

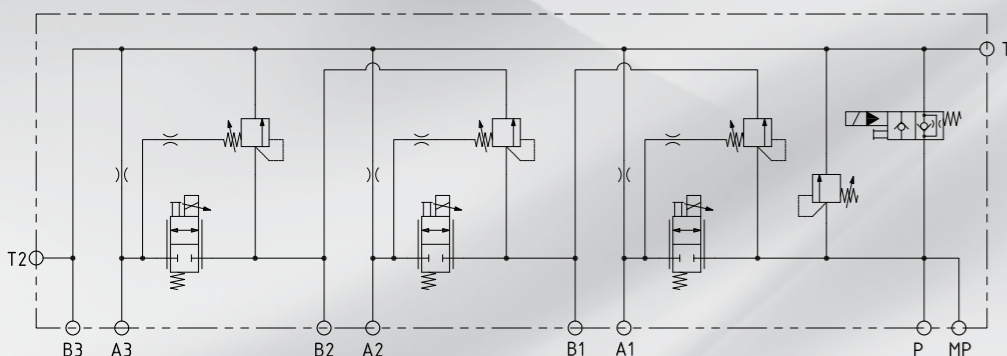
TECNORD

CONTROL SOLUTIONS FOR
SALT SPREADERS
AND **SNOW REMOVAL**
EQUIPMENT



SALT SPREADERS - ECOMATIC CONTROL SYSTEMS

CONTROL VALVE HYDRAULIC SCHEME



High precision and efficiency of spreading are enabled by the Ecomatic control system which allows the control of all spreading parameters (width, asymmetry and dosage) directly from the vehicle cabin.

The salt dosage (material per surface unit – gr/m²) remains constant during the vehicle operation, not depending on the vehicle speed accurately measured by GPS.

A microprocessor based electronics, is used for a maximum flexibility in programming and visualizing the different spreading parameters.

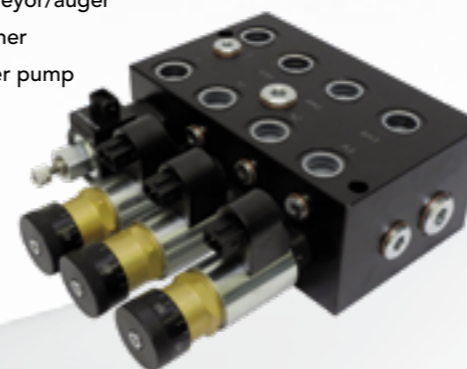
- Up to 3 proportional functions with sensor feedback on motors.
- Vehicle speed measurement by GPS unit or tachometer sensor.
- All spreading parameters adjustable via control panel.
- Control of working lights and i.c. engine.
- GSM-GPRS unit available on request with OpenDMTP protocol.
- Real Time clock and 192 kbytes memory to log main events (i.e.: daily dosage, working hours and distance).
- Supply voltage: 9-30Vdc

MAIN FEATURES

- Graphic TFT colour display 4,3". Screen backlight sensor - to adjust screen brightness according to cab illumination.
- Control panel display with 11 backlight pushbuttons and rotary encoder for the fine tuning of the proportional functions (i.e.: dosage).
- Multi-Language, easy to use operator menu.

HYDRAULIC PROPORTIONAL VALVE MANIFOLD

- conveyor/auger
- spinner
- water pump



CONTROL UNIT WITH GPS



WIRING HARNESS



SPEED SENSORS

- conveyor/auger
- spinner
- water pump



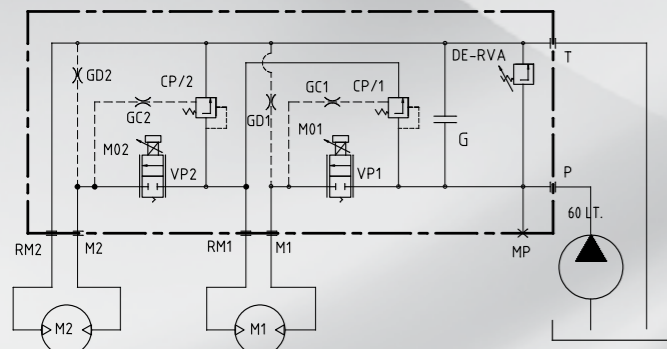
END OF MATERIAL SENSOR



INFRARED TEMPERATURE SENSOR

SALT SPREADERS - EASY TAC CONTROL SYSTEMS

CONTROL VALVE HYDRAULIC SCHEME



The Easy Tac system implements the spreading parameters through the control of the conveyor (auger) and spinner motors speed. Mostly used in open loop configuration for tractor mounted spreaders, the Easy Tac can also read the GPS signal to obtain a control of the salt dosage independent from vehicle speed (same as Ecomatic).

