

Commander NPK



irritec[®]

don't wait for rain[®]

Catalogue

Automation and Fertigation

irritec
don't wait for

www.irritec.com

Through its direct presence and widespread international sales network, Irritec[®] follows retailers and fitters around the world, assisting them in the choice, design, installation and use of the most appropriate irrigation systems.



Fresno
USA

Valdosta
USA

Querétaro
MEXICO



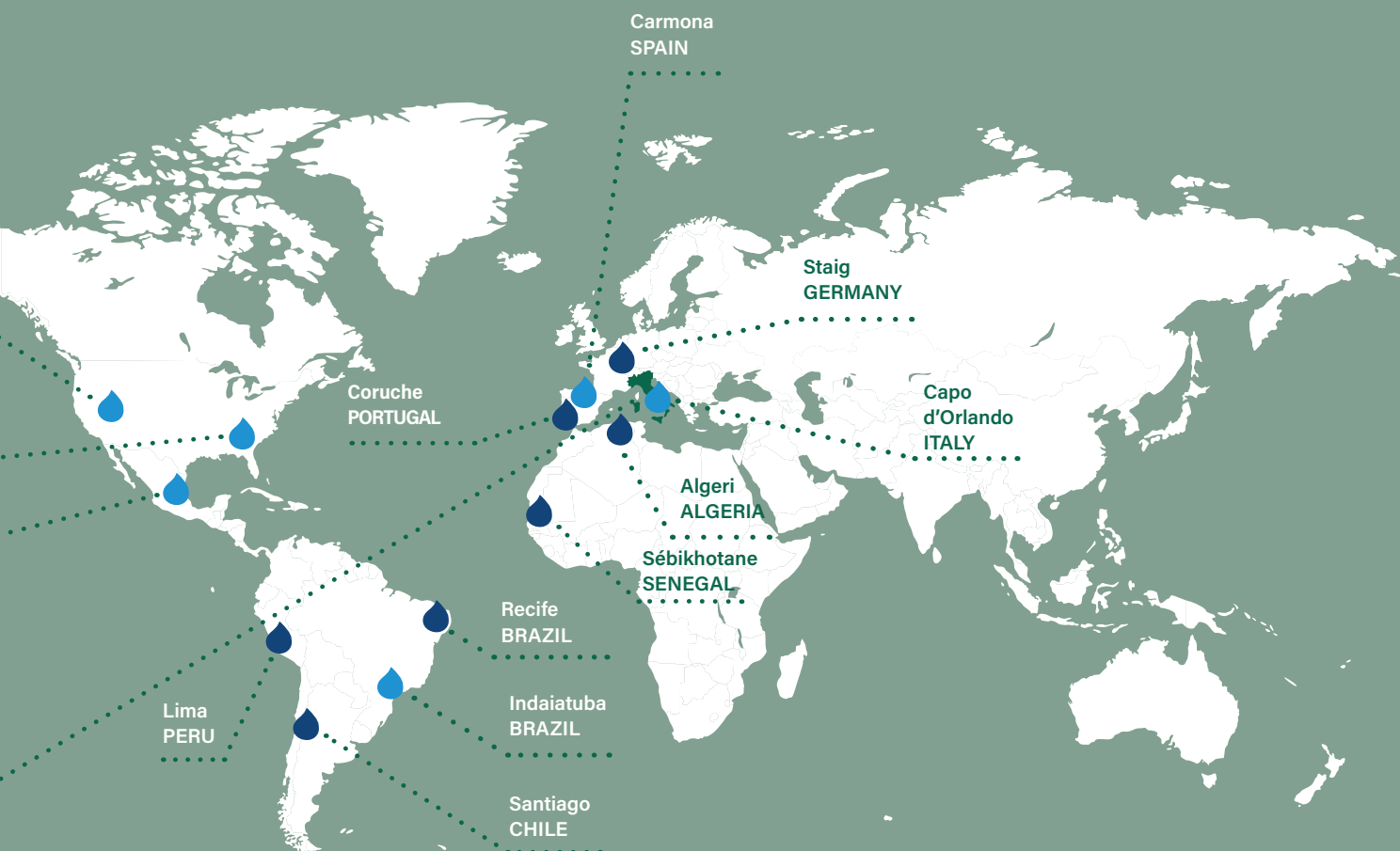
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*Countries
in the world*

>900



Professionals worldwide

We want to make life easier for people who care for plants, for their work and as their passion. We work to ensure that every drop is put to the best possible use, minimising the ecological footprint and waste of resources.

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Automation | Intelligent ecosystem

Automated farmland management is the answer to the growing and future demands of agriculture. Irritec's goal is to channel all the data and variables coming from the open field into a single intelligent system that makes it possible to control and predict crop development and growth. Irritec automation systems are used:

- *To measure the humidity, temperature, solar radiation, wind speed, salinity, and precipitation*
- *To manage irrigation times, irrigation schedules, and the programming of irrigation cycles*
- *For off-site management by remote control*
- *For fertiliser management and correct dosing*

of fertilisers

- *For the care and cleaning of filters*

The automation systems are modular and can adapt to the growth of your company. They are easy to use, will help you to reduce labour and maintenance costs and, above all, operate with precision on your crops ensuring maximum yield with an informed use of resources.



Commander NPK

1-09.7ita 00:58
SET pH 9.4 pH 6.9
SET EC 0.1 EC 0.0
form:01-01-01

MENU



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Automation | Controllers | Filter backwash

Filters are the protective barrier of an irrigation system. Their proper cleaning and maintenance is essential in order to ensure precision irrigation and to allow the drip devices work at the nominal pressure for which they were designed. This cleaning can be performed by means of a timed cycle, by a sensor that measures the difference in pressure caused by a clogged filter, or by both methods. The devices of the Commander EVO series are designed to automate these cleaning operations.



FLT

Backwash programmer Commander FLT™

- Power supply: Batteries
- 2-3-4 Latch outlet ports
- Integrated DP



CEF

Backwash programmer Commander® EVO Filter

- Power supply: 220 VAC-Batteries
- 8-16 outlet ports
- 24VAC-12VDC
- NO DP

Commander FLT™

Commander FLT



Description

The **Commander FLT™** programmer is a backwash filter control device with simple and intuitive programming for filter batteries with up to a maximum of 4 elements

General Specifications

- Suitable for filter batteries with up to 4 filter elements
- Simple programming by means of an encoder and wide display
- Integrated pressure differential
- Also available in assembled kit form with latching solenoids (see page 11)

Technical Specifications

- No. outlet ports: 2-3-4
- Type of solenoid: Latching
- No. and type of battery: 2 x 9 volt batteries
- Specifications: cleaning and programming. Time and pressure differential backwashing with the ability to manage the intervals between filtering elements

Related products

- Rotodisk automatic filter - **RSL**
- Dual chamber sand media filter - **ER - EM**
- Four-chamber sand media filter - **EQ3V**
- Sand media filter unit - **GCV**



Commander EVO® Filter



Description

The **Commander EVO® Filter** programmer is a backwash filter control device to be replaced with: simple and intuitive programming for filter batteries with up to a maximum of 16 elements.

