

# MATRIX™

## INSTALLATION MANUAL



**AUTO BOOM SECTION CONTROL**  
Blanchard REB3 Controller

**TeeJet®**  
TECHNOLOGIES

A Subsidiary of  Spraying Systems Co.®

This installation manual covers installation of MATRIX™ or CenterLine 230BP with Blanchard REB3 controllers. We have endeavoured to deliver a fault free product. To ensure optimal use of the equipment, we ask you to pay great attention when reading this manual. Regarding responsibility for use of the product, we refer to our sales and delivery terms - especially paragraph 7, which follows:

#### Product usage.

7.1 Any use of the product is at the sole risk of the buyer. The buyer is therefore not entitled to any form for compensation caused by, for example, any of the following:

- Disturbance to/from any electronic services or products that do not confirm to the standards for CE marking,
- Missing or poor signal coverage or a succession hereof from external transmitters/receivers, used by the buyer,
- Functional faults, which apply to or from a PC-program or PC-equipment, not delivered by the seller.
- Faults that may arise from the buyers negligence to react to warnings and fault messages from the product, or which can be traced to negligence and/or absent constant control of the work carried out in comparison to the planned job.

7.2 When implementing any new equipment the buyer must take great care and pay attention. Any doubts as to correct operation/use should result in contacting TeeJet Technologies.

Kind regards,

**TeeJet**  
TECHNOLOGIES

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## INTRODUCTION TO MATRIX™ AND CL230

The MATRIX™ and Centerline 230BP are combined Guidance and Automatic Boom Section Control (ABSC) devices that features control of up to 15 boom sections. The MATRIX™ or the Centerline 230BP connects in parallel to the existing wiring loom to the section valves.

### Principle of Operation

The MATRIX™ or Centerline 230BP control the sections valves according to the GPS position and the GPS guidance makes it possible to avoid overlaps or skips.

The MATRIX™ or Centerline 230BP controls the section valves in automatic mode, and the section switches should be set to off unless the operator wants to override the auto mode and thus force spraying.

The MATRIX™ or Centerline 230BP monitors the section switches that controls the valves in manual mode. The Master switch can be used both in automatic mode as well as in manual mode.

### Required Parts

To add Automatically Boom Section Control to a Blanchard REB3 Controller the following part numbers are required:

#### MATRIX™:

Part no.	Description
* xxx-xxx	MATRIX™ Guidance controller kit
** 990-906	BoomPilot Optima Switch box kit incl. interface (Pos. 4-7 /System Overview)
** 990-907	BoomPilot Optima Switch box kit excl. interface (Pos. 4-6 /System Overview)
45-05626	Power/CAN/Data cable for MATRIX™ (Pos. 2 /System Overview)
45-05648	Power Cable, w/COBO connector (Pos. 3 /System Overview)

