

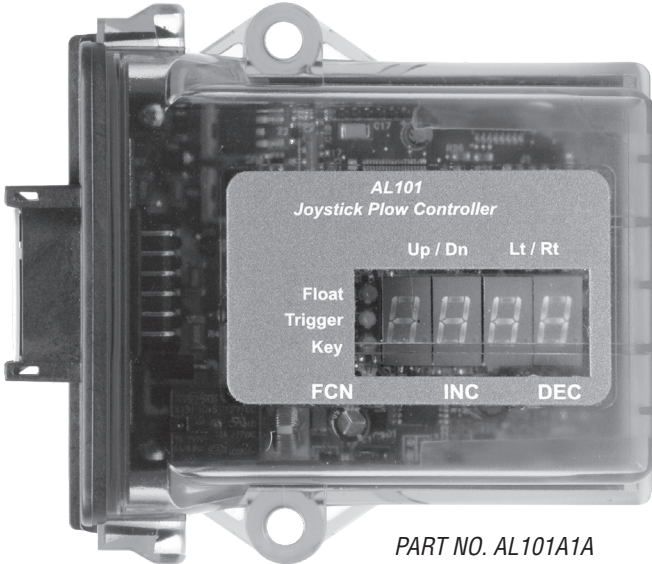


JOYSTICK CONTROLLER

FOR SNOW PLOW OPERATION

INSTALLATION INSTRUCTIONS AND OWNER'S MANUAL

FEATURES • INSTALLATION • OPERATION • PROGRAMMING



PART NO. AL101A1A

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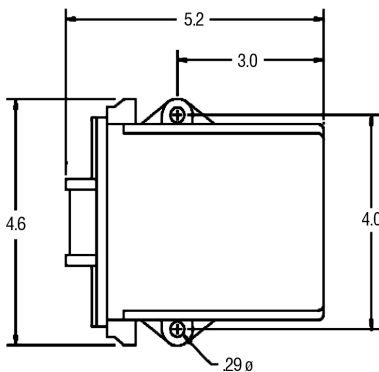
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AL101A1A FEATURES

- Interfaces with a 2-Axis Joystick Controller for Operating a Standard Snow Plow Application.
- Operates Four Pulse Width Modulated Coil Drivers
- Each Coil Driver is Current Controlled
- Trim Range Between 5 to 3500 MA
- Deadman Switch Input for Safe Operation
- Plow Float Option
- Numerical & L.E.D. Displays for Programming Parameter Settings Plus Diagnostic Indicators
- CANBUS (J1939) Compatible
- Nonvolatile Memory — Will not lose settings when disconnected from Power.
- Flash Memory-Allows Field Upgrades to Software

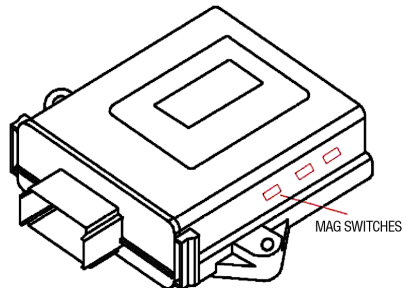
AL101A1A SPECIFICATIONS

- Operating Voltage..... 10-32 VDC
- Operating Temperature..... -40° to 185° F
-40° to 85° C
- Outputs: (4) *Current Protected/Current Compensated* 3.5A-Max
PWM-100 hz.
- Regulated Output for Joysticks..... 5 VDC

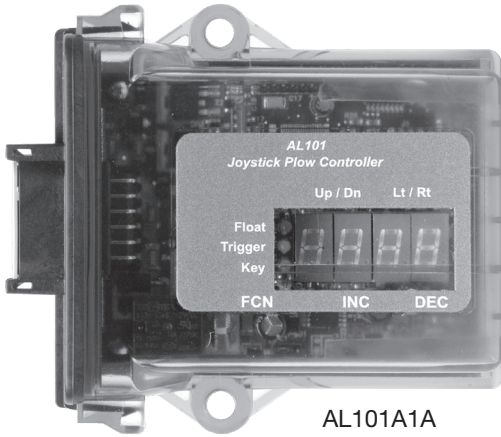


ENCLOSURE FEATURES:

- Environmentally sealed against moisture
- Non-corrosive, thermoplastic housing
- Shock and Vibration resistant
- Connector Keying Option Available