General Specifications

- Suitable for filter batteries with 8 to 16 filter elements
- Advanced programming functions
- Also available in assembled kit form with 12 VDC and 24 VAC solenoids (see page 8)

Technical Specifications

- No. of outlet ports: 8-16
- Type of solenoid: 24 VAC-12 VDC
- Power supply: 220 VAC
- No. and type of battery: 2 x 9 volt batteries
- Specifications: time and pressure differential backwashing with the ability to manage the intervals between filtering elements

Related products

- Rotodisk automatic filter® - **RSL - RSP - RDL**
- Sand media filter unit - **GCV**



Automation | Controllers | Filter backwash

Backwash filter kit



KTB

Description

- 1 outlet port - 12VDC latching
- 2 outlet ports - 12VDC latching
- 3 outlet ports - 12VDC latching
- 4 outlet ports - 12VDC latching



KCA

Description

- 2 outlet ports - 24VAC
- 3 outlet ports - 24VAC
- 4 outlet ports - 24VAC
- 5 outlet ports - 24VAC
- 6 outlet ports - 24VAC
- 7 outlet ports - 24VAC
- 8 outlet ports - 24VAC



KCB

Description

- 2 outlet ports - 12VDC latching
- 3 outlet ports - 12VDC latching
- 4 outlet ports - 12VDC latching
- 5 outlet ports - 12VDC latching
- 6 outlet ports - 12VDC latching
- 7 outlet ports - 12VDC latching



KCE

Description

- 1 outlet port - 12VDC latching
- 2 outlet ports - 12VDC latching
- 3 outlet ports - 12VDC latching
- 4 outlet ports - 12VDC latching



CCX - NPK

Irritec® controllers for fertiliser injection management allow each irrigation system to rationalise consumption and increase the irrigation performance of the system. The level of automation available can be scaled according to crop or planting requirements, with the ability of integrating these automated systems with existing installations or a completely new design.



CCX

Programmer X3 for the management of 3 fertilisers in a volumetrically proportional manner via settable values

- Power supply: 12 volt
- 3 fertiliser outlet ports (12 VDC)
- Proportional or volumetric



NPK

Commander NPK Programmer® for the management of 3 fertilisers in volumetric/ proportional/target EC mode plus corrective acid management by means of settable values (no pH/EC transmitter required).

- Power supply: 12 volt
- 3 fertiliser outlet ports (12 VDC)
- Proportional and to target pH and EC

Automation | Controllers | Fertigation

CCX



Description

The analogue fertigation controller is simple to program, with efficient and stable operation. Suitable for taking your first steps into the world of nutrient solution injection

General Specifications

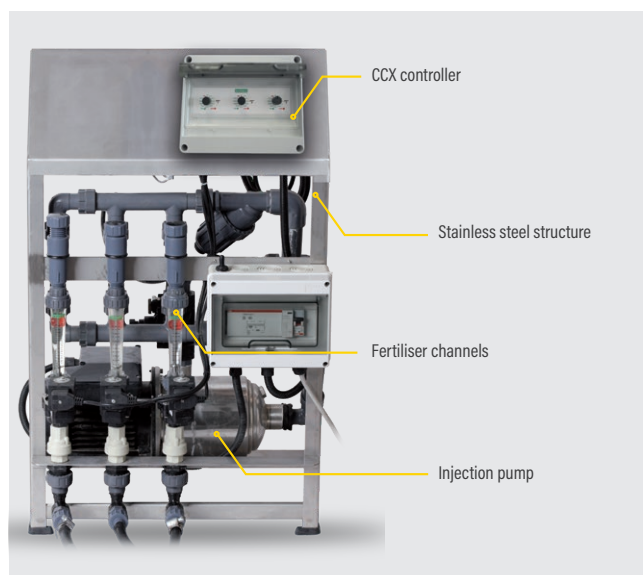
- Suitable for both open field and tunnel agriculture applications
- Simple and intuitive management thanks to the analogue setting (adjustment in litres per hour or percentage)

Technical Specifications

- 3 fertiliser outlet ports (no sector control valves)
- 12 VDC solenoids
- 3 volumetric meter inlet ports
- Proportional dosage (%) or volumetric (litres/hour)
- External contact inlet

Related products

Example configuration of an automated fertigation station with CCX



DOSA BOX
junior automatic

Commander NPK



Description

The analogue fertigation controller, simple to program, with effective and stable operation, and is suitable for small greenhouses or single-crop systems, even large in ground or above ground areas.

General Specifications

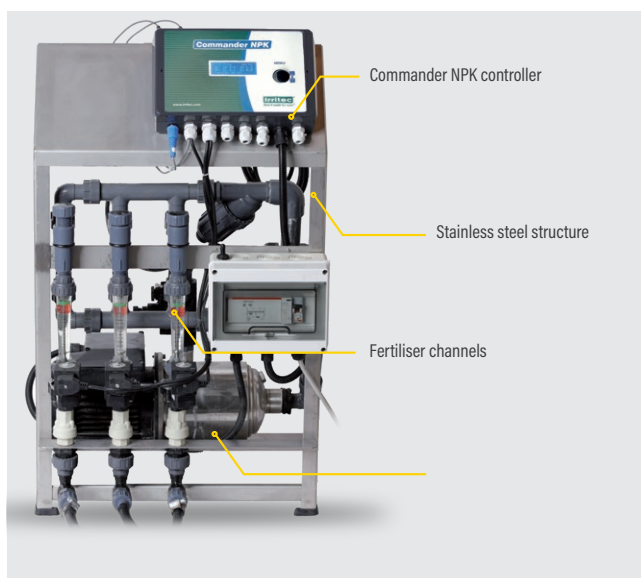
- Suitable for soil or soilless monoculture applications
- Simple and intuitive operation thanks to the practical encoder and display (adjustment in litres per hour, percentage or target pH and EC)

Technical Specifications

- 3 fertiliser outlet ports (no sector control valves)
- 12 VDC solenoids
- 3 volumetric meter inlet ports
- Proportional dosage (%) or volumetric (litres/hour) or target pH and EC
- External contact inlet
- pH and EC probe connection with internal transmitter

Related products

Example configuration of an automated fertigation station with the Commander NPK[®]



DOSA BOX[®]
junior advanced

Automation| Controllers | Automation system

Commander EVO Basic - Plus - Gold

Commander EVO® Controllers meet the irrigation needs for farms of all sizes. The Commander EVO® line combines Ph and electrical conductivity management with a more professional approach to irrigation scheduling. In addition, they are equipped with radio remote controls, which can be managed via software with internet access. All of this makes the Irritec® Commander EVO® line of agricultural Controllers the ideal technical solution for every need.



