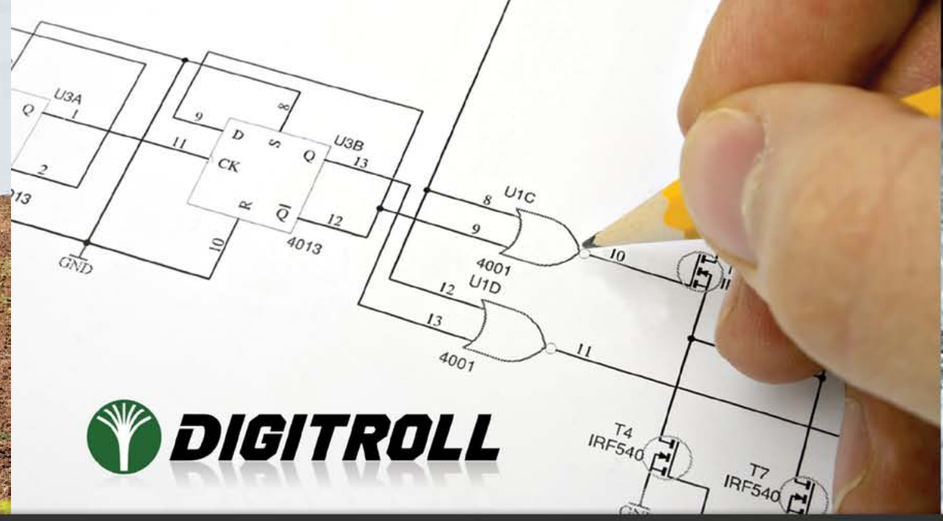
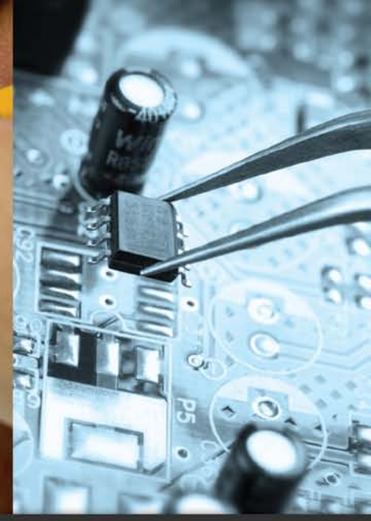
We make seeding visible...

Intelligent Solutions
FOR THE AGRICULTURE

DIGITROLL

AG ELECTRONICS Main Catalog 2012





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Intelligent Solutions
for the Agriculture

Digitroll Kft. was founded in 1992 with the aim of development and manufacture high quality instruments for the agriculture.

Many of our solutions prove that we work hard to elaborate new technologies making everyday work for farmers simpler, safer and more economical. Most advanced digital technics are applied in our devices. We have been pioneers in creation of bar graph display method (1996) to show distribution of seeds during seeding process and new technical solutions in engine-driven seeding regulation systems for drills (1997)

The new intelligent sensor technology with serial communication opened a new horizon for seeding controls in year 2000. Even easier adjustment with the least possible operator interaction was developed in the **SEED MASTER Flow Calibra** system (2008).

Enhanced linear communication named ***i-LiNE*** have been applied since 2009.

SEED MASTER INTEGRA, the multifunctional seeding computer is our flagship of recent developments (2009), uses communication based on **CAN-ISOBUS** standards, as well as our **SEED MASTER BOX** jobmonitor (2010). All new devices use already *i-LiNE* communication.

During the past years other useful products were made, like hectare counters, bale counters, rotation guards, liquid flow controls, granular fertilizer flow control, ...etc. Our circuit boards are manufactured with the most modern surface mounted SMD technology on automated machines in accordance with **ISO 9002** certification.

With more thousand seeding control systems and tens of thousand seed sensors produced with very low defect rates, you can be confident that your **DIGITROLL** product will last and satisfy you for long time.

We undertake 24 months of guarantee for each **DIGITROLL** instrument.

Wishing you a blockage-free seeding!

the ***DIGITROLL*** Team

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Display:	High contrast graphical LCD display 4,7"
Resolution:	280x128 pixel
Backlighting:	LED backlight
Soft Keys:	4 soft keys
Quick Keys:	7 quick keys for control modes and diagnostics
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Diagnostic LEDs :	16 LEDs for quick diagnostics
Operating Temperature:	-20 .. +70 °C
Storage Temperature:	-30 .. +80 °C
Protections:	Overcurrent and Polarity Reversal Protection
CAN Port:	Yes
i-LiNE Port:	2 i-LiNE Port
Degree of Protection:	IP64
Standby Mode:	Yes
Dimensions (W x H x D):	225 x 140 x 35 mm

SEED MASTER INTEGRA

The Multifunctional Seeding Control System

INTEGRA - High Capacity and Versatile

Description

Seed-flow/blockage monitoring for air drills, seed count and population display for planters, granulated fertilizer flow control, hopper level control, shaft rotation guard, fan rpm, hectare counter, tramline regulation – all in one instrument! The new development of Digitroll Kft is a robust, versatile device aimed for use all year round. INTEGRA is capable to process and display the performance of 128 rows at a time on its large illuminated graphic screen. INTEGRA was designed to best fit user's demand with handy operation and easy survey of seeding process. Two i-LiNE ports enable the control of different application rates for seed and fertilizer rows. Easy operation is ensured by direct keys and control LEDs.