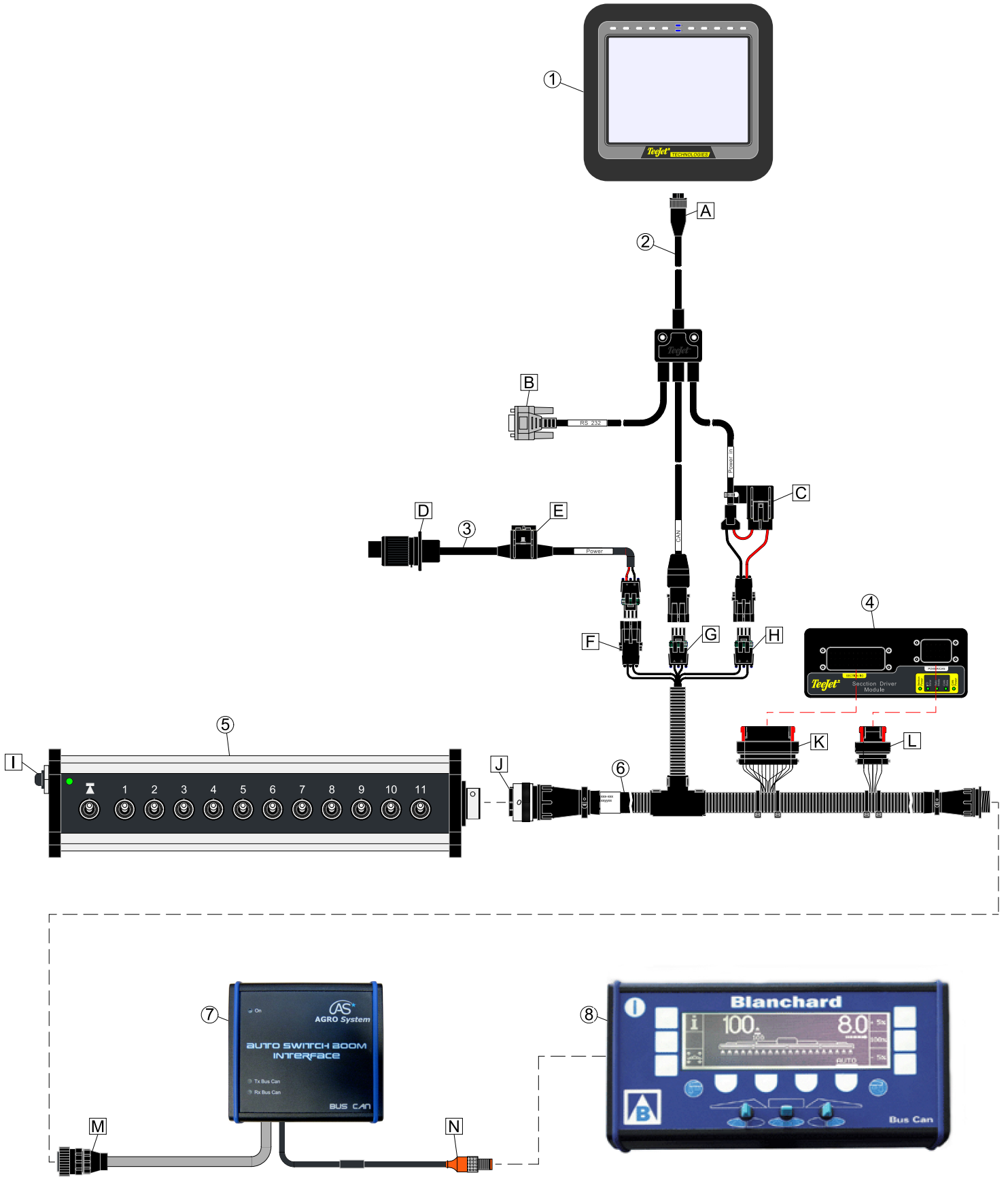
\* Refer to the MATRIX™ pricelist, \*\* 990-906 or 990-907

#### CL230:

Part no.	Description
* xxx-xxx	CL230 Guidance controller kit
** 990-906	BoomPilot Optima Switch box kit incl. interface (Pos. 3-6 /System Overview)
** 990-907	BoomPilot Optima Switch box kit excl. interface (Pos. 3-5 /System Overview)

\* Refer to the CL230BP pricelist, \*\* 990-906 or 990-907

**SYSTEM OVERVIEW, MATRIX™**



1008-0201

## SYSTEM DESCRIPTION, MATRIX™

Pos.	Description	Part Number
1	MATRIX™ Guidance Controller	* xxx-xxx
2	Power/CAN/Data Cable, MATRIX™	45-05626
3	Power Cable, w/COBO connector	45-05648
4	Section Driver Module	78-05072
5	Switch box, 11 sections + Master	901-000
6	Adapter Cable	198-343
7	Optima Module Interface	900-995
8	Blanchard REB3 Controller	-

