ELECTRONIC SOLUTIONS FOR AGRICULTURE
SYSTEMS FOR FUNCTIONS COMMAND AND MANAGEMENT

Modular control systems for agricultural machines, based on command units of series ICON and modules of series HYDRA and BLOCK

COMMAND UNITS ICON D, ICON J
Command and Interface Unit in the cabin ICON series: management of the implement functions, with intuitive icon-based commands on the LCD display, keys and joysticks. Automatic cycles management, with machine status display, warnings, alarms, settings, etc... Visualization, storage and exportation of working data and statistics

ICON D
Backlighted Graphic Display and 16 operating keys

ICON J
Backlighted Graphic Display, up to 4 joysticks and 10 operating keys

OPTIONS
• Wireless connection
• Integrated Emergency Button
• USB port for data exchange

• Speaker for acoustic warnings
• Mounting supports for different surface
• Colors and graphic customizing available

OPTIONS

MODULI H-BLOCK, BIG-BLOCK
H-BLOCK and BIG-BLOCK modules for management of electrical actuators and solenoid valves, both On/Off and proportional types. Signal detection from sensors and acquisition from external devices, like GPS modules, or interface with data from ISO 11786 connector. Accessory functions management, like work lights and beacons or other devices. High protection grade with sealed connectors

BIG-BLOCK
Up to 16 Outputs (PWM). Up to 16 Inputs (PNP-NPN, 4-20mA, 0-5V, 0-10V) Bus CAN, LIN, RS232

H-BLOCK
Up to 6 Outputs (PWM). Up to 10 Inputs (PNP-NPN, 4-20mA, 0-5V, 0-10V). Bus CAN, LIN, RS232
HYDRA HT12, HYDRA LT20, HYDRA WT20 MODULES

Functions driving systems on the implement: HYDRA systems, for management of both On/Off and proportional type solenoid valves and sensors acquisition. Not only solenoid valves driving, but also electric functions, like lights, beacons or other devices. Cascade connection of more modules available, to increase the outputs number. Modules with integrated weighing system and wireless connection to the ICON command unit.

**HYDRA HT12**
12 Outputs, 8 PWM

**HYDRA LT20**
20 Outputs, 2 PWM

**HYDRA WT20**
20 Outputs, 2 PWM + WEIGHING

**OPTIONS**
- Wireless / Bus connection port
- Integrated or distributed power supply

**SENSORS**
Transducers with digital output on Tufner bus and conversion modules to connect to the Tufner bus and acquire every detected signal (position, rotation, speed, angle, pressure, distance, metal and non-metal materials presence, as well as voltage and current signals)

**MODULAR MACHINE CABLE LOOM**
Digital inputs cable loom in “automotive grade” execution, with sealed connectors, modular and available on different lengths. Also suitable for prototypes and small series.
ROUND BALER

Modular electronic control system to perform automatic cycles and manual movements, bale diameter and twine, net or twine + net binding system management. Counters, alarms and statistics management.

SENATORS AND ACTUATORS
Position, rotation, speed, angle, pressure, linear actuators

FUNCTIONS DRIVING SYSTEMS
H-BLOCK and BIG-BLOCK modules

ICON D
Command and interface unit in the cabin for management of implements functions

Options available

BALE WRAPPER

Modular electronic control system to perform automatic cycles and manual movements, command of dispensers, wrapping board, number of film layers, bale rotation speed, loading arms, cutting and holding devices. Counters, alarms and statistics management.

SENSORS
Position, rotation, speed, angle, pressure

FUNCTIONS DRIVING SYSTEMS
H-BLOCK and BIG-BLOCK modules

ICON D
Command and interface unit in the cabin for management of implements functions

Options available
**SILAGE SELF-LOADING WAGON**

Modular electronic control system for loading and unloading management, both in manual and automatic mode, with performed cycles storage, belt movement, knives bank position driving, pick-up rotation detection. Integrated dynamic weighing system available. Counters, alarms and statistics management.

**SENSORS**
- Position, rotation, speed, angle, pressure

**WEIGHING AND LOAD CELLS**
- Weight modules WM series with CAN output and load cells

**DEVICES DRIVING UNITS**
- HYDRA modules for management of both ON/OFF and proportional solenoid valves

**OPTIONS AVAILABLE**
- ICON D
  - Command and interface unit in the cabin for management of implements functions

**AUTOMATIC BALE LOADER**

Modular electronic control system to perform loads and unload with automatic or manual commands, loading forks and clamp sequence management, belt movement, support lifting for bales unload and stack. Counters, alarms and statistics management.

**SENSORS**
- Position, rotation, speed, angle, pressure

**DEVICES DRIVING UNITS**
- HYDRA modules for management of both ON/OFF and proportional solenoid valves

**ICON D and ICON J**
- Command and interface unit in the cabin for management of implements functions
**SPREADER FERTILIZER**

Automatic spreading rate adjustment, based on the set quantity per acre, on the vehicle speed. Integrated dynamic weighing system available, outlet shutters regulation through electrical actuators, selectable working mode, semi-automatic, speed and manual, border function, detection of spreading spinners, sensor for empty hopper. Counters and statistics management, working hours, spread surface and spread amount.