Commander EVO
BASIC



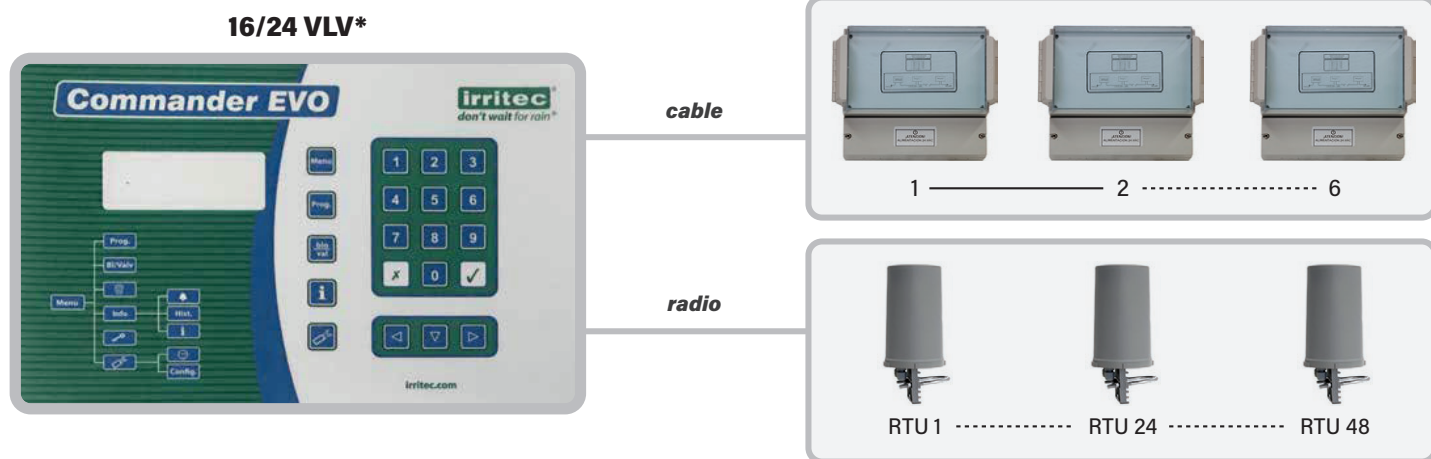
Commander EVO
PLUS



Commander EVO
GOLD

Specifications	For farms with extensive crops	For large farms with extensive crops	For farms with soilless crops
Outlet ports- valves	up to 208 (64 stand-alone blocks)	up to 216 (64 stand-alone blocks)	up to 216 (64 stand-alone blocks)
Outlet port connection	112 via cable + 96 radio	120 via cable + 96 radio	120 via cable + 96 radio
Expandable with 16-zone modules (and/or 24 outlet ports)	Yes	Yes	Yes
Radio system	Yes	Yes	Yes
Digital inputs	1 water meter, 1 differential pressure gauge, 5 configurable	1 water meter, 6 fertiliser meters, 1 differential pressure gauge, 10 configurable	1 water meter, 4 fertiliser meters, 1 differential pressure gauge, 5 configurable
Analogue inputs	Yes	temperature, solar radiation	pH, EC, temperature, solar radiation
Irrigation programming	20 stand-alone	20 stand-alone - (4 concurrent)	20 stand-alone
Irrigation mode	time - volume - external start	time - volume - external start - solar radiation	time - volume - external start - solar radiation
Pump and master valve management	1 electric pump - diesel - 1 fert. pump	1 master pump - 4 auxiliary pumps - 1 fertiliser pump	1 master pump - 4 auxiliary pumps - 1 fertiliser pump
Injection channels	2 for time - volume (parallel or sequential)	6 for time / volume / proportional to flow rate (parallel or sequential)	4 for EC / time / volume / proportional to flow rate (parallel or sequential) / 1 for target pH (acid/base)
Pre-irrigation management	Yes	Yes	Yes
Mixer management	Yes	Yes	Yes
Backwash filter management	10 filters - time and/or press. diff. (DP) common or independent management of the elements	10 filters - time and/or press. diff. (DP) common or independent management of the elements	10 filters - time and/or press. diff. (DP) common or independent management of the elements
Alarms	Yes	Yes	Yes
Programmer power supply	230 VAC, 12 VDC, batteries	230 VAC, 12 VDC, batteries	230 VAC
Output power supply	24 VAC, 12 VDC, 9/12 VDC LATCHING	24 VAC, 12 VDC, 9/12 VDC LATCHING	24 VAC
Communication	GPRS WI-FI ETHERNET	GPRS WI-FI ETHERNET	GPRS WI-FI ETHERNET
Web interface	Yes	Yes	Yes
Languages	English, Spanish, Italian and German	English, Spanish, Italian and German	English, Spanish, Italian and German

Commander



Commander EVO BASIC



Description

Commander EVO® BASIC is a compact device, affordable and easy to use. The **Commander EVO® BASIC** makes it possible to manage irrigation valves using any type of solenoid valve or via radio, pumping units, electric or diesel, differentiated fertilisation, Filter backwash, alarm detection, GSM communication, Web, Email alerts, etc.

General Specifications

- Suitable for farms with medium to large-scale soil crops that want to have a high level of automation
- Simple and intuitive, offering a wide range of opportunities for automation

Technical Specifications

- Electrical specifications: 230 VAC, 12 VDC, batteries
- Inputs and outputs: 24 VAC, 12 VDC, 9/12 VDC LATCHING
- Communication specifications: GPRS | WI-FI | ETHERNET
- Expandability/Modularity: from 16 zones to 24 zones
- Radio compatibility: YES

Operational Specifications

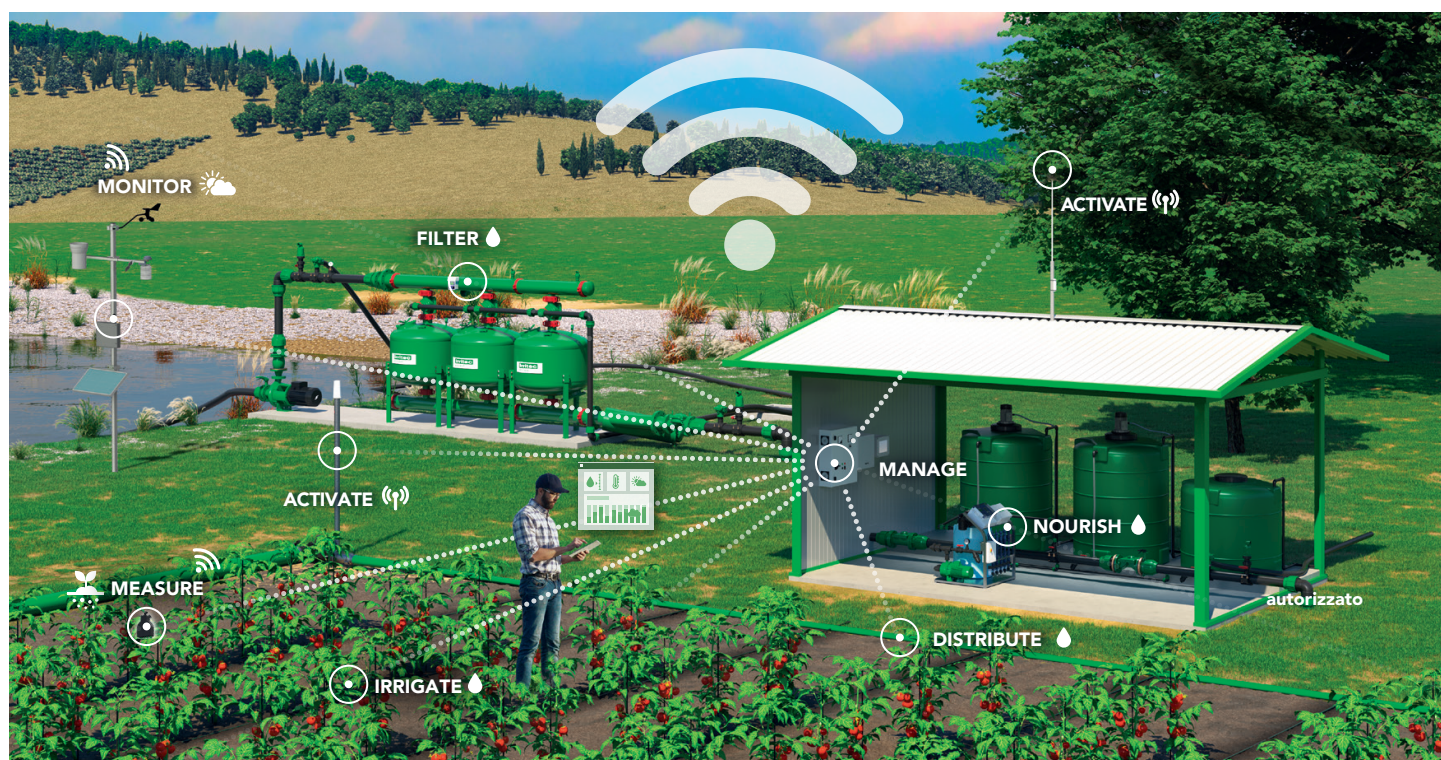
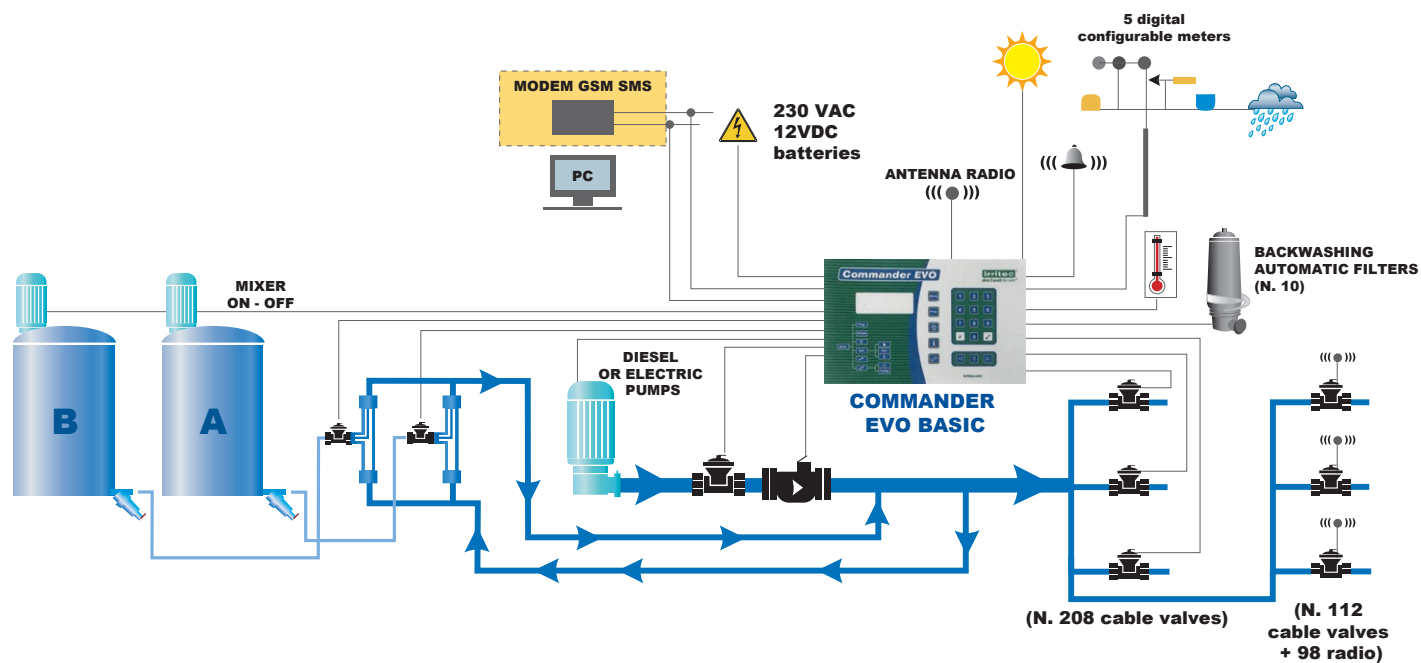
- IRRIGATION: up to 208 outlet ports 112 cable (16 basic, expandable with additional modules) 96 radio (64 blocks)
- FILTRATION: 10 filters - time and/or press. Diff. controlled (DP) common or independent management of the ten filter elements
- FERTIGATION: two injection fertilisers, time or volume controlled (parallel or sequential)