\* Depending on MATRIX™ Kit

### Connectors and fuses:

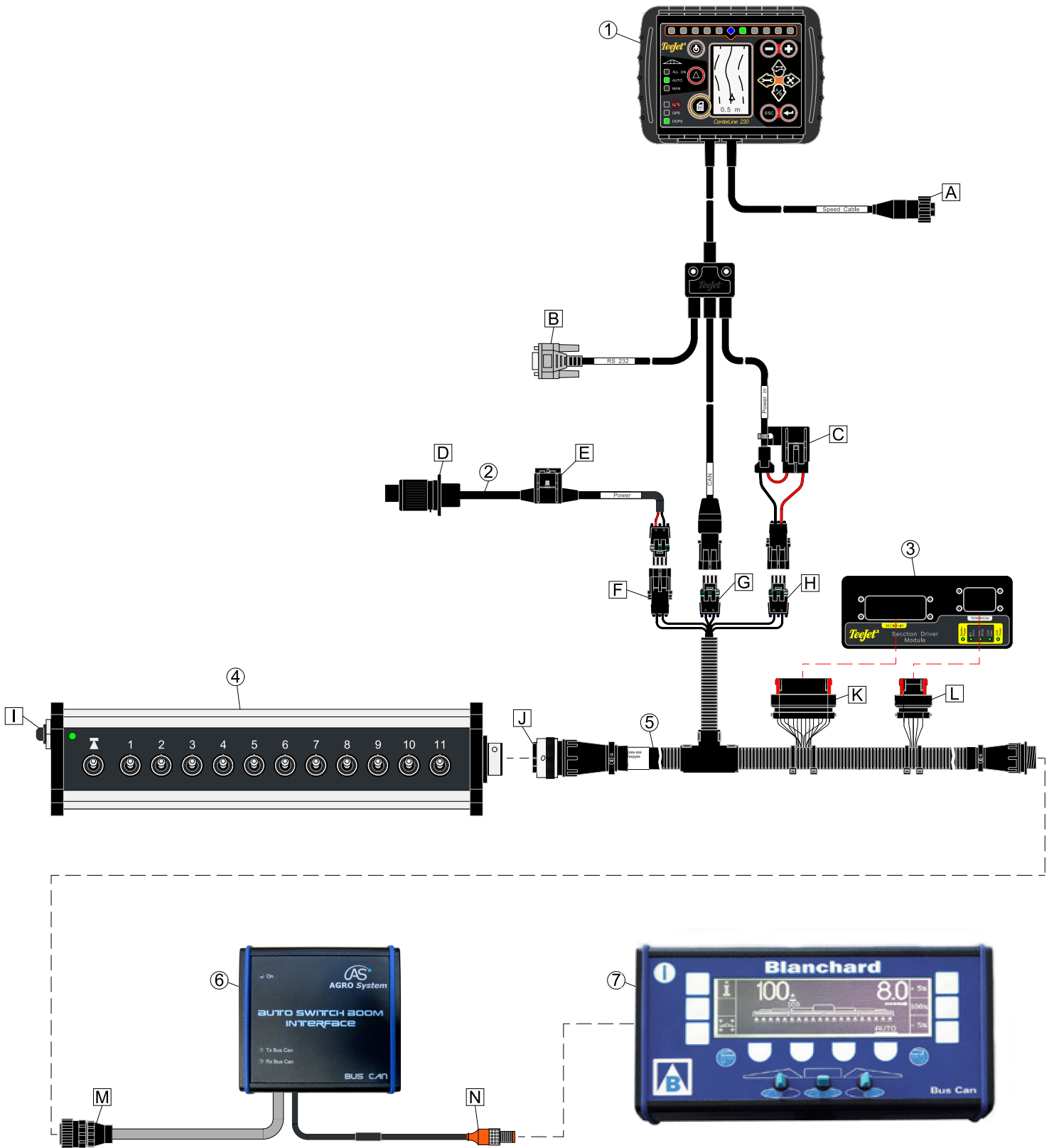
Pos.	Description	Part Number
A	8P Connector (Power/CAN/Data to Matrix)	
B	9P Connector (Data in/out, Sub.D. Female)	
C	Fuse (3A)	166-603
D	3P Connector (Power, COBO)	
E	Fuse (3A)	39-00000
F	2P Connector (System Power)	
G	4P Connector (CAN, Matrix and Section Driver Module)	
H	2P Connector (Power to Matrix Controller)	
I	On-off Switch (Switch box)	
J	28P Connector (Connection to Switch box)	
K	35P Connector (Boom Section I/O to Section Driver Module)	
L	14P Connector (CAN to Section Driver Module)	
M	16P Connector (Boom Section I/O to OPTIMA Interface)	
N	5P Connector (CAN/Power Connection to REB3 Controller)	