**SENSORS AND ACTUATORS**
Position, rotation, speed, angle, pressure, linear actuators.

**WEIGHING AND LOAD CELLS**
Weight modules WM series with CAN output and load cells.

**DEVICES DRIVING UNITS**
H-BLOCK and BIG-BLOCK modules for management of both solenoid valves and electrical actuators.

**ICON D**
Command and interface unit in the cabin for management of implements functions.

**Options available**

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**TRAILED SPREADER FOR FERTILIZER / SALT / LIME**

Automatic spreading rate adjustment, based on the set quantity per acre, on the vehicle speed. Integrated dynamic weighing system available, outlet shutters regulation through electrical actuators, selectable working mode, semi-automatic, speed and manual, border function, detection of spreading spinners, belts and screws speed adjustment. Product tables management. Counters and statistics management.

**SENSORS AND ACTUATORS**
Sensors to detect vehicle speed, belts, screws or spreading spinners speed.

**WEIGHING AND LOAD CELLS**
Weight modules WM series with CAN output and load cells.

**DEVICES DRIVING UNITS**
HYDRA, H-BLOCK and BIG-BLOCK modules for management of both solenoid valves and electrical actuators.

**ICON D**
Command and interface unit in the cabin for management of implements functions.

**Options available**
**MANURE SPREADER**

Automatic spreading rate adjustment, based on the set quantity per acre, on the vehicle speed. Integrated dynamic weighing system available, belt speed management based on vehicle speed, rear gate open and close position management, beaters speed detection. Selectable working mode, automatic, speed and manual. Product tables management. Counters and statistics management.

**SENSORS**
Sensors to detect vehicle speed, belt, beaters and PTO speed, rear slurry gate open/close position.

**WEIGHING AND LOAD CELLS**
Weight modules WM series with CAN output and load cells.

**DEVICES DRIVING UNITS**
HYDRA and H-BLOCK modules for management of both ON/OFF and proportional solenoid valves.

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**SLURRY TANKER**

Modular electronic control system for the functions management and automatic sequences of the machine. Automatic spreading rate adjustment, based on the set quantity per acre, on the vehicle speed. Spreading rate adjustment through electrical actuators or hydraulic cylinder and flow-meter detection. Selectable working mode, semi-automatic, speed and manual. Counters and statistics management.

**SENSORS**
Position, rotation, speed, angle, pressure, flow.

**DEVICES DRIVING UNITS**
HYDRA, H-BLOCK and BIG-BLOCK modules for management of both solenoid valves and electrical actuators.

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Tufner Weighing Systems • www.tufner.com • (800) 810-2965 • sales@tufner.com • 9030 Bridgeport Pl. Rancho Cucamonga, CA 91730 USA
FEEDER MIXER

Dynamic weighing system for vertical and horizontal feeder mixer with dosing formulas (recipes) management or manual setting of the weight to be loaded. Display and management of statistics and counters, with data storage and exportation through USB memory to the Data Log software.

WEIGHT INDICATOR FIVE SERIES
Weighing and ration management

LOAD CELLS: Bending beam and Shear beam, also customized on request

INNOVATIVE WEIGHING SYSTEM AND SOLENOID VALVES
CONTROL ALL IN ONE

Weight acquisition and device driving systems on the wagon: HYDRA WT20 modules, dedicated to the management of both On/Off and proportional type solenoid valves (belts, doors, counter-knives, milling cutter, ...) and sensors acquisition. Available wireless connection to the ICON interface unit.
SELF-PROPELLED FEEDER MIXER

Dynamic weighing system for vertical and horizontal self-propelled feeder mixer with dosing formulas (recipes) management or manual setting of the weight to be loaded. Display and management of statistics and counters, with data storage and exportation through USB memory to the Data Log software. Interfacing functions also available on color operating panel with touch screen integrated with the machine.

WEIGHT INDICATOR FIVE SERIES
Weighing and ration management

INTEGRATED OPERATOR PANEL
Weighting data, commands for formulas execution and main vehicle parameters

WEIGHING MODULES AND LOAD CELLS
Weight modules WM series with CAN output and load cells

SOFTWARE DATALOG
Tufner DataLog software for PC, to create formulas, components, unloads and data exchange with the systems FIVE or ICON onboard the vehicle.
Data base automatically updated with the working data saved on USB memory by the control unit on the mixer. Working data analysis available with reports and exportation in standard formats.
**SPRAYER**

Modular electronic control system for the functions management and automatic sequences of the machine. Manual or automatic spreading rate adjustment, based on set quantity and vehicle speed. Measurement of pressure, flow, speed, worked area, spread quantity, duration of treatment and travel. Working statistics storage and data load to the PC for computation.