Applications

The **Commander EVO BASIC** is the **irritec** controller for a basic level of automation. It is suitable for medium-sized installations with soil cultivation (both multiannual and seasonal crops).

The ability to connect to the radio control system and, therefore, the remote opening of the valves offers a further possible application, namely the centralised management of fragmented plots with non-contiguous parcels of land which are distant from each other.

Commander EVO BASIC



Commander EVO PLUS



Description

Commander EVO® PLUS is a professional device that is simple to use. The **Commander EVO® PLUS** makes it possible to manage irrigation valves using any type of solenoid valve or via radio, pumping units, electric or diesel, differentiated fertilisation, Filter backwash, alarm detection, GSM communication, Web, Email alerts, etc.

General Specifications

- Suitable for farms with large-scale soil cultivation
- Simple and intuitive, offering a wide range of opportunities for automation and fertigation

Technical Specifications

- Electrical specifications: 230 VAC, 12 VDC, batteries
- Inputs and outputs: 24 VAC, 12 VDC, 9/12 VDC LATCHING
- Communication specifications: GPRS | WI-FI | ETHERNET
- Expandability/Modularity: from 16 zones to 24 zones
- Radio compatibility: YES

Operational Specifications

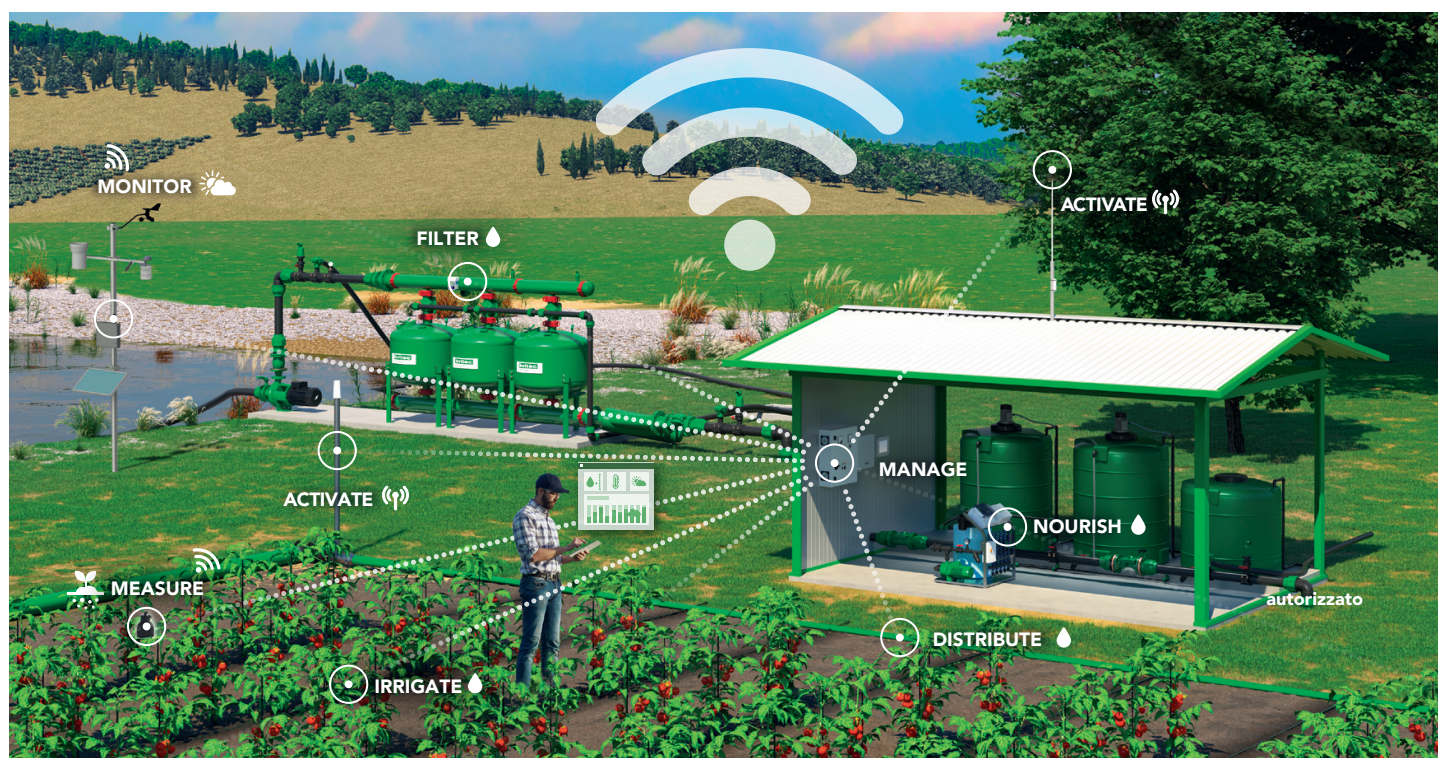
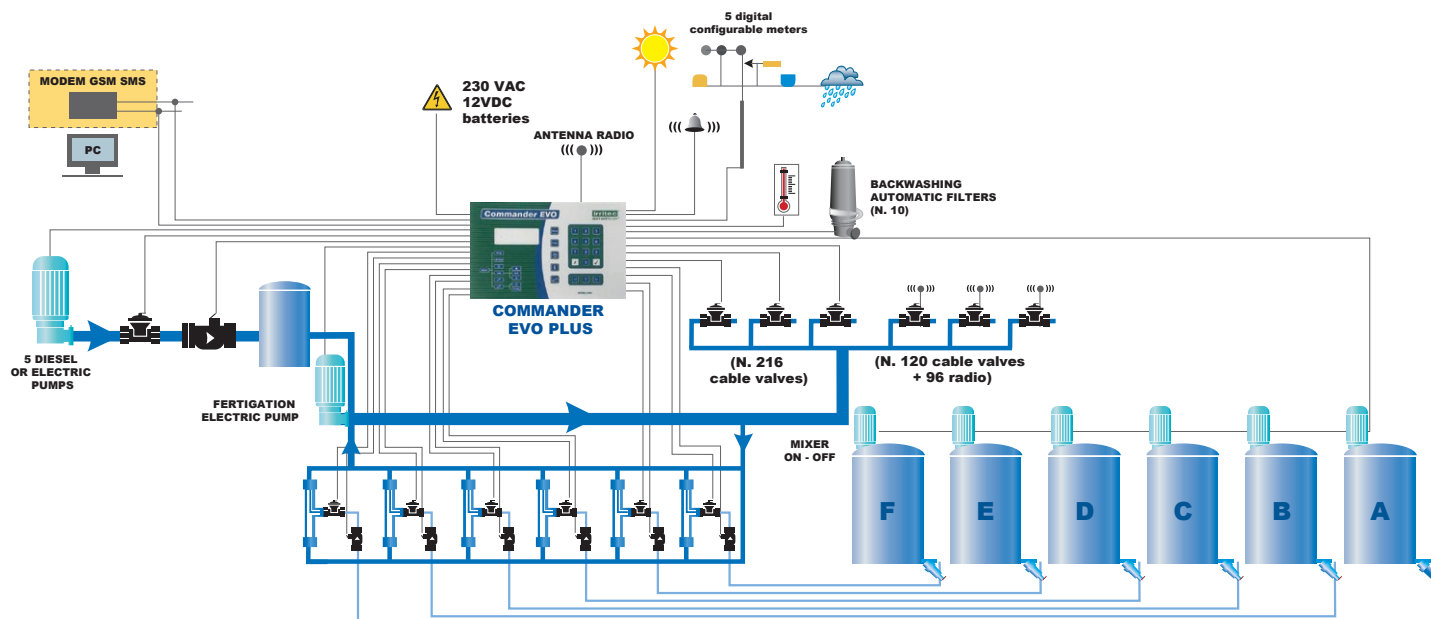
- IRRIGATION: up to 216 outlet ports 120 cable (24 basic, expandable with additional modules) 96 radio (64 blocks)
- FILTRATION: 10 filters - time and/or press diff. controlled (DP) common or independent management of the ten filter elements
- FERTIGATION: 6 injection fertilisers controlled by time / volume / proportional to flow rate (parallel or sequential)