Monitor

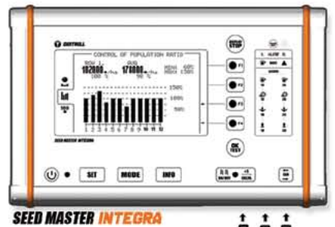
- Massive aluminium case
- Graphic display, 240 x 128 pixel, dia 4,7"
- CAN module connection socket (with data transfer LED feedback)
- 12 buttons
- 4 general function buttons (soft keys)
- Power out control LED
- Standby mode
- 2 ports for module connection
- Adjustable horn volume
- Multi-lingual, informative displays

Features

- Seed-flow/blockage monitoring for pneumatic (mechanic) drills up to 128 rows
- Fertilizer-flow/blockage monitoring for drills up to 128 rows
- Full-featured seeding control program for planters up to 24 seed rows + 24 fertilizer rows
- On-the-go calibration of expected seed density
- Manual or automatic speed tracking
- Tramline regulation (symmetric or asymmetric rhytms)
- Row closure motor/actuator end position control
- Hopper level display with low level alarm
- 2 rotation controls (one channel with numeric display, e.g. fan r.p.m.)
- Automatic identification of the type, number, version number and operability of connected modules
- Detection and display of blockages or dust accumulation on seed sensors

Typical Applications & Benefits

- Combi air drills, where both seeds and fertilizers are applied at different rates
- Air drills having 64 + seeding rows
- Planters – photosensor control and other optional controls/regulations with one device

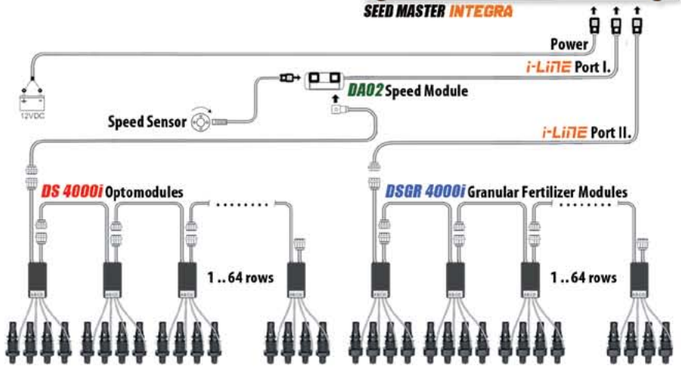


APPLICATION EXAMPLE WITH INTEGRA:

- i-LiNE Port I: 64 rows pneumatic drills control with speed tracking
- i-LiNE Port II: 32 rows granular fertilizer control

i-LiNE Communication Port:

The new i-LiNE communication allows fast, two-line communication between modules and monitor. Automatically recognize the number of connected module units, their type, software version and state of readiness. Quick calibration for expected seed density settings.



Degree of Protection:	IP67
Display:	Hidden 4x20 alphanumeric LCD display for service
Function Keys:	3 function keys for service
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Output Current:	Max. 3A @ 12 VDC
Diagnostic LEDs:	8 LEDs for quick diagnostics
Operating Temperature:	-30 .. +70 °C
Storage Temperature:	-30 .. +80 °C
Protections:	Overcurrent and polarity reversal protection
CAN Port:	Yes
I-LINE Port:	2 i-LiNE Port
Connectors:	4-pin HIRSCHMANN connectors
Dimensions (W x H x D):	160 x 110 x 60 mm

SEED MASTER BOX

It CAN be Yours!

CAN *Communication jobmonitor*

Description

A high capacity multifunctional device to collect signals from various sensors and forward processed information to a display terminal through standard CAN communication.

Monitor

- IP67 aluminium case
- Alphanumeric service LCD 4x20 px
- 3 service buttons
- 5 software control-LED
- 3 LEDs for power-in and power-out feedback
- 2 ports (i-LiNE) for module connections
- CAN Port
- Multiple application areas

Features

- Seed-flow/blockage monitoring for pneumatic (mechanic) drills up to 128 rows
- Fertilizer-flow/blockage monitoring for drills up to 128 rows
- Full-featured seeding control program for planters up to 24 seed rows + 24 fertilizer rows
- On-the-go calibration of expected seed density
- Manual or automatic speed tracking
- Tramline regulation (symmetric or asymmetric rhytms)
- Row closure motor/actuator end position control
- Hopper level display with low level alarm
- 2 rotation controls
- Automatic identification of the type, number, version number and operability of connected modules
- Detection of blockages or dust accumulation on seed sensors

CAN Communication Port:

High reliability communication standard developed for the agriculture. Multiple manufacturer's devices become compatible by using this standard.