SYSTEM COMPONENTS

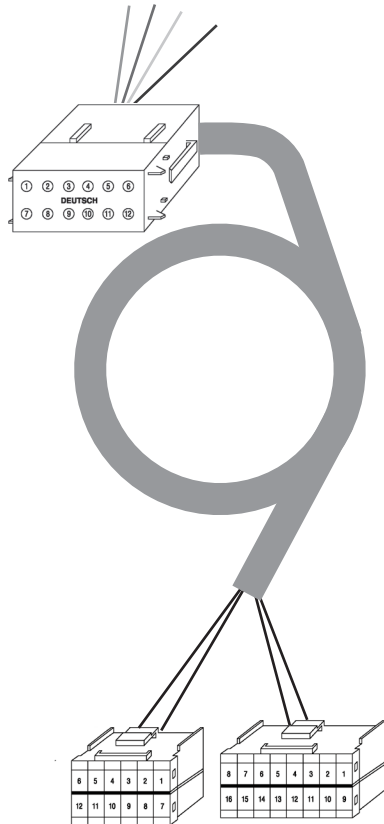


AL101A1A



EJK2P3D

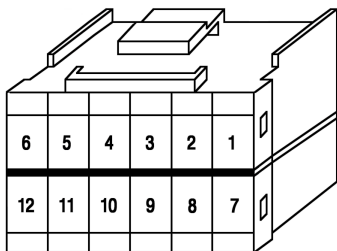
(Purchased Separately)
Includes wire harness
to AL101A1A



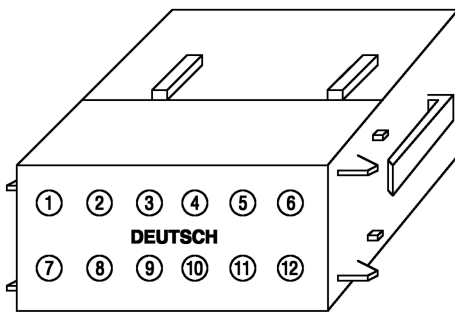
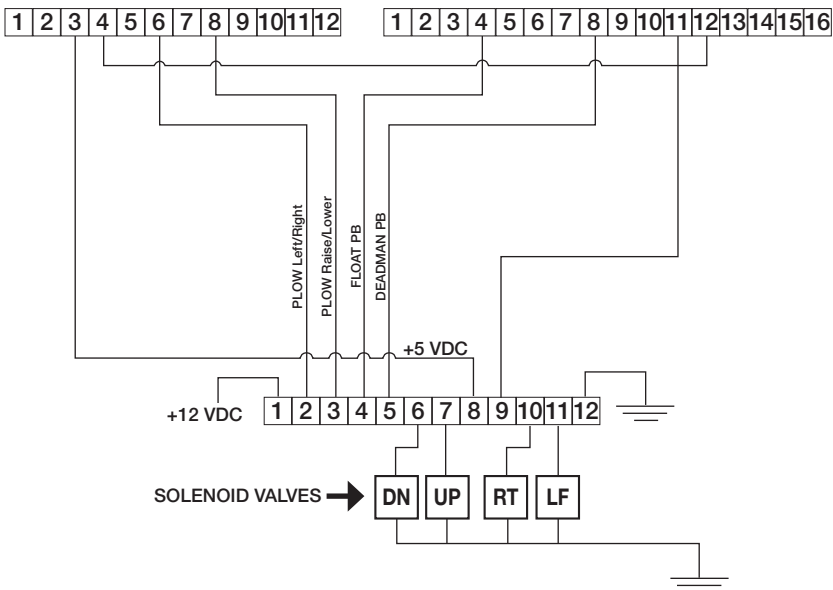
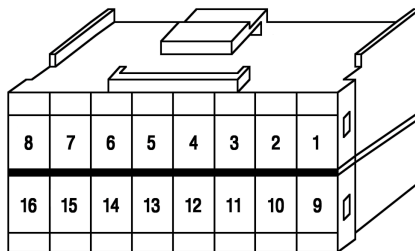
NX1AAL100WH
Wire Harness

WIRE HARNESS CONNECTIONS

12-PIN AMP# 174045-2

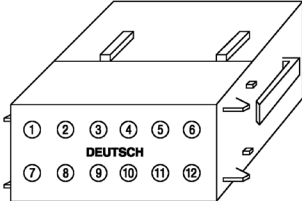


16-PIN AMP# 174046-2



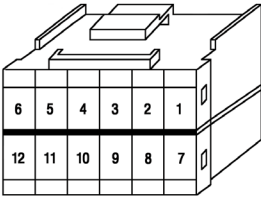
DTM06-12SA-E007
Deutsch Box Connector

CONNECTOR PINOUTS



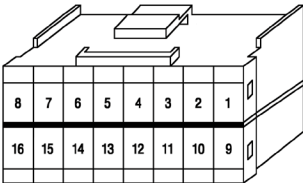
Deutsch Box Connector
PART. NO. 174045-2