Applications

The **Commander EVO PLUS** is the Irritec controller for the professional management of irrigation systems. Excellent for large systems with soil cultivation in the open field or in a greenhouse (both multiannual and seasonal crops, excluding hydroponics or soilless).

The ability to connect to the radio control system and, therefore, activate the remote opening of the valves offers a further possible application, namely the centralised management of fragmented plots with non-contiguous parcels of land which are distant from one another.

Commander EVO PLUS



Commander EVO GOLD



Description

Commander EVO® GOLD is a professional device that is simple to use. The Commander EVO GOLD makes it possible to manage irrigation valves using any type of solenoid valve or via radio, pumping units, electric or diesel, differentiated fertilisation, flexible fertigation programming, filter backwash, alarm detection, GSM communication, PC, SMS, etc.

General Specifications

- Suitable for farms with large-scale cultivation in soil or medium and large sized aggregates
- Simple and intuitive, it offers a wide range of opportunities for automation and fertigation

Technical Specifications

- Electrical specifications: 230 VAC
- Inputs and outputs: 24 VAC
- Communication specifications: GPRS | WI-FI | ETHERNET
- Expandability/Modularity: from 16 zones to 24 zones
- Radio compatibility: YES

Operational Specifications

- IRRIGATION: up to 216 outlet ports 120 cable (24 basic, expandable with additional modules) 96 radio (64 blocks)
- FILTRATION: 10 filters - time and/or press diff. controlled (DP) common or independent management of the ten filter elements
- FERTIGATION: 4 fertilisers + 1 acid, injection proportional to flow rate (parallel or sequential), or target pH and EC

Related products

The **Commander EVO® GOLD** is the Irritec controller for the professional management of irrigation systems. Excellent for both medium and large systems, suitable for greenhouse cultivation in soil or on inert matter. Controller designed for the management fertigation recipes of a high professional standard for specialised crops. The ability to connect to the radio control system and, therefore, activate the remote opening of the valves offers a further possible application, namely the centralised management of farms with non-contiguous parcels of land which are distant from each other, or large farm operations with valves located a long distance from the control centre.

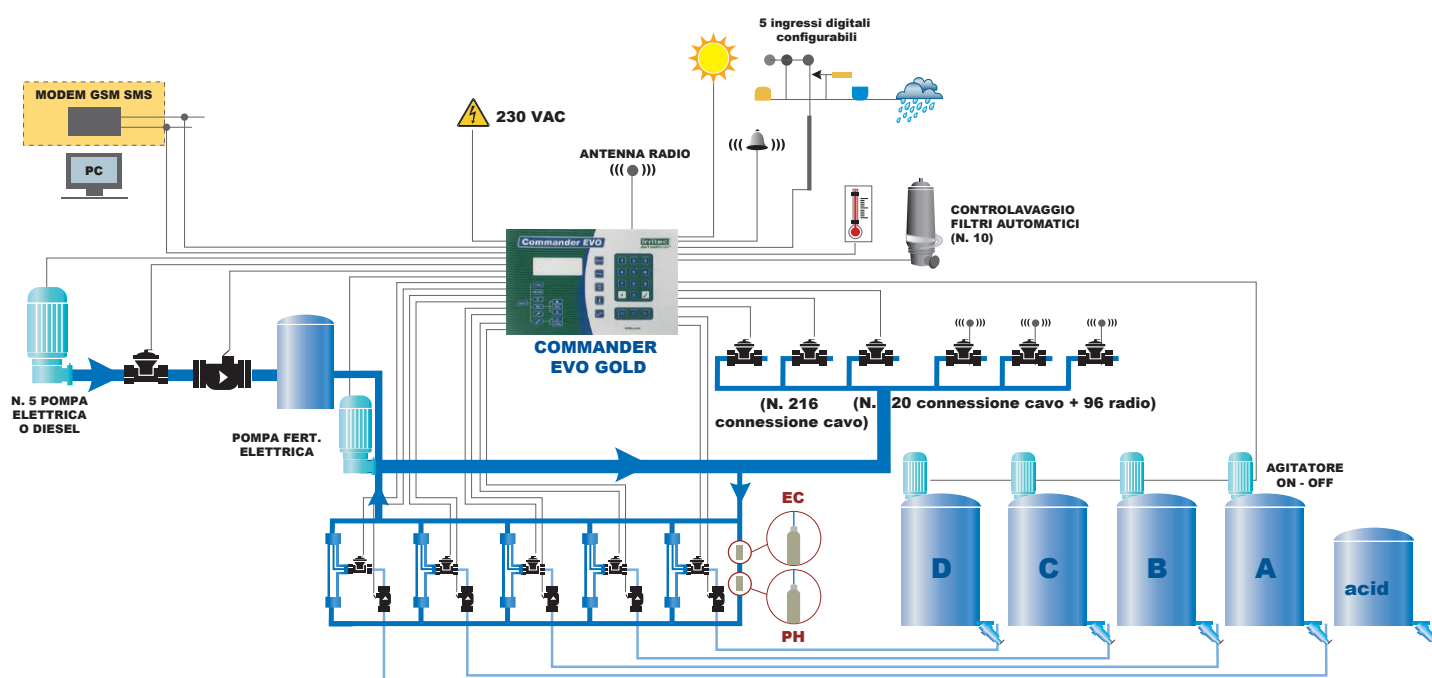
The **Commander EVO® GOLD** is the controller that manages Irritec fertigation benches such as the **Shaker Set** and **Shaker Pro**