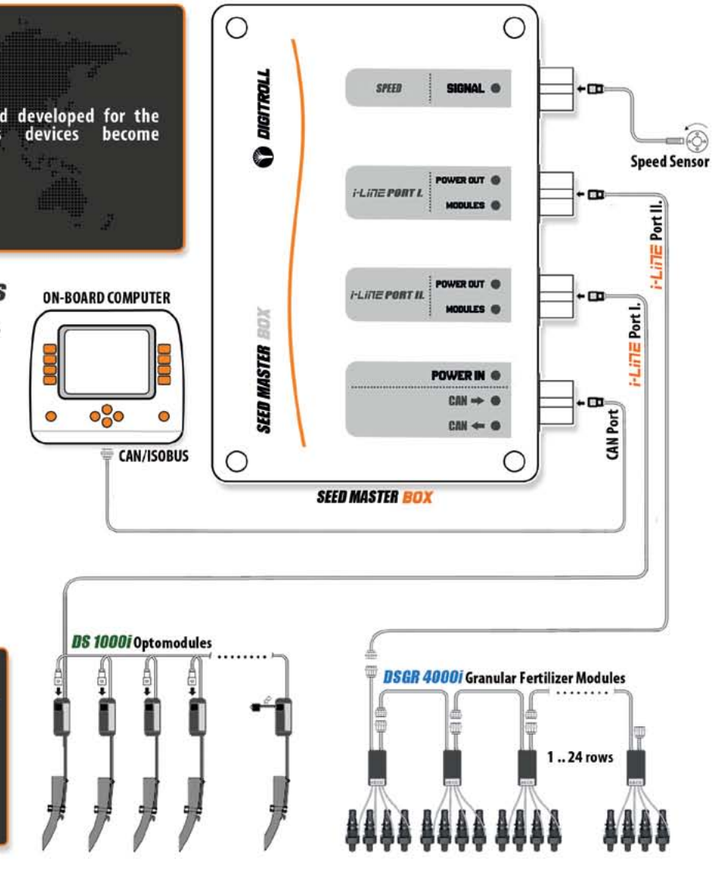
It CAN be Yours!

Typical Applications & Benefits

- CAN communication implements control and regulation systems recognizing DIGITROLL capabilities
- Combi air drills, where both seeds and fertilizers are applied at different rates
- Air drills having 64 + seeding rows
- Planters - photosensor control

APPLICATION EXAMPLE WITH SEED MASTER BOX:

- i-LiNE Port I: 24 rows seeding control for planters with speed module
- i-LiNE Port II: 24 rows granular fertilizer control



Display:	High contrast alphanumeric LCD display
Resolution:	4x20 character
Backlighting:	LED backlight
Quick Keys:	4 quick keys for quick access
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Diagnostic LEDs:	2 LEDs for quick diagnostics
Operating Temperature:	-20 .. +70 °C
Storage Temperature:	-30 .. +80 °C
Protections:	Overcurrent and polarity reversal protection
CAN Port:	No
Communication Port:	1 String System Port
Adjustable Horn Volume:	No
Standby Mode:	No
Dimensions (W x H x D):	205 x 115 x 30 mm

SEED MASTER Flow Calibra

Easy-to-Use Blockage Monitoring System

***CALIBRA** - the appropriate choice for comfort seekers*

Description

Blockage monitoring the easiest way! Seed Master Flow Calibra monitor was developed targeting highest operator comfort with the least necessary interactions. Seed-flow calibration is done with a quick key. When automatic speed tracking is installed, no alarms disturbs at headlands where seed rate is lowering due to reduced ground speed – Calibra expect proportionally less seeds and leaves the operator to care with implement lift and turning. Seed sensors developed for air drills and selected mechanical drills also work with Calibra. These features make Calibra stand out from competition.

Features

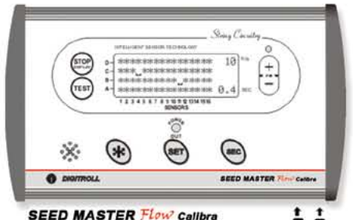
- Seed-flow/blockage monitoring for pneumatic (mechanic) drills up to 64 rows
- On-the-go calibration of expected seed density
- Manual or automatic speed tracking, adjustable expected seed density level
- Detection and display of blockages or dust accumulation on seed sensors

Monitor

- Massive aluminium case
- High contrast alphanumeric display
- 7 buttons
- 2 control-LED
- 1 port for module operation (String System)
- Adjustable horn volume
- 8 selectable languages
- Automatic overcurrent protection with alarm

Typical Applications & Benefits

- **Small-mid size air drills working on small plots, no disturbing alarms at headlands**
- **Larger, 6-8 m air drills – outstanding price-value ratio for all hoses blockage control**
- **Selected mechanic drills, e.g. Väderstad Rapid S**

