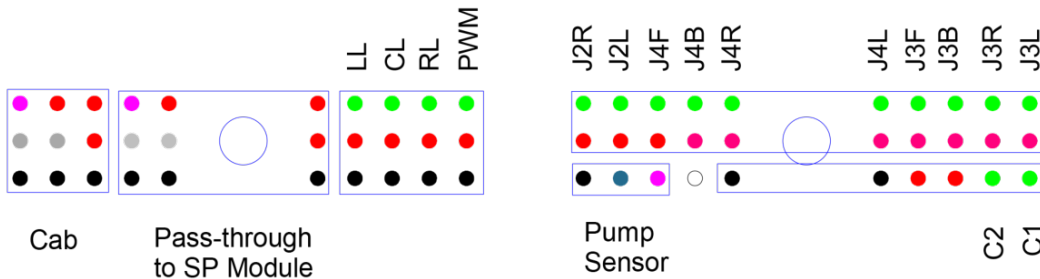
AR-6 Control System Modules

DLAJ Module

Connector Configuration

DLA & Joystick

- =Unused
 - =Ground
 - =+12V Valves
 - =PWM
 - =Signal
 - =RS485
 - =+12V Sensors
- | | | |
|----------------------|---------------------------------|---|
| Left Lane (LL) | Joystick 2 Pup Hoist Down (J2R) | Joystick 3 Underbody Down (J3F) |
| Centre Lane (CL) | Joystick 2 Pup Hoist Up (J2L) | Joystick 3 Underbody Up (J3B) |
| Right Lane (RL) | Joystick 4 Wing Down (J4F) | Joystick 3 Underbody Right (J3R) Note 1 |
| Pump PWM (PWM) | Joystick 4 Wing Up (J4B) | Joystick 3 Underbody Left (J3L) Note 1 |
| Control Valve 1 (C1) | Joystick 4 Wing Right (J4R) | |
| Control Valve 2 (C2) | Joystick 4 Wing Left (J4L) | |

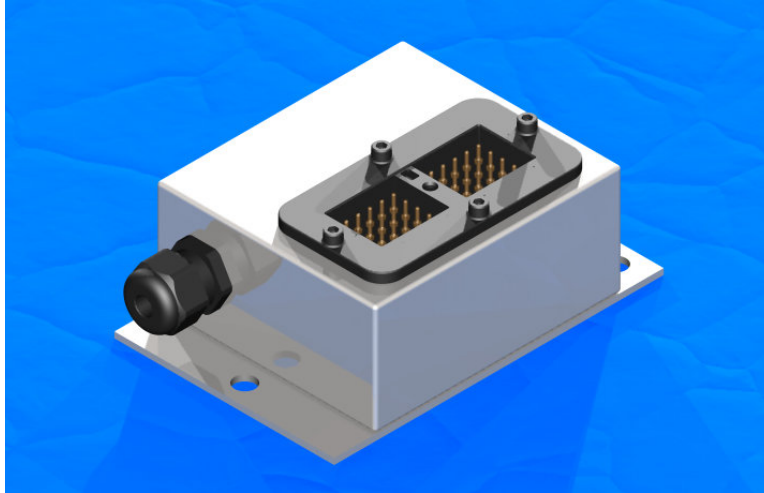


Note 1:

Joystick 3 L/R can be reassigned to operate on the Wing if a six way plow is required.

AR-6 Control System Modules

Electrical Interface Module



The AR Electrical Box connects to the six Switches on the AR-6 Armrest via a ten conductor cable to provide a remote connection point in the valve compartment. Lighting ground is supplied through a 10 gauge single conductor wire (attached) and is distributed out on twenty pins. This affords the installer the ability to connect both power and ground through a single 40 cavity Deutsch connector (supplied with sockets).

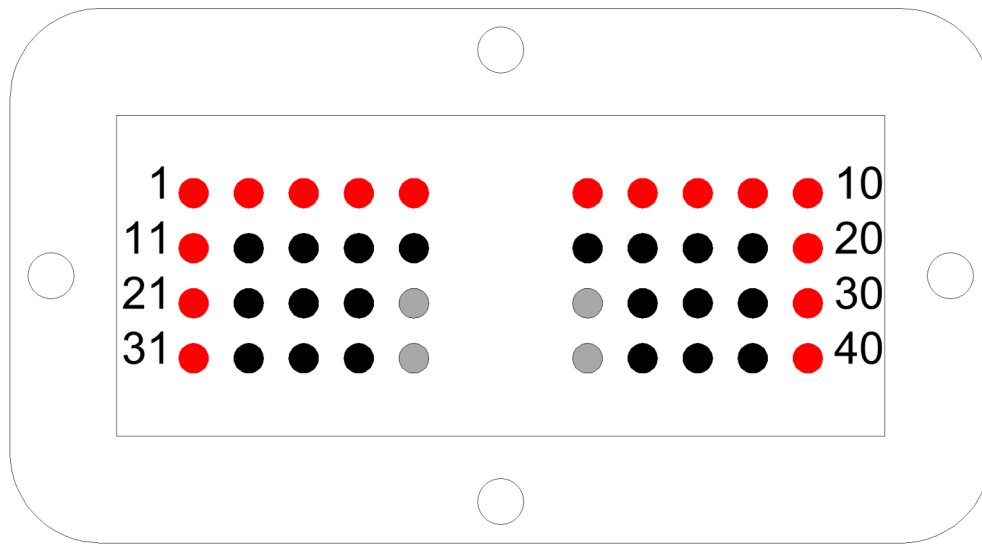
The AR Electrical Box comes pre-wired in a standard configuration which can easily be changed to suit any desired custom pin-out. This is done by simply removing the bottom plate (four screws) and accessing the terminal block.