PIN	WIRE COLOR/TYPE	FUNCTION
1	RED (18 gauge)	12VDC Power
2	BLACK (4 wire / 22 gauge)	Plow Left/Right
3	GREEN (4 wire / 22 gauge)	Plow Raise/Lower
4	WHITE (4 wire / 22 gauge)	Float PB
5	RED (4 wire / 22 gauge)	Deadman PB
6	BLUE (18 gauge)	Solenoid Plow Lower
7	ORANGE (18 gauge)	Solenoid Plow Raise
8	RED (3 wire cable / 22 gauge)	5 VDC Reference
9	GREEN (3 wire / 22 gauge)	0 VDC reference
10	WHITE (18 gauge)	Solenoid Plow Right
11	GREEN (18 gauge)	Solenoid Plow Left
12	BLACK (16 gauge)	Ground



12-Pin Amp Connector
PART. NO. 174045-2

PIN	WIRE COLOR/TYPE	FUNCTION
1	N/A	
2	N/A	
3	RED (3 wire / 22 gauge)	5 VDC Ref.
4	GREEN (Jumped to #11, #12 of 16-pin connector)	0 VDC Ref.
5	N/A	
6	BLACK (4 Wire Cable)	Plow Left/Right
7	N/A	
8	GREEN (4 wire cable/22 gauge)	Plow Raise/Lower
9	N/A	
10	N/A	
11	N/A	
12	N/A	



16-Pin Amp Connector
PART. NO. 174046-2

PIN	WIRE COLOR/TYPE	FUNCTION
1	N/A	
2	N/A	
3	N/A	
4	WHITE (4-Wire Cable/22 gauge)	Float PB
5	N/A	
6	N/A	
7	N/A	
8	RED (4-Wire Cable/22 gauge)	Deadman PB
9	N/A	
10	N/A	
11	2 Green Jumpers to #4 of 12-pin & #12 of 16-pin.	0 VDC Ref.
12	2 Green Jumpers to #4 of 12-pin & #11 of 16-pin.	0 VDC Ref.
13	N/A	
14	N/A	
15	N/A	
16	N/A	

JOYSTICK TO AL101A1A INSTALL

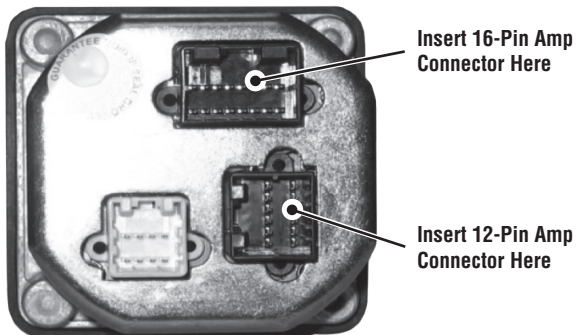
A wire harness is connected to the AL-101A1A Valve Driver Module in the hydraulic cabinet. The loose end of the harness will need to be routed to the cab for connection to the Joystick.

1. After the joystick has been mounted, run the wire harness from the enclosure to the cab.
2. Plug the 16 pin connector and the 12 pin connector into the bottom of the joystick.

WIRING HARNESS



BOTTOM OF JOYSTICK



3. Ground the negative (Black) wire from the wire harness.
4. Connect the power (Red) wire to a 12 V ignition power source fused at 10 Amps.

JOYSTICK OPERATION

In order to move the plow in any direction, the dead man trigger must first be engaged before moving the joystick.

RAISE PLOW— Engage dead man trigger and pull back on the joystick.

LOWER PLOW— Engage dead man trigger and push the joystick forward.

ANGLE RIGHT— Engage dead man trigger and move the joystick to the right.

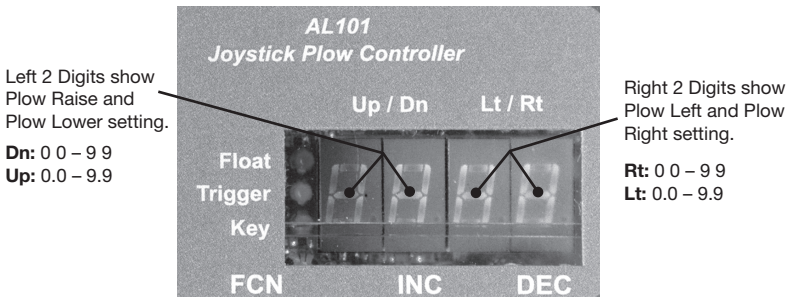
ANGLE LEFT— Engage dead man trigger and move the joystick to the left.

FLOAT— Engage dead man trigger, move the plow to desired position, and push the bottom-middle red button on top of the joystick.

Make sure to hold the dead man trigger the entire time while latching and make sure to release the pushbutton before the dead man trigger to ensure latching.

To unlatch the plow, pull back on the joystick.

The percentage of the joystick movement will be digitally displayed in the clear plastic AL101A1A Deutsch box. The yellow L.E.D. indicates the dead man trigger has been engaged, and the red L.E.D. indicates the FLOAT button has been pushed.