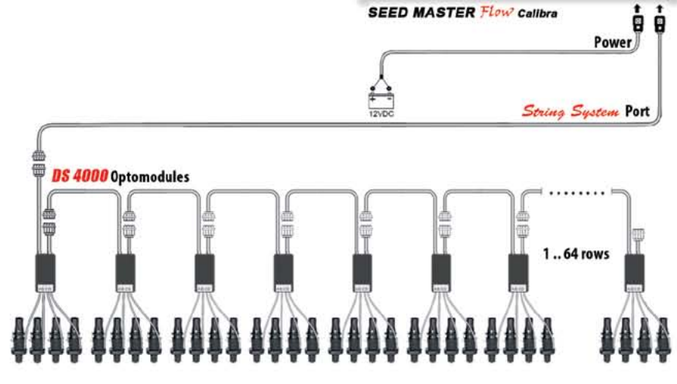


APPLICATION EXAMPLE WITH CALIBRA:

- String System Port: 64 rows air drill seed-flow/blockage monitoring

Automatic Calibration:

Seed-flow calibration has never been easier! Just one touch of a button and expected seed-flow with low rate alarm is on the right level. At any seed, at any speed. Slowly developing processes like lowering seed rates due to lowering seed level in hopper can also be observed, not only blockages.



Display:	High contrast alphanumeric LCD display
Resolution:	4x20 character
Backlighting:	LED backlight
Quick Keys:	4 quick keys for quick access
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Diagnostic LEDs:	6 LEDs for quick diagnostics
Operating Temperature:	-20 .. +70 °C
Storage Temperature:	-30 .. +80 °C
Protections:	Overcurrent and polarity reversal protection
CAN Port:	No
Communication Port:	1 String System Port + 1 Optional String System Port
Adjustable Horn Volume:	Yes
Standby Mode:	No
Dimensions (W x H x D):	205 x 115 x 30 mm

SEED MASTER Plus

Universal Planter Monitoring System

Seed Master Plus - full-featured planter monitor

Description

Photosensored seeding control with row performance bar graphs and population display, optional level controls, rotation guards or actuator/valve regulation.

Monitor

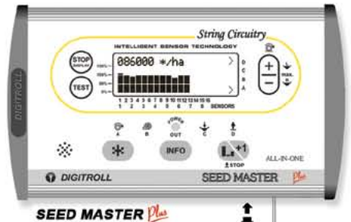
- Massive aluminium case
- High contrast alphanumeric display
- 7 buttons
- 6 control-LED
- 1 port for module operation (String System)
- Adjustable horn volume
- 8 selectable languages
- Automatic overcurrent protection with alarm

Features

- Photosensored seeding control up to 16 rows
- Automatic system test (number of photosensors, sensor cleaning alarm)
- 3 seeding control modes:
  - seeding-not seeding, shortfall alarm
  - actual seed per ha values, visible bar graph display for each seeding row
  - 100 seed test: skips and doubles statistics for 100 seeded grains in each row
- in case of shortfall visible and sound alarm
- 6 adjustable time intervals of missing seed alarms
- Actual seeding display freeze
- Adjustable seed size for refined seed detection
- Row skip function for rows not in use
- Option for setting different seed spacings (e.g. corn hybrids)
- Area count, seed count, average seed/ha values for partial and total area
- Distance measurement in meters

Typical Applications & Benefits

- 6-12 row planters
- Thanks to 100 seeded grain diagnostics mode, SEED MASTER PLUS is a great help in planting precision adjustment before seeding on field.
- Numeric seed per hectare display gives direct feedback how desired seed rate is applied.



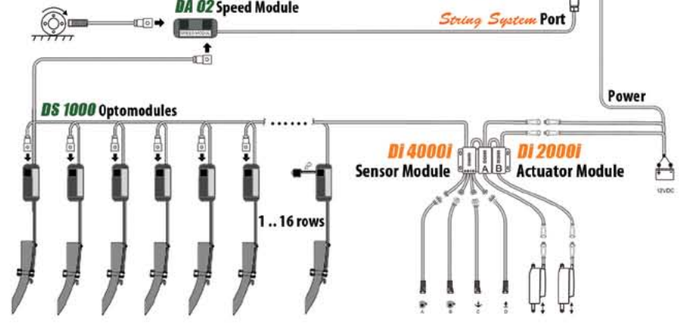
SEED MASTER Plus

APPLICATION EXAMPLE WITH SM PLUS:

- String System Port I: 16 rows planters control with optional DI4000 and DI2000 sensor and actuator modules
- DA 02 Speed Module

BAR GRAPH DISPLAY:

Actual row performances are well detectable by bar graphs. Even slowly developing tendencies like lowering seed level in hopper or reducing air pressure are recognizable.