**SENSORS**
Position, speed, pressure, flow.

**DEVICES DRIVING UNITS**
HYDRA and BIG-BLOCK modules for management of command devices.

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**STRAW BLOWER**

Machine’s systems management to perform movements and activate the functions on the implement with ICON J command. Integrated dynamic weighing system available.

**SENSORS**
Position, rotation, speed, angle, pressure.

**WEIGHING AND LOAD CELLS**
Weight modules WM series with CAN output and load cells.

**DEVICES DRIVING UNITS**
HYDRA modules for management of both ON/OFF and proportional solenoid valves.

**ICON D and ICON J**
Command and interface unit in the cabin for management of implements functions.

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**ICON J**
Command and interface unit in the cabin for management of implements functions with Joysticks e Potentiometers.

**Options available**
**GRAIN CART**

Cart weighing to define loads and unloads weight, trailer’s systems management to perform movements and activate the functions on the implement. Storage of each load and unload operation, to transfer data to PC, through USB memory, or weighings printout.

**SOFTWARE CART LOG**

Tags creation of customers, fields, combines and trucks to be transferred to the indicator with Cart Log.

**WEIGHING AND LOAD CELLS**

Weight modules WM series with CAN output and load cells.

**DEVICES DRIVING UNITS**

HYDRA modules for management of both ON/OFF and proportional solenoid valves.

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**BIOGAS**

Systems for biogas plants: mixer weighing with batching formulas (recipes) management or manual setting of the weight to be loaded. Local command of formulas execution, with the FIVE system, or remote command (Wireless), with the ICON unit. Advanced accessories, functions and programs for a reliable execution of formulas, with detailed data analysis.

**ACCESSORIES**

**WEIGHING AND LOAD CELLS**

Weight modules WM series with CAN output and load cells.

**ICON D and FIVE series**

Command and interface unit in the cabin for management of implements functions and weighing.
WEIGHING AND BATCHING

Complete systems for weighing and batching of silos, hoppers, milling plants, bagging machines, etc. Automatic batching sequences by the control of augers, crushers, mixers, vibrators, slides, etc... Management of one or more silos with the same weight indicator. Automatic storage of daily consumptions and load for each plant and Data Transfer to PC.

WEIGHING AND BATCHING INDICATORS
Weight indicators TINY, SMART, WBOX TANK, WBOX PRO Series

LOAD CELLS AND MOUNTING PLATES
Load cells in stainless steel and mounting plates

SOFTWARE SILOMONITOR
Numeric and graphic display of the weights stocked in silos and in silos groups (sheds) displayed via remote connection on PC.
LIVESTOCK SCALE

Livestock scale with automatic animal identification through an electronic ear tag and antenna reader installed on the cattle cage or platform. Load cells with articulated foot to stabilize the weight. Ear “Tags” memorization and data collection from the weight indicator to computer through USB memory.

SOFTWARE ZERO TAG
Software for data collection and display. Curve of growth for every animal.

WEIGHT INDICATORS
Weight indicator WBOX Series

LOAD CELLS
Shear beams or customized on request

WEIGHING SYSTEM FOR MILK REFRIGERATORS

Complete systems for for weighing milk refrigerators with user settable coefficient of conversion (lb/litres). Automatic memorization of the daily and monthly milk production. Printer connection available, as well as data transfer to PC or USB memory storage.

SOFTWARE LIQUID LOG
Software for data collection from Tufner WBOX Liquid systems to computer through USB memory.

LOAD CELLS AND MOUNTING PLATES
Stainless steel load cells with mounting plates and accessories

WEIGHT INDICATORS
Weight indicators TINY e WBOX LIQUID Series
LOAD CELLS AND WEIGHT MODULES

Load cells for static and dynamic weighing systems for both agricultural machineries and stationary plants. Accessories and mounting plates for load cells in stainless steel or galvanized steel. Weight modules for signal acquisition from load cells and digitizing of the weight value on BUS

LOAD CELLS

Shear beam, Double shear beam, Bending beam, compression, Off-Center. Customized on request

ACCESSORIES AND MOUNTING PLATES

In stainless steel or galvanized steel. Customized on request

WEIGHT MODULES

1 Load cell Input with RF Output, 1 Load cells Input with CAN Output, 1 Load cells Input with LIN Bus Output, 4 Load cells Input with CAN Output and LIN Bus
WHO WE ARE

Tufner designs and produces:

• Control systems for agricultural and industrial machines
• Electronic weighing systems and automation for agriculture and industry
• Load cells for agriculture and industry
• Control systems for industrial testing and working equipment

Our deep know-how in software, hardware and mechanics allows us to apply the most updated technologies to weighing, batching and complex controlling systems, with the aim to improve efficiency, easiness and safety of machinery and equipment.

The continuous research and development involves all the Tufner activities, to get high performance products, reliable and easy to use.

Our care on the details, the refined design, the user friendly interface are not simply a goal, but the instrument to obtain the aim.

The products and services provided by Tufner in the last Years, allowed to the Company to consolidate its position on the market, becoming a reliable partner for agricultural and industrial machines manufacturers and complex weighing and batching plants manufacturers.