AR-6 Control System Modules

Electrical Interface Module

Connector Configuration



The connection detail is shown above with the Red Pins being Outputs, the Black Pins are Ground Out. The four Grey pins are Ground Supply, pre-wired with a 10 gauge wire to be externally grounded on installation. The 20 Pins shown in Red are terminated to a ten position terminal block as shown in the following pages

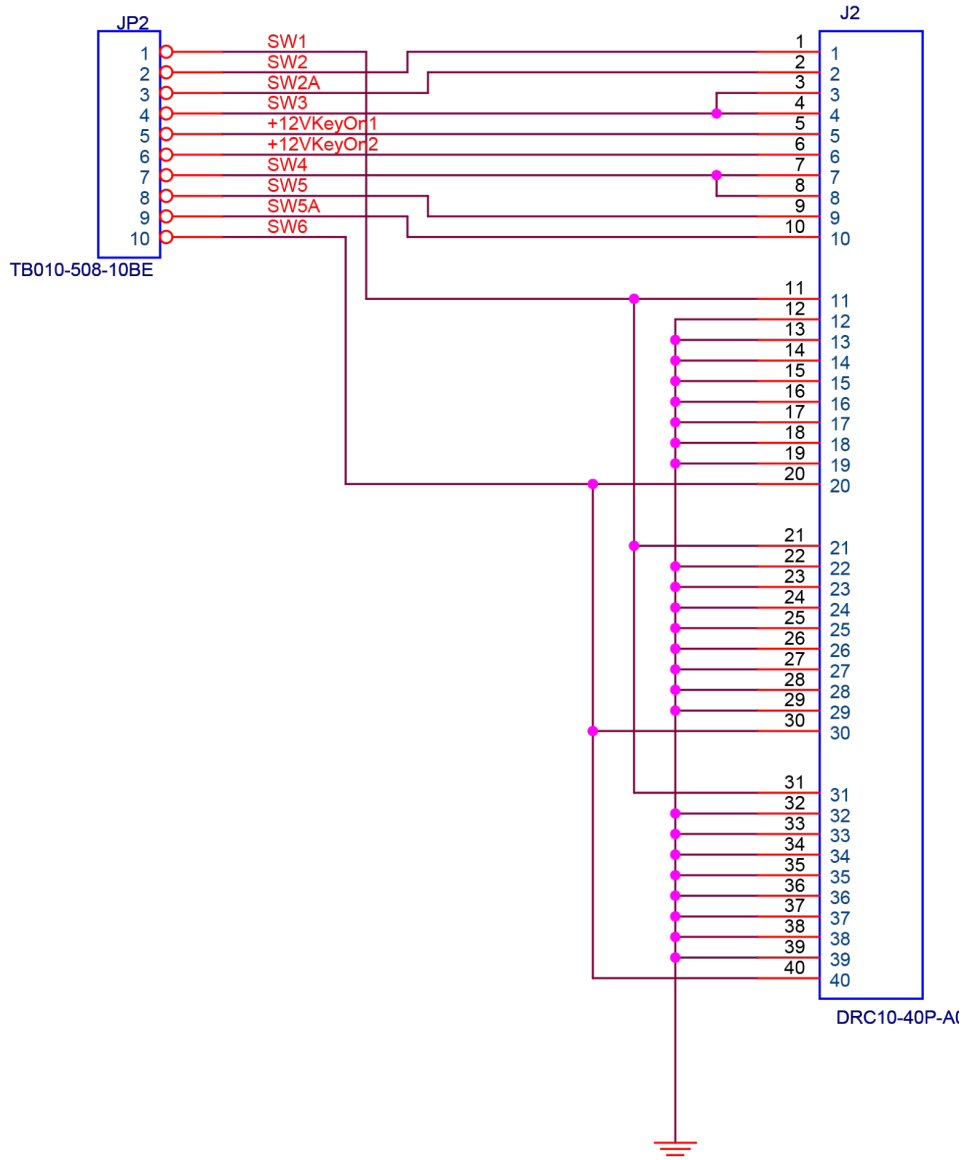
AR-6 Control System Modules

Electrical Interface Module

| Terminal Block | 40 Pin Connector | Standard Configuration | Colour |
|----------------|--------------------|------------------------|--------|
| Pin 1 | Pins 11, 21 and 31 | Beacon Lights | Red |
| Pin 2 | Pin 1 | Tarp Open | Blue |
| Pin 3 | Pin 2 | Tarp Close | Green |
| Pin 4 | Pins 3 and 4 | Work 1 Lights | Brown |
| Pin 5 | Pin 5 | Key On Power 1 | Grey |
| Pin 6 | Pin 6 | Key On Power 2 | Violet |
| Pin 7 | Pins 7 and 8 | Work 2 Lights | White |
| Pin 8 | Pin 9 | Tailgate Open | Yellow |
| Pin 9 | Pin 10 | Tailgate Close | Orange |
| Pin 10 | Pins 20, 30 and 40 | Hopper Lights | Black |