Easy programmability and acquisition capability allow the installation on different kind of spreading systems:

- Basic open loop system - the salt dosage and spreading width are manually set by operator otherwise.
- Complex system - the operator can choose among several automatic spreading programs, not depending on vehicle speed.

Graphic display to show the spreading parameters, such as:

- Amount of material per surface unit (gr/m²).
- Spreading width (m).
- Vehicle speed (km/h).
- Working time: total and partial.
- Amount of spreaded material (total or daily).
- Pavement temperature (infrared temperature sensor is optional).
- Display unit with CANbus interface.

DIAGNOSTIC

- Speed sensors fail.
- Proportional solenoid valves not connected or in short circuit.
- End of material detection (sensor included).

TECHNICAL SPECIFICATIONS

Electrical Power Supply:

12-24Vcc

Current consumption:

max 5 A @ 12Vcc

Spreading Resolution:

5 gr/m²

Maximum oil flow at input port:

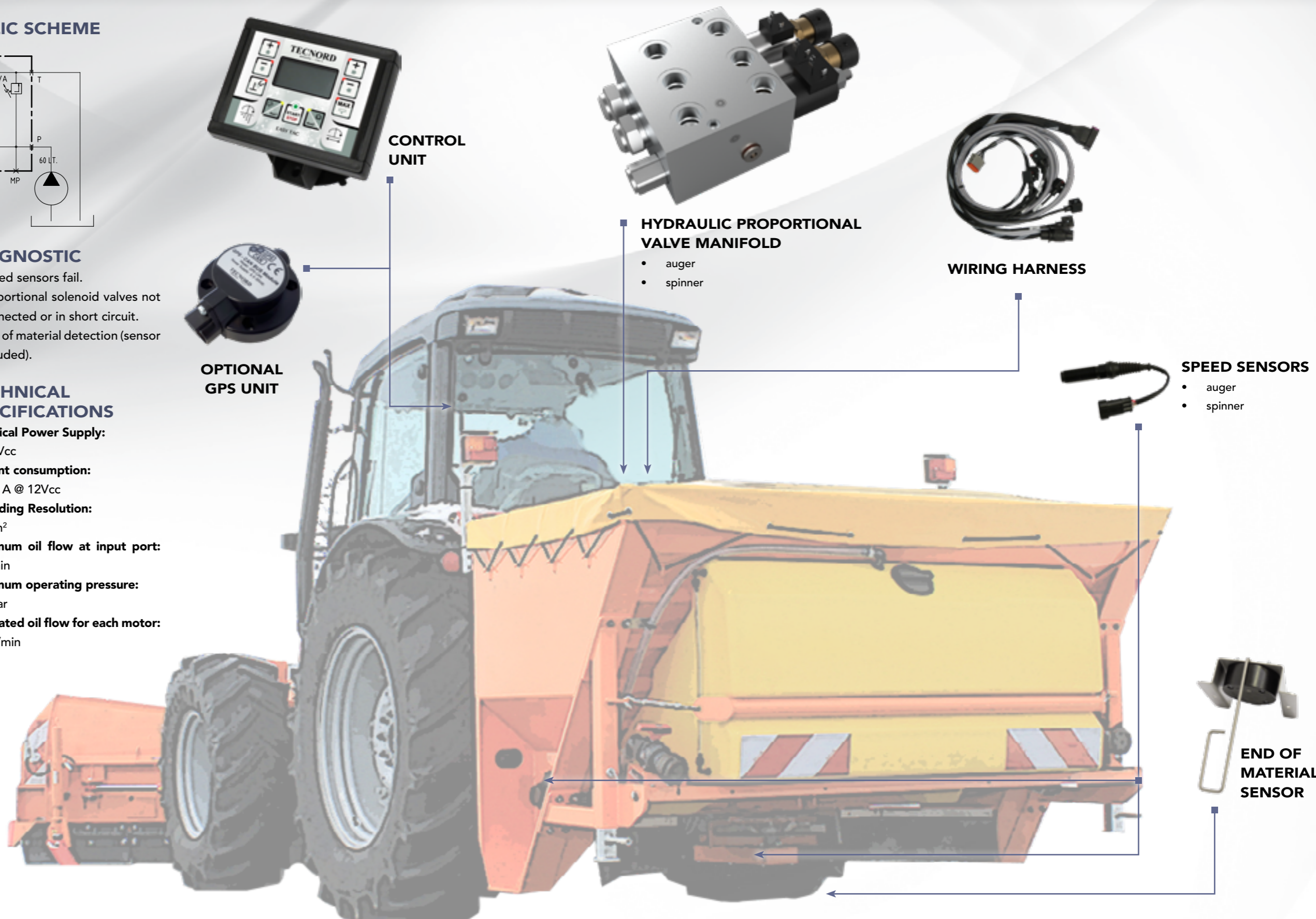
60 l/min

Maximum operating pressure:

250 bar

Regulated oil flow for each motor:

0-50 l/min



CONTROL UNIT

HYDRAULIC PROPORTIONAL VALVE MANIFOLD

- auger
- spinner

WIRING HARNESS

SPEED SENSORS

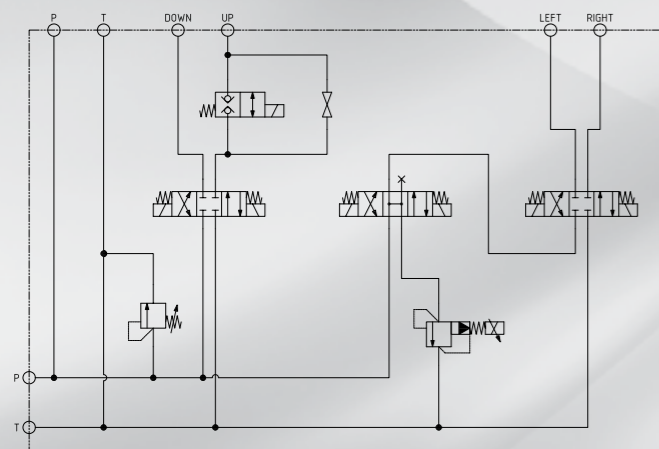
- auger
- spinner

OPTIONAL GPS UNIT

END OF MATERIAL SENSOR

SNOW PLOUGHS - TPC CONTROL SYSTEMS

CONTROL VALVE HYDRAULIC SCHEME



An easy and precise control of the snow plough blade is enabled by the TPC control system. Thanks to its versatility, it can be fitted to any kind of winter road maintenance vehicle.

• **Toggle switches functions**

- Blade shape adjustment.
- Float function (with led indicator).
- Blade weight compensation (optional).

The housing of the control unit is made of a robust metal profile, compact and optimally designed for single-hand operation. A complete range of control operations can be undertaken with its mini-joystick and toggle switches:

• **Joystick functions**

Blade raise/lower, blade swivel right/left.

The weight compensation function, acting on the lift/lower cylinder, allows a weight reduction of the blade on the ground.

This optional function requires: an electronic controller, a pressure transducer, a push button with led.

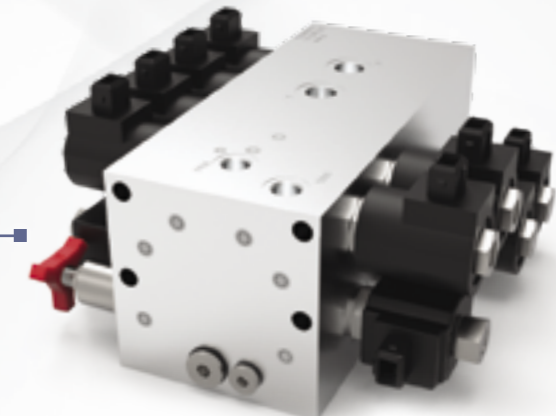
The blade pressure level is adjustable by the user through a specific setting procedure.



TPC
Control unit



WIRING HARNESS



HYDRAULIC ON/OFF VALVE MANIFOLD



PRESSURE TRANSDUCER
(optional)

TECNORD

COMPREHENSIVE RANGE OF REMOTE CONTROL ELECTRONICS



EC-PWM-A1-MPC1

Microprocessor - based PWM electronic drivers



FINGERTIP PROPORTIONAL LEVERS

Potentiometric and hall effect single-axis control levers and roller switches



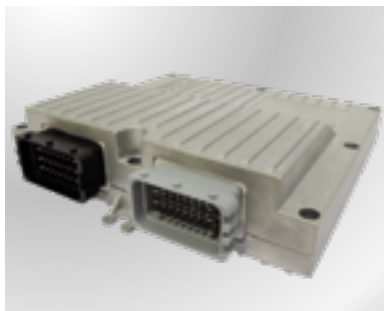
ERGONOMIC GRIPS

Multi-function ergonomic grips with on-off and proportional switches



HEAVY DUTY JOYSTICKS

Potentiometric and hall effect multi-axes control joysticks



MACHINE MANAGEMENT SYSTEMS

Microprocessor-based MMS for the integrated control of electro-hydraulic and safety functions



ECOMATIC

GPS ground-speed oriented salt spreader control systems



4/6 FUNCTIONS SHW RADIO

Combined on-off and proportional radio control system with single hand wander



4/6 FUNCTIONS PTM RADIO

Multi-function proportional radio control with shoulder-strap transmitter and CANbus receiver



ARM-REST CONTROLLER

Arm-rest control unit for hedge cutter