DIGITROLL

Seeding Control System for Planters

DMS 08 LCD

Economic Planter Control System

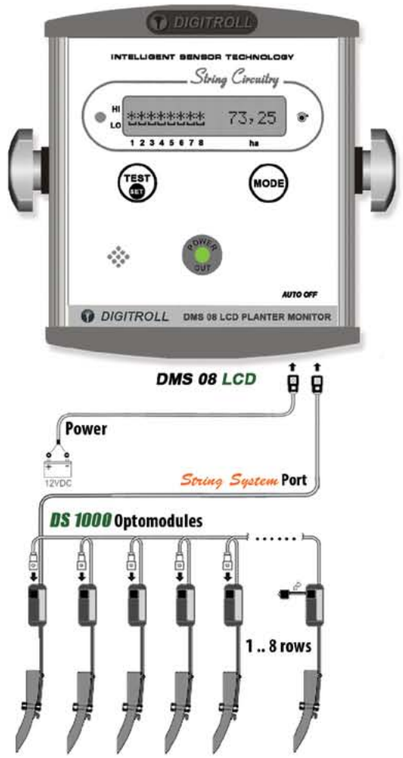
Hectare Count + Shortfall Alarm

Features & Benefits

▪ Photosensored seeding control up to 8 rows ▪ Total and partial hectare count ▪ Automatic system test ▪ Audible and visual alarm if shortfall happens ▪ 6 adjustable time intervals of missing seed alarms ▪ Seed size selection for refined seed detection

Technical Data

Display:	High contrast alphanumeric LCD display
Resolution:	2x20 characters
Backlighting:	LED backlight
Quick Keys:	1 quick key for quick diagnostics
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Diagnostic LEDs:	3 LEDs for quick diagnostics
Operating Temperature:	-20 .. +70 °C
Storage Temperature:	-30 .. +80 °C
Protections:	Overcurrent and polarity reversal protection
Communication Port:	String System Port
Adjustable Horn Volume:	Yes
Standby Mode:	Yes
Dimensions (W x H x D):	115 x 70 x 30 mm



DIGITROLL

Seeding Control System for Planters

DMS 06 LED

Low Cost Planter Monitoring System

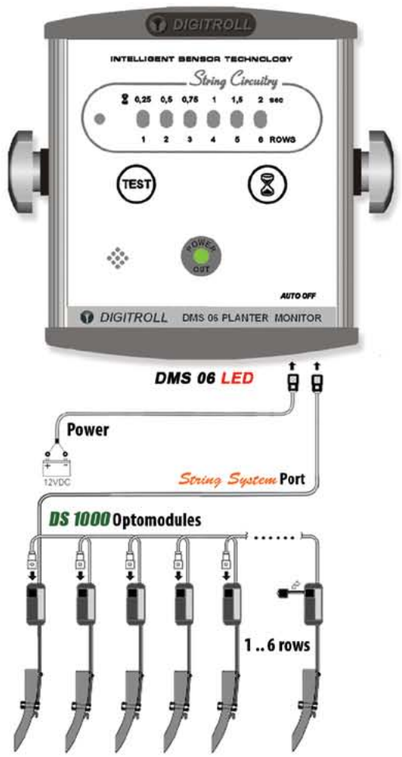
Simple and Reliable Operation

Features

▪ Photosensored seeding control up to 6 rows ▪ Automatic system test ▪ Audible and visual alarm if shortfall happens ▪ 6 adjustable time intervals of missing seed alarms

Technical Data

Seeding Control:	6 LEDs
Display:	No
Quick Keys:	2 quick keys for quick diagnostic
Microcontroller:	Microchip
Operating Voltage:	10 .. 24 VDC
Diagnostic LEDs:	2 LEDs for quick diagnostics
Operating Temperature:	-30 .. +70 °C
Storage Temeprature:	-40 .. +80 °C
Protections:	Overcurrent and polarity reversal protection
Communication Port:	String System Port
Adjustable Horn Volume:	No
Standby Mode:	Yes
Dimensions (W x H x D):	115 x 70 x 30 mm



DS 4000 / DS 4000i

Intelligent Optomodules for Pneumatic Drills

Air Hose-Mounted Seed-Flow Sensors with i-LiNE Communication

Description

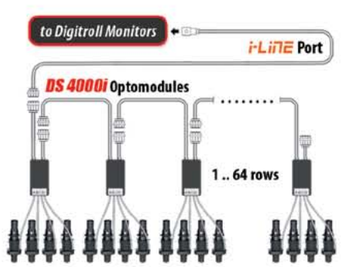
DS4000 and DS4000i optomodules are made for seed- and fertilizer-flow control on drills. Optomodules contain photosensors equipped with 4 infra lights and detect even small seeds like oilrape. Seeds do not have to be filled up in the hose reaching seed sensors. Thanks to easy and precise seed-flow calibration, blockages are detected immediately or soon.

Features & Benefits

- Seed-flow control and granular fertilizer flow control
- Linearly connectable up to128 rows
- Calibration of expected seed density
- i-liNE compatibility (DS 4000i)
- Installable on air hoses dia 25-35 mm
- Seed detection with 4 infras
- Detection and display of dust accumulation on seed sensor or blockage(DCD)*
- Quick sensor opening without tool when cleaning is finally due

Long work without cleaning

* Each DIGITROLL seed sensor is armored with DETECT & COMPENSATE DUST (DCD) feature resulting long days and hours spent without sensor cleaning in the hassle of short seeding season. Increasingly stronger infra light is applied when infra surface becomes dusty or seed coating covered. Reaching a level, a 'dusty seed sensor' symbol appears on monitor screen following a push of the TEST button.