AR-6 Control System Modules

Electrical Interface Module



AR-6 Control System Modules

Kits

Each System is Shipped with the Armrest kit in one box labeled AR-6_CAB_KIT.

Armrest Kit

1 AR-6 Armrest

1 AR-6 Display Kit Containing:

- 1 AR-HMI7 HMI Interface /w Ball Mount

- 1 AR-01-0005 2' CAT6 Patch Cable

- 1 AR-01-0006 10' CAT6 Patch Cable

1 AR-6 Cab Accessories Bag Containing:

- 1 USB Thumb Drive (Activated)

- 1 DTP06-4S Connector Housing (Power)

- 1 WP-4S Wedge Lock

- 1 DT4-2P Connector Housing (Low Oil)

- 1 W2P Wedge Lock

- 1 DT4-4P Connector Housing (Speedo / ECU Connector)

- 1 W4P Wedge Lock

- 7 0462-201-16141 Socket Size 16

- 4 0462-203-12141 Socket Size 12

- 4 114017-ZZ Hole Filler (1 installed)

1 AR-01-0001 Power Cable

1 AR-01-0002 ECU/TCM and Speedometer Cable

1 System Setup Manual

1 Operator Manual

AR-6 Control System Modules

Kits

Each System is shipped with the Electrical Kit and the Driver Modules in one box labeled AR6_DRIVER_KIT. The Driver Modules determine the System Model. The System will always have the Sander Plow Driver Module as a base.

Driver Kit

Electrical Kit

1 Electrical Kit Containing:

- 1 AR-01-0003 Valve Driver Cable
- 1 AR-01-0004 Electrical Cable /w Connector
- 1 Driver Accessory Bag Containing
 - 1 DRC16-40S Connector
 - 36 0460-202-16141 Socket Size 16
 - 36 114017-ZZ Hole Filler

AR-6 Control System Modules

X7 Kit

X7 Kit ships with:

1 SP Module /w Cables and Mounting Plate (Assembled)

- Conveyor Sense
- Pre-Wet Sense
- Gate Sense
- Low Oil Sense
- Box Down Sense
- Conveyor PWM
- Gate U/D PWM
- Spinner L/R PWM
- Hoist U/D PWM
- 4 Way Front Plow
- Power Float A/B

AR-6 Control System Modules

Kits

X7D Kit

X7D Kit ships with:

1 SP Module /w Cables and Mounting Plate (Assembled)

- Conveyor Sense
- Pre-Wet Sense
- Gate Sense
- Low Oil Sense
- Box Down Sense
- Conveyor PWM
- Gate U/D PWM
- Spinner L/R PWM
- Hoist U/D PWM
- 4 Way Front Plow
- Power Float A/B

1 DLA Module /w Cables and Mounting Plate (Assembled)

- Anti-Ice Flow Sense
- Left, Centre and Right Lane Controls
- 2 Auxiliary Valves for Offloading
- Anti-Ice PWM

AR-6 Control System Modules

Kits

R-13 Kit

R-13 Kit ships with:

1 SP Module /w Cables and Mounting Plate (Assembled)

- Conveyor Sense
- Pre-Wet Sense
- Gate Sense
- Low Oil Sense
- Box Down Sense
- Conveyor PWM
- Gate U/D PWM
- Spinner L/R PWM
- Hoist U/D PWM
- 4 Way Front Plow
- Power Float A/B

1 Aux Module /w Cables and Mounting Plate (Assembled)

- Pup U/D PWM
- 4 Way Under Body PWM
- 4 Way Wing

AR-6 Control System Modules

Kits

R-13DJ Kit

R-13DJ Kit ships with:

1 SP Module /w Cables and Mounting Plate (Assembled)

- Conveyor Sense
- Pre-Wet Sense
- Gate Sense
- Low Oil Sense
- Box Down Sense
- Conveyor PWM
- Gate U/D PWM
- Spinner L/R PWM
- Hoist U/D PWM
- 4 Way Front Plow
- Power Float A/B

1 DLAJ Module /w Cables and Mounting Plate (Assembled)

- Pup U/D PWM
- 4 Way Under Body PWM
- 4 Way Wing
- Anti-Ice Flow Sense
- Left, Centre and Right Lane Controls
- 2 Auxiliary Valves for Offloading
- Anti-Ice PWM