Left 2 Digits show Plow Raise and Plow Lower setting.

Dn: 00 – 99
Up: 0.0 – 9.9

Right 2 Digits show Plow Left and Plow Right setting.

Rt: 00 – 99
Lt: 0.0 – 9.9

NOTE: Decimal showing in readout indicates UP and LEFT plow movement.

AL101A1A PROGRAMMING

The AL101A1A employs (3) magnetic switches, marked FCN, INC, and DEC. The magnetic switches are labeled on the front but they're actually located down lower on the side of the enclosure. To trip these switches requires a magnet. The small magnet on the end of a pocket screwdriver works well. If a screwdriver magnet doesn't trip the switches, try a stronger one. When any of the three switches is pressed (tripped) the green L.E.D. will indicate a magnetic switch is active.

UNLOCK SEQUENCE

To enter the program mode a special sequence of key strokes is required to unlock the AL101A1A. Once unlocked you can view and/or edit the internal settings. Note; the unlock sequence must be done as described below, if the wrong key or sequence is used the process will reset and you must start over.

1. Use a magnet to press and hold the FCN key (Green L.E.D. goes active)
 - a. Hold FCN and observe the display count down from 9 to 0
 - b. Release FCN key
 - c. Display shows INC
2. Use a magnet to press and hold INC key (Green L.E.D. goes active)
 - a. Hold INC and observe the display count down from 9 to 0
 - b. Release INC key
 - c. Display shows DEC
3. Use magnet to press and hold DEC key (Green L.E.D. goes active)
 - a. Hold DEC and observe the display count down from 9 to 0
 - b. Release DEC key
 - c. Display = A 1 (indicates you're at address #1)

NAVIGATING THE PROGRAM MENU

Once in the program mode, the display will either show the address (always preceded by A) or the data value that is stored at that address. Since you can only press one magnetic switch at a time, you must press and release the FCN key to toggle between viewing the address and the corresponding data value.

To move thru the address list, press-n-release FCN key to view an A (left digit) then use the INC or DEC keys to move to the desired address location (A1 thru A12).

At your desired address number, press-n-release the FCN key to toggle the display to show the corresponding data value. While viewing the data value, use the INC and DEC keys to change the data value. Press and release the FCN key after changing the value to save the setting.

AL101A1A PROGRAMMING

WARNING! There is a two minute time out if no key is pressed. The time out will close your session (bumping you out of program mode). If, after the last value is changed, you were to simply walk away the change will not be saved. To prevent this it's always recommended that you follow your last change with a FCN key. To get back into Run mode you can either scroll back to address No.1 or cycle the power.

PROGRAM ADDRESS LIST, SETTINGS, RANGES, PRESETS

The factory pre-sets are to be used as a starting point. Each vehicle may require further adjustments. When adjusting the min/max trims you're blocked from making a min trim greater than its max trim or vice-versa.

- ADDR 1 RUN MODE** Display: XX YY shows the hydraulic valve drive (percentage)
Left 2 digits: XX = Plow Up/Dn (Plow Up is indicated with decimal points x.x.)
Right 2 digits: YY = Plow Left/Right (Plow Left is indicated with decimal points Y.Y.)
- ADDR 2 PLOW LEFT MIN VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 Amps
Factory pre-set = 0.500 Amps
- ADDR 3 PLOW LEFT MAX VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 Amps
Factory pre-set= 0.700 Amps
- ADDR 4 PLOW RIGHT MIN VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 Amps
Factory pre-set= 0.500 Amps
- ADDR 5 PLOW RIGHT MAX VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 Amps
Factory pre-set= 0.700 Amps
- ADDR 6 PLOW UP MIN VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 Amps
Factory pre-set = 0.500 Amps
- ADDR 7 PLOW UP MAX VALVE DRIVE (AMPS)**
Range: 0.005 – 3.500 amps
Factory pre-set= 0.750 amps

AL101A1A PROGRAMMING

ADDR 8 PLOW DOWN MIN VALVE DRIVE (AMPS)

Range: 0.005 – 3.500 Amps
Factory pre-set= 0.500 Amps

ADDR 9 PLOW DOWN MAX VALVE DRIVE (AMPS)

Range: 0.005- 3.500 Amps
Factory pre-set= 0.750 Amps

ADDR 10 FLOAT SETUP

Range: OFF (NO FLOAT OPERATION)
Range: 1-99 (FIXED FLOAT SET-POINT. 1-99% OUTPUT)
Range: Auto (AUTO FLOAT SET-POINT)
FACTORY PRE-SET = FIXED SET-POINT 80

ADDR 11 SERIAL NUMBER

View Only: 1-9999 serial number is set by the factory

ADDR 12 SOFTWARE CHECK-SUM

View Only: Four digit hexadecimal, indicates the software version.



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