DS 1000G / DS 1000Gi

Heavy-Duty Seed sensors

for Mechanic Drills Control with i-LiNE Communication

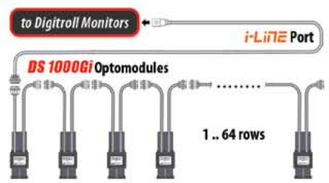
Description

DS1000G and DS000Gi optomodules are designed for seed- and fertilizer-flow detection on mechanic drills. Seed transport made by gravity forces seed sensor installation as close to the ground as possible. Exposure to springing pebbles and plant residues

hit, these sensors required a sturdy housing and clever cable leading under such heavy-duty circumstances. Yet the same result can be reached in small seeds detection: oilrape seeds are well detectable by DS1000G seed sensors.

Features & Benefits

- Seed-flow control and granular fertilizer flow control
- Linearly connectable 24 or 32 rows (up to 128 rows)
- Calibration of expected seed density
- i-liNE compatibility (DS 1000Gi)
- Installable on air hoses dia 25-35 mm
- Seed detection with 4 infras
- Detection and display of dust accumulation on seed sensor or blockage(DCD)*
- Quick sensor opening without tool when cleaning is finally due



Long work without cleaning

* Each DIGITROLL seed sensor is armored with DETECT & COMPENSATE DUST (DCD) feature resulting long days and hours seeding job spent without sensor cleaning in the hassle of short seeding season. Increasingly stronger infra light is applied when infra surface becomes dusty or seed coating covered. Reaching a level, a 'dusty seed sensor' symbol appears on monitor screen following a push of the TEST button

Intelligent Optomudules for Planters

DS 1000 / DS 1000i

Intelligent Optomodules for Planters

High Rate Seed Sensor for Planters — MOUNTED ON SEED TUBES

Description

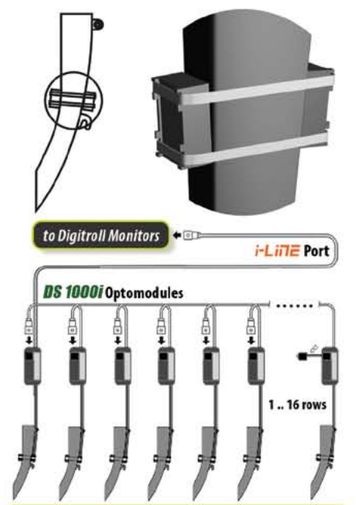
DS1000 and DS000i seed sensors are made to count dropping or blown seeds on precision planters. 3-channel, high rate optical sensors, fine-tuned by seed shape and seed size settings, enable reliable detection of double/triple seed drops or skips.
Each optomodule possess an intelligent processor unit run by microcontroller. Linear connection and interchangeability make installation easy done in short time.

Features & Benefits

- Seed count, seed-flow/shortfall detection
- Detection and display of dust accumulation on seed sensor or blockage (DCD)*
- For planters 4-16 rows
- i-LiNE compatibility (DS 1000i)
- Mounted on seed tube
- Seed detection with 3 infras

Long work without cleaning

* Each DIGITROLL seed sensor is armored with DETECT & COMPENSATE DUST (DCD) feature resulting long days and hours seeding job spent without sensor cleaning in the hassle of short seeding season. Increasingly stronger infra light is applied when infra surface becomes dusty or seed coating covered. Reaching a level, a 'dusty seed sensor' symbol appears on monitor screen following a push of the TEST button



APPLICATION EXAMPLE WITH DS 1000i:

- *i-LiNE Port: 16 rows precision planter control*

Intelligent Optomudules for Planters

DS 2000 / DS 2000i

Intelligent Optomodules for Planters

High Rate Seed Sensor for Planters — MOUNTED IN THE COULTER

Description

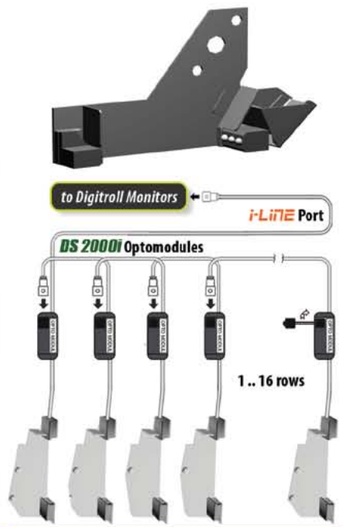
DS 2000 / DS 2000i seed sensors are made to count dropping or blown seeds on precision planters. 3-channel, high rate optical sensors, fine-tuned by seed shape and seed size settings, enable reliable detection of double/triple seed drops or skips.
Each optomodule possess an intelligent processor unit run by microcontroller. Linear connection and interchangeability make installation easy done in short time.