SHAKER PRO
FERTIGATION MIXER

SHAKER SET
FERTIGATION MIXER

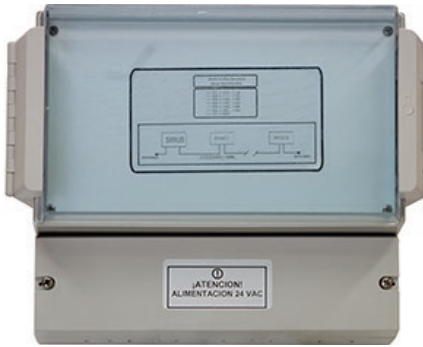


Commander EVO GOLD



Automation | Accessories | Commander EVO expansion modules

CEE



Description

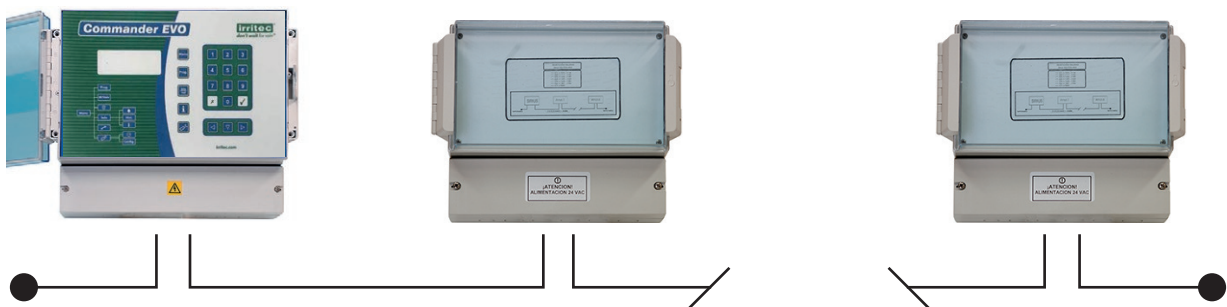
Active expansion for **Commander EVO**® modular 16 or 24 zones with 24 VAC and/or 9 VDC latching voltage

General Specifications

- Suitable for expanding the number of outlet ports of **Commander** controllers

Technical Specifications

- Electrical specifications: connected to the Commander via an RS 485 cable
- Inlet and outlet port specifications: 24 VAC or 9VDC LATCHING

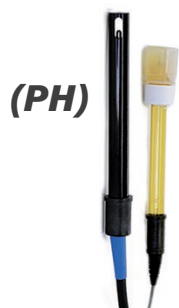


Automation | Accessories | Sensors



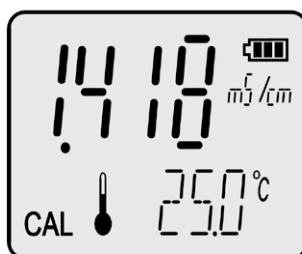
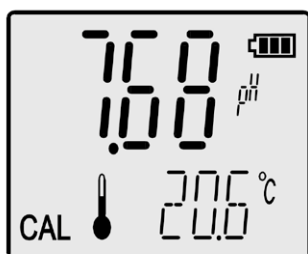
(IJ) SS5 solar radiation sensor

Sensor for light sum method of irrigation management. For irrigation triggered by the water requirement of the plant during the period of greatest photosynthesis activity



(PH)

(EC)



pH and EC sensors

To function, ph and EC sensors require signal transmitter TS5 (IJTS502090007)



Automation | Accessories | Software and communication accessories



Description

System with GPRS or Wi-Fi access connectivity which makes it possible to manage all Commander EVO controllers remotely

General Specifications

- Suitable for remote connection using a PC, tablet or smartphone, web interface
- Available in GPRS or WI-FI versions

Technical Specifications

- Electrical specifications: 12 volt dc (external power supply unit)

Communication accessories

- MODEM: GPRS | WI-FI | ETH



Automation | Radio system

Evo Radio System

Description

The Irritec radio system is a stable and effective solution for all farms that want to automate remote valves or fragmented, non-contiguous plots. Commander transmission is entrusted to a technology that allows considerable physical obstacles to be overcome, therefore this solution can also function on terrain which is uneven, with significant differences in height. In fact, an unobstructed line or radio relay links between the receiver and the transmitter are not required.

Receivers are available that operate 2-4 valves simultaneously or independently, with a dual system of lithium batteries to support the logic, and alkaline batteries to operate the latching solenoids.

General Specifications

- Suitable for large farms with distances not greater than 5 km between the transmitter and the last receiving valve

Technical Specifications

- Electrical characteristics: batteries (Lithium – Alkaline)
- Inlet and outlet port specifications: (2-4 outlet ports)
- Communication specifications: low frequency, one-way radio

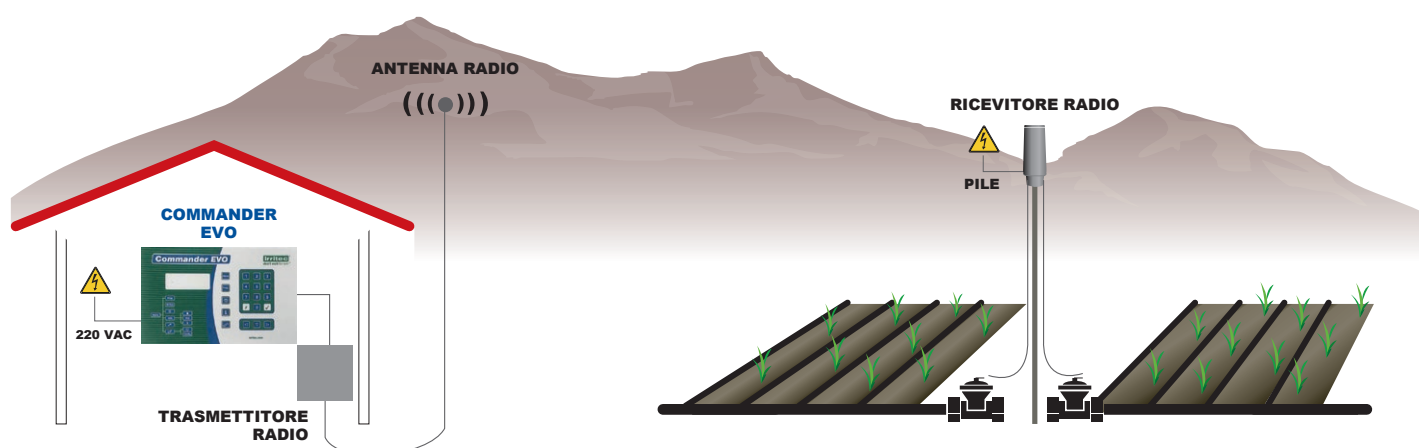


Automation



- Remote operation (max 5 km)
- Bistable solenoid operation
- Ability to automate existing and outdated systems

Ref.	Zone	Description
ICCERTRA	16	Radio transmitter
ICCERRIC	2	RTU
ICRR510020142	2	RTU 2st Alkaline
ICRR510020144	4	RTU 4st Alkaline
ICCERKIC	-	5.5 m antenna + 15 m cable
ICCE510090001	-	1.57 m antenna + 5 m cable
INM510096003	-	Lightning protection (Gas)
IJCC510090002	-	50 cm coaxial cable for lightning protection
ICCERBAT	-	Spare 3.6 V lithium battery



Fertigation

Irritec recommends innovative technical solutions in fertilisation management for each separate irrigable surface area. In fact, Irritec's goal is to facilitate nutrient management operations from crop nutrient requirements to the most suitable method of dosing. The actions supported by the fertigation system are: recipe dosage, control, optimisation and differentiation.

Irritec fertigation systems combine correct management of the fertiliser, the correct dosage of

fertilisers, and the made in Italy quality and logics with the modus operandi of every individual farm. The solution proposed by Irritec does not require any experience in IT or electrical engineering. Accurate and easy-to-use, Irritec fertigators help reduce labour and maintenance costs, ensuring an efficient and informed use of resources.



Commander NPK

1-09.71ta 00:58
SET pH 9.4 pH 6.9
SET EC 0.1 EC 0.0
form:01-01-01

MENU



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Fertigation | Manual injection systems

Manual systems are devices proposed by Irritec meet basic fertigation needs for applications where frequent fertigation operations are not required.