## INSTALLING THE BLANCHARD REB3 KIT

Connect the Automatic Boom section kit as shown on the system overview drawing. The kit includes all necessary parts to get electrical contact with the Blanchard REB3 system.

As shown in System Overview, the Optima Module Interface (Pos. 7) serve as a Link between the Blanchard REB3 Controller (Pos. 8) and the Section Driver Module (Pos. 4).

**SYSTEM OVERVIEW, CL230**



1008-0201

## System description, CL230

Pos.	Description	Part Number
1	CL230 Guidance Controller	* xxx-xxx
2	Power Cable, w/COBO connector	45-05648
3	Section Driver Module	78-05072
4	Switch box, 11 sections + Master	901-000
5	Adapter Cable	198-343
6	Optima Module Interface	900-995
7	Blanchard REB3 Controller	-

\* Depending on CL230 Kit

### Connectors and fuses:

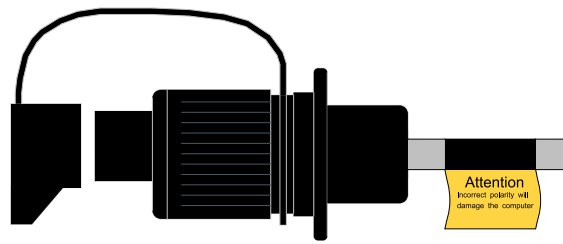
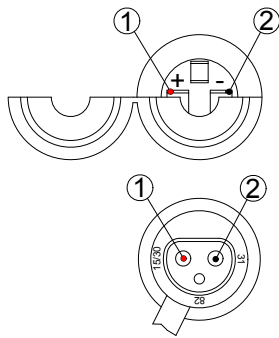
Pos.	Description	Part Number
A	4P Connector (GPS Speed - pulses out)	
B	9P Connector (Data in/out, Sub.D. Female)	
C	Fuse (3A)	166-603
D	3P Connector (Power, COBO)	
E	Fuse (3A)	39-00000
F	2P Connector (System Power)	
G	4P Connector (CAN, CL230 and Section Driver Module)	
H	2P Connector (Power to CL230 Controller)	
I	On-off Switch (Switch box)	
J	28P Connector (Connection to Switch box)	
K	35P Connector (Boom Section I/O to Section Driver Module)	
L	14P Connector (CAN to Section Driver Module)	
M	16P Connector (Boom Section I/O to OPTIMA Interface)	
N	5P Connector (CAN/Power Connection to REB3 Controller)	

## INSTALLING THE BLANCHARD REB3 KIT

Connect the Automatic Boom section kit as shown on the system overview drawing. The kit includes all necessary connectors to get electrical contact with the Blanchard REB3 system.

As shown in System Overview, the Optima Module Interface (Pos. 6) serve as a Link between the Blanchard REB3 Controller (Pos. 7) and the Section Driver Module (Pos. 3).

## CONNECTING POS. D TO POWER



***! When connecting the system to 12V power it's very important that the polarity is correct, if not the system will be damaged.***

1008-0189

### Battery Cable (Option)

If a power connector (Socket) isn't available in the tractor cabin, an optional battery cable can be used (PN 96ET14).





## SYSTEM CHECK

After connecting the power connector, it's time to make a system check. To check the system it's necessary to have full GPS signal so the vehicle must be placed outside.