Features & Benefits

- Seed count, seed-flow/shortfall detection
- Detection and display of dust accumulation on seed sensor or blockage (DCD)*
- For planters 4-16 rows
- i-liNE compatibility (DS 2000i)
- Mounted in the coulter or under seed disk
- Seed detection with 3 infras

Long work without cleaning

*Each DIGITROLL seed sensor is armored with DETECT & COMPENSATE DUST (DCD) feature resulting long days and hours seeding job spent without sensor cleaning in the hassle of short seeding season. Increasingly stronger infra light is applied when infra surface becomes dusty or seed coating covered. Reaching a level, a 'dusty seed sensor' symbol appears on monitor screen following a push of the TEST button



APPLICATION EXAMPLE WITH DS 2000i:

- *i-LiNE Port: 16 rows precision planter control*

Intelligent Optomudules for Planter/Drill Fertilizer-Flow

Blockage Sensor for Precision Planters/Air Drills/Mech Drills for Granular Fertilizer Flow Control with i-LiNE Communication

DS GR 4000i

Description

DSGR 4000i blockage sensors detect solid fertilizer flow continuity on

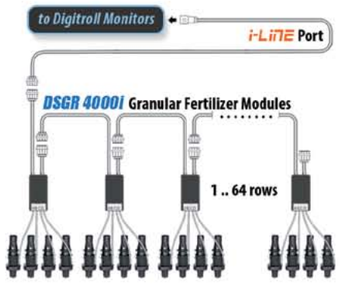
precision planters, air drills or mechanic drills. Each optomodule possess an intelligent processor unit run by microcontroller. Linear connection and interchangeability make installation easy done in short time.

Features & Benefits

- Granular fertilizer flow/blockage detection
- Detection and display of dust accumulation on seed sensor or blockage (DCD)*
- For planters/air drills/mech drills up to 128 rows
- Installable on air hoses dia 25-35 mm
- Seed detection with 4 infras
- Quick sensor opening without tool when cleaning is finally due

Long work without cleaning

*Each DIGITROLL seed sensor is armored with DETECT & COMPENSATE DUST (DCD) feature resulting long days and hours seeding job spent without sensor cleaning in the hassle of short seeding season. Increasingly stronger infra light is applied when infra surface becomes dusty or seed coating covered. Reaching a level, a 'dusty sensor' symbol appears on monitor screen following a push of the TEST button



APLICATION EXAMPLE WITH DSGR 4000i:

- *i-LiNE Port I: 64 rows granular fertilizer control*

Speed Modules

for Ground Speed Measurement

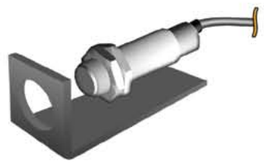
DA 02 / DA 02i

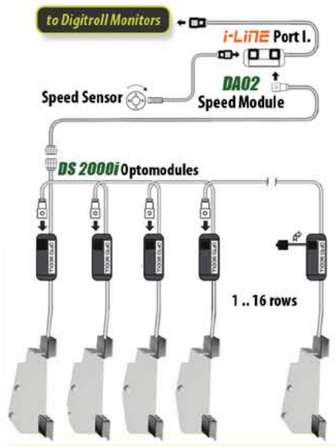
Description

DA02 speed module measure and send information of actual ground speed to monitor. Ground speed data are used for hectare count, row performance bar graph displays, speed tracking seed rate, 100 seed test and actual seed per hectare population display. Inductive sensors or radars measure speed, signals are transferred directly to monitor. Speed modules can part of new systems or be retrofitted. Speed module is able to communicate through both String System (DA02) and i-LiNE (DA02i) ports.

Features & Benefits

- Ground speed measurement
- Automatic impulse measurement for exact ground speed data
- Connectable sensors: inductive speed sensor or radar
- Simple calibration process through Digitroll monitors
- Retrofit installable with added mounting bracket
- i-LiNE and String System Port compatible





APLICATION EXAMPLE WITH DA 02i:

- *i-LiNE Port I: 16 row precision planter control with speed module*

Actuator Module

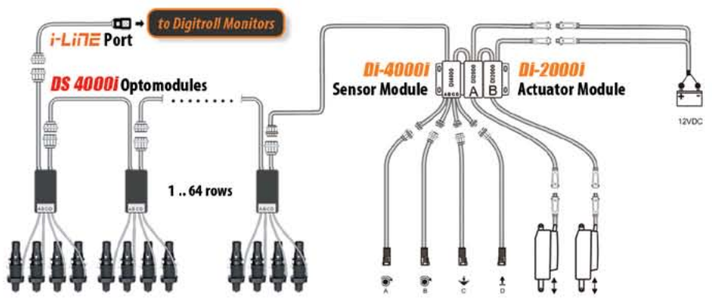
Tramline Regulation and Monitoring with i-LiNE Communication