Venturi tubes

"Pro" mod. Venturi injector

- Injection from 7° 2000 l/h
- Volumetric dosage



Dosing pumps

Backwash programmer Commander EVO® Filter

- Injection 5%/10% for flow rates from 7 to 10000 l/h
- Proportional dosage

Fertigation | Manual injection systems

Venturi tubes



Description

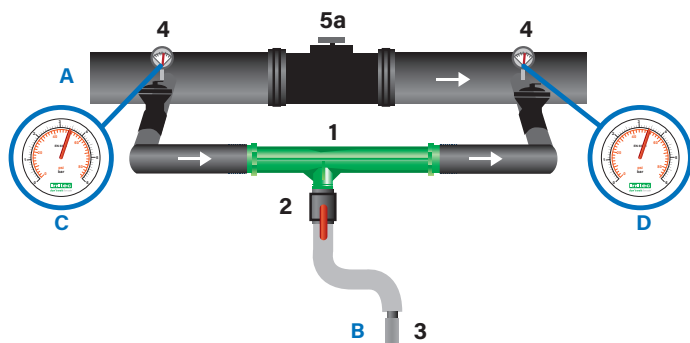
New venturi injectors with an improved technical design expand the range of Irritec products® for the inline injection of fertilisers. Available in $\frac{3}{4}$ " - 1" - 1½" - 2" sizes, made of materials with very high mechanical and chemical resistance to ensure the uniform distribution of liquid fertilisers in the irrigation system. Precise and efficient, they require only a small pressure differential to ensure high aspiration performance. In the simplicity of the physical principle, Irritec® has struck the right balance between technology and practicality to design a safe and effective injector.

General Specifications

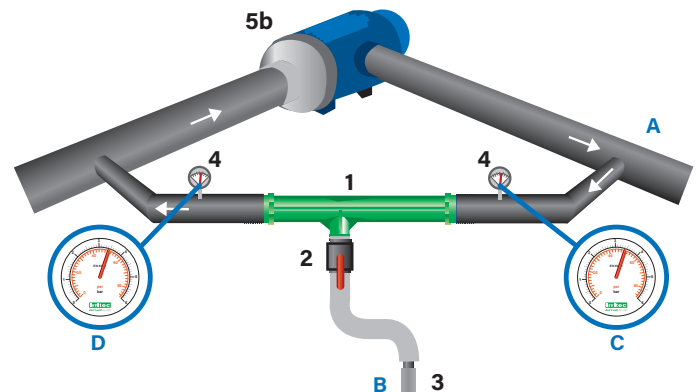
- Suitable for volumetric injection (requires reduction in pressure)
- No electrical power supply required

Installation diagram

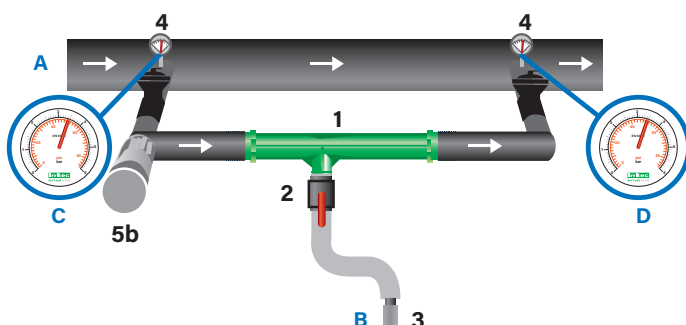
bypass
with pressure reducing valve



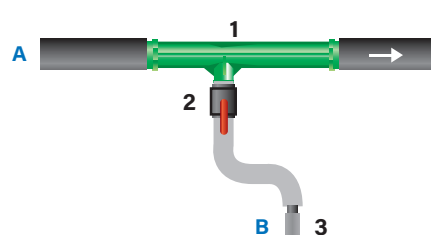
bypass
with aspiration pump



bypass
with pressure pump



on line



- 1 injector
- 2 dosing valve
- 3 filter
- 4 pressure gauge
- 5a electric pump
- 5b pressure reducing valve
- A inlet flow rate
- B aspiration flow rate
- C inlet pressure
- D outlet pressure

Fertigation | Manual injection systems

Venturi tubes

INJECTOR 3/4"



INJECTOR 1"



INJECTOR 1 1/2"



INJECTOR 2"



INLET PRESSURE (bar)	OUTLET PRESSURE (bar)	INLET FLOW RATE (l/min)	ASPIRATION FLOW RATE (l/h)	OUTLET PRESSURE (bar)	INLET FLOW RATE (l/min)	ASPIRATION FLOW RATE (l/h)	OUTLET PRESSURE (bar)	INLET FLOW RATE (l/min)	ASPIRATION FLOW RATE (l/h)	OUTLET PRESSURE (bar)	INLET FLOW RATE (l/min)	ASPIRATION FLOW RATE (l/h)
0.35	0	13	90	0.00	26	360	0.00	54	590	0.00	160	2130
	0.1	11	63	0.10	23	198	0.10	45	294	0.10	140	1570
	0.2	10	27	0.20	21	84	0.20	43	200	0.20	122	505
	0.28	-	n/a	0.28	-	n/a	0.28	-	n/a	0.28	113	175
	0.3	-	n/a	0.30	-	n/a	0.30	-	n/a	0.30	-	n/a
0.70	0	17	96	0.00	36	372	0.00	74	720	0.00	200	2220
	0.4	14	54	0.40	31	144	0.40	64	450	0.40	190	2200
	0.5	14	21	0.50	31	90	0.50	58	108	0.50	162	522
	0.6	-	n/a	0.60	-	n/a	0.60	-	n/a	0.60	160	10
1.00	0	19	90	0.00	40	354	0.00	83	720	0.00	230	2040
	0.4	19	90	0.40	39	270	0.40	74	483	0.40	225	2040
	0.7	16	30	0.70	37	108	0.70	70	180	0.70	195	600
	0.84	-	n/a	0.84	-	n/a	0.84	-	n/a	0.84	-	n/a
1.40	0	22	90	0.00	47	336	0.00	93	720	0.00	256	1980
	0.35	22	90	0.35	47	336	0.35	90	642	0.35	256	1980
	0.7	22	90	0.70	46	264	0.70	86	440	0.70	238	1386
	1	19	40	1.00	45	126	1.00	83	204	1.00	226	642
2.10	0	26	90	0.00	56	312	0.00	110	700	0.00	330	1980
	0.35	26	90	0.35	56	312	0.35	110	700	0.35	310	1980
	0.7	26	90	0.70	56	312	0.70	110	678	0.70	314	1980
	1	26	90	1.00	56	312	1.00	108	600	1.00	307	1740
	1.4	25	63	1.40	54	204	1.40	104	390	1.40	300	1080
	1.7	23	18	1.70	53	36	1.70	99	70	1.70	290	270
3.10	0	32	90	0.00	66	300	0.00	131	700	0.00	358	1950
	1.35	32	90	1.35	66	300	1.35	131	700	1.35	358	1950
	1.7	32	90	1.70	66	300	1.70	131	700	1.70	357	1950
	1	32	90	1.00	66	300	1.00	131	700	1.00	357	1950
	1.7	32	90	1.70	66	300	1.70	130	630	1.70	353	1650
	2	31	83	2.00	66	282	2.00	127	504	2.00	344	1314
	2.4	29	39	2.40	65	123	2.40	124	213	2.40	337	534
4.10	0	37	90	0.00	77	300	0.00	134	700	0.00	450	1950
	2	37	90	2.00	77	300	2.00	134	700	2.00	440	1950
	2.4	37	90	2.40	77	300	2.40	134	612	2.40	394	1740
	3	36	66	3.00	76	230	3.00	132	324	3.00	386	1050
	3.24	35	36	3.24	-	n/a	3.24	132	168	3.24	380	500
5.5	0	42	90	0.00	90	300	0.00	159	720	0.00	460	1950
	2.06	42	90	2.06	90	300	2.06	159	720	2.06	460	1950
	3.1	42	90	3.10	90	300	3.10	158	708	3.10	460	1884
	4.1	41	70	4.10	90	255	4.10	156	378	4.10	445	1104
	4.48	40	32	4.48	89	84	4.48	154	132	4.48	440	276
6.9	0	47	90	0.00	95	300	0.00	178	720	0.00	530	1950
	2.75	47	90	2.75	95	300	2.75	178	720	2.75	530	1950
	4.5	47	90	4.50	95	300	4.50	177	660	4.50	530	1950
	5.2	46	81	5.20	94	234	5.20	175	384	5.20	510	1308
	5.44	46	57	5.44	94	147	5.44	174	240	5.44	510	888