### Check AUTO mode:

#### **Blanchard REB3 Controller / Switch Box:**

- Switches on REB3 computer are deactivated once the CAN interface is connected.
- Please use switches on the TeeJet switchbox to manually drive the section valves.
- Switches should be in OFF position when working in Automatic mode.
- The Master switch will control the sprayer and should be ON to enable automatic switching of the sections.”

#### **MATRIX™ or CL230:**

- Turn the Guidance controller on
- Encode the number of sections and the width of each (Refer to the MATRIX™ or CL230 user manual)
- Wait for GPS signal
- Set the mode to AUTO
- Drive forward (> 2 km/h)
- Observe that all sections and the master valve open.
- Check that the Master valve closes when the Master switch is set off.
- Check hectare counter in the MATRIX™ or CL230 against the Blanchard REB3 controller.

### Check MANUAL mode:

#### **MATRIX™ or CL230:**

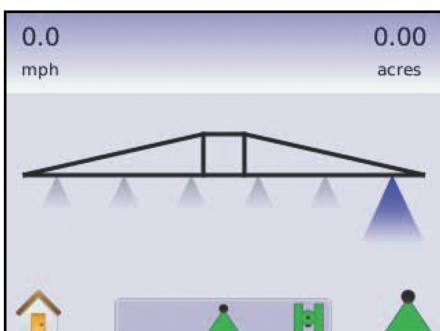
- Set the ABSC mode to MANUAL

Check in the 'Boom Section Control Screen' (Matrix or CL230) that the section icons turn off and on according to the valve/switch status.

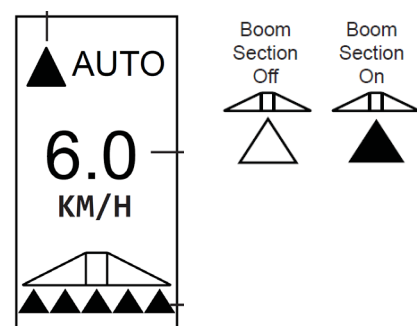
#### **Switch Box:**

- Set the section switch's on
- Set the Master switch on
- Observe that all sections and the master valve open.

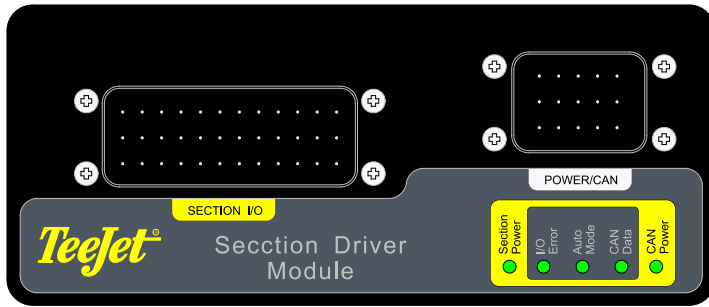
#### **MATRIX™:**



#### **CL230:**



**LED'S ON THE SECTION DRIVER MODULE**



- Section Power:** ON when power is available for the section drivers.
- I/O error:** Should normally be OFF  
(Auto Mode: ON when automatic boom switching is active).
- CAN Data:** ON is flashing when it communicates with the CenterLine 230.
- CAN Power:** ON when power is applied to the CenterLine 230 and the SDM.

**LED'S ON THE OPTIMA INTERFACE**



- On:** ON when power is available for the interface.
- Tx Bus Can:** Flashing when it transmit data.
- Rx Bus Can:** Flashing when it receive data.



# MATRIX™

## I N S T A L L A T I O N M A N U A L

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### Matrix Guidance: Exclusive Features

- RealView™ Guidance Over Video
  - ◀ Guidance Superimposed Over Video
  - ◀ Guidance Only
  - ◀ Video Only
- Bright Daylight Readable Screen
- Easy-to-Use 3D Graphical Guidance
- Coverage Mapping/Data Export



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