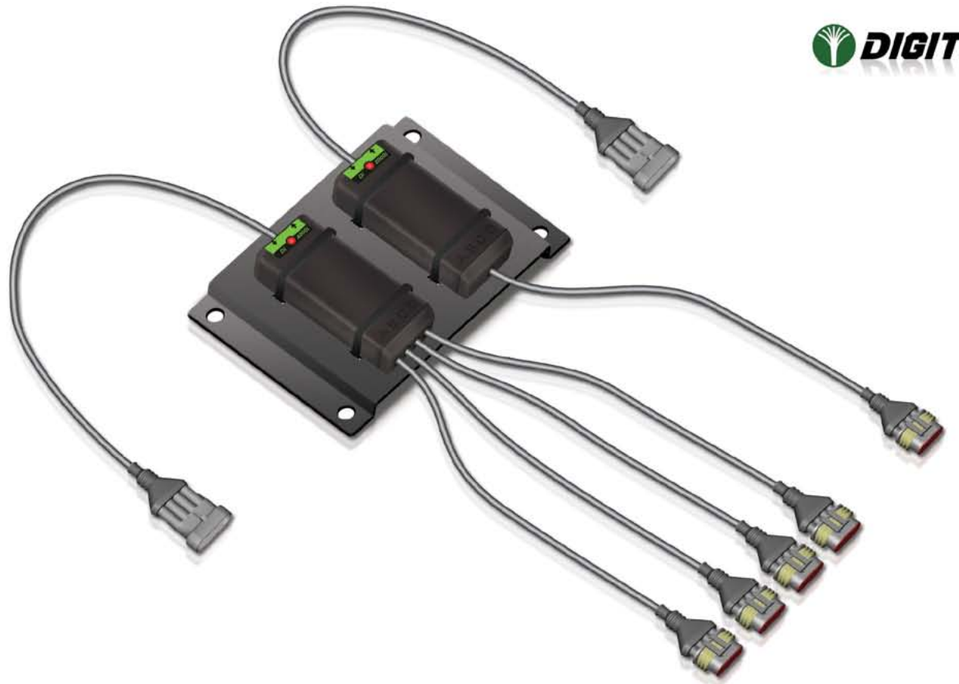
Description

Di-2000 / Di-2000i was developed for tramline regulation. Actuator module regulate electromotors or magnetic valves. Power supply for electromotors is supplied by built-in relays. A red and a green LED on module indicates events of operation. It also indicates short circuits due to hurt cables! Di-2000 module is commanded by a Digitroll monitor.

Features & Benefits

- Tramline regulation
- Row closure with electromotor or magnetic valve
- High power switch by relays
- Compatible with String System and i-LiNE communication ports
- Less cables: installable to the end of the system
- Works optionally with Di-4000 Actuator Module
- more Actuator Modules can be connected together result in more shut off tramline rows





Intelligent Sensor Module

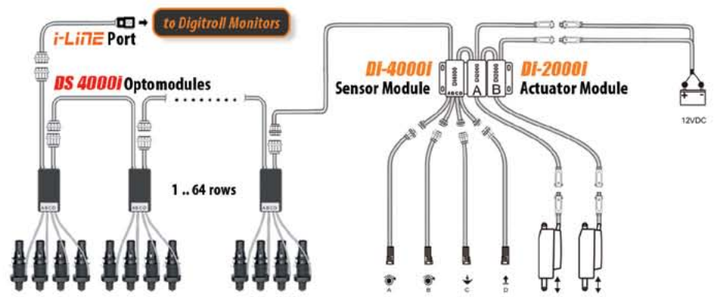
Monitoring with i-LiNE Communication

Description

Di-4000 / Di-4000i Sensor Modules receive and process signals from 4 channels and forward to central console. Wide choice of functions connected through Di-4000 include hopper level control, hectare counter, rotation guards, working position or end position control, tramline regulation with inductive, magnetic, capacitive sensors or end position switch. A red LED on Sensor Module directly indicate readiness.

Features & Benefits

- Sensor module
- 2 Hopper level control with capacitive sensors
- 2 Rotation guards with magnetic or inductive sensors (optional numeric r.p.m. measurement on 1 channel)
- Working position control with magnetic or inductive sensors
- End position control with magnetic or inductive sensors
- Compatible with String System and i-LiNE communication ports
- Works optionally with Di-2000 Actuator Module



Intelligent Solutions
FOR THE AGRICULTURE

DIGITROLL

MAIN ACCESSORIES

DSH-12 - Hall Effect Sensor
Magnetic sensor for shaft rotation control, working position control or ground speed measurement

DSH-18 - Inductive Sensor
Proximity switch for rotation control, working position control or ground speed measurement

BCW-141 - Hopper Level Sensor
Capacitive sensor to alert low level of seed or fertilizer

DSR-19 - Limit Switch
Limit switch/angular position sensor for working position control

TUCHEL - Tuchel Connector
4-pin connector for Seed Master Plus, DMS 06 and DMS 08 LCD monitors

AMP4 - AMP Connector
4-pin connector for DS 4000, DSGR 4000, DS1000G modules

GDM4 - HIRSCHMANN Connector
4-pin connector for DA 02, DS 1000, DS 2000 modules

G4W4 - HIRSCHMANN Connector
4-pin connector for INTEGRA, Seed Master BOX monitors

*Feel free to ask us about the full list of available accessories!

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