Fertigation | Manual injection systems

Dosing pumps



Description

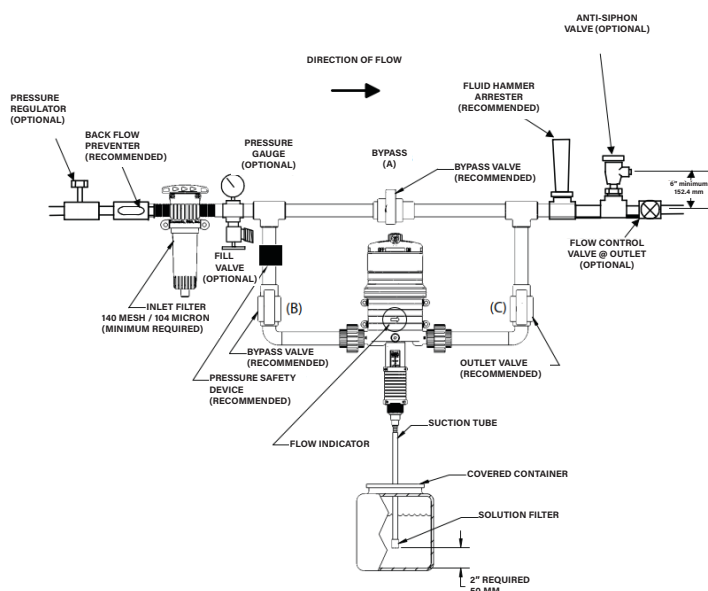
The hydraulically operated MiniDos and SuperDos volumetric dosing units are designed to introduce liquid concentrates into the water supply network in the absence of electricity, using the flow of the fluids as the energy source. MiniDos and SuperDos feature a patented internal mixing chamber that allows for homogeneous mixing, while keeping corrosive chemicals away from key internal components.

General Specifications

- Suitable for proportional injections on low flow rates (not exceeding 10 m³/h)
- No reductions in pressure or pressure differentials required
- No electricity required

Technical Specifications

	MiniDos	SuperDos
Housing	Proprietary composite material	Proprietary composite material
Dosage	+/- 10%	+/- 5%
Repeatability	+/- 3%	+/- 3%
Max fluid temperature	38°C	38°C
Min fluid temperature	1°C	1°C
Max vertical aspiration of the concentrate	3.6 m	3.6 m
Sealant material available*	Aflas - Viton - EPDM	Aflas - Viton - EPDM - Kalrez

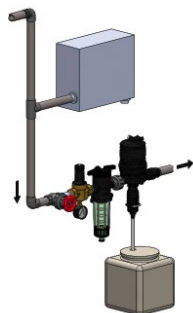


Fertigation | Manual injection systems

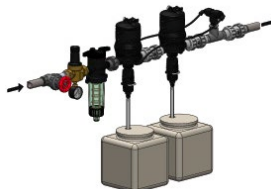
Dosing pumps



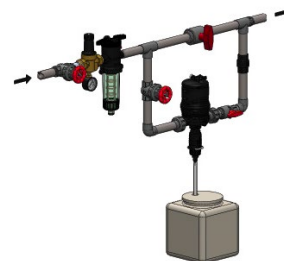
Linear installation



installation of the feeder tank



double-sided linear installation

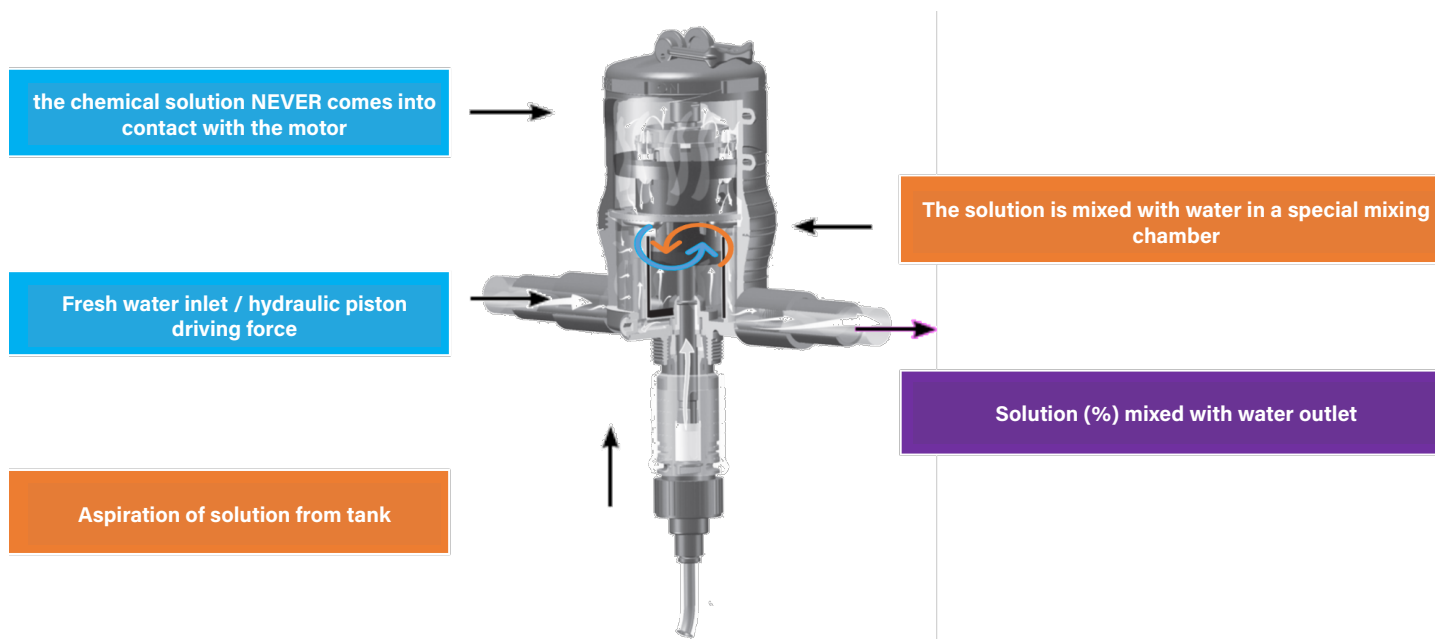


installation of offtake

Performance chart

Model	M/M couplings	Model number	Operating pressure (bar)	Water flow rate (l/h)	Dilution %	Proportion
MiniDos 2.5 %	3/4"	112603GB	0.5 - 9.6	7 - 2.700	0.5 - 2.5	1:200 - 1:40
MiniDos 5 %	3/4"	112605GB	0.5 - 9.6	7 - 2.700	1.0 - 5.0	1:100 - 1:20
MiniDos 10 %	3/4"	112607GB	0.5 - 4.5	16 - 2.200	2.0 - 10.0	1:50 - 1:10
SuperDos 15 2.5%	1"	113702GB	0.2 - 4.1	10 - 3.400	0.2 - 2.5	1:500 - 1:40
SuperDos 20 2.5%	1"	113705GB	0.4 - 6.9	11 - 4.500	0.2 - 2.5	1:500 - 1:40
SuperDos 30 2.5%	1"	113709GB	0.4 - 6.9	34 - 6,800	0.2 - 2.5	1:500 - 1:40
SuperDos 30 5%	1"	113710GB	0.4 - 6.9	34 - 6,800	0.4 - 5.0	1:250 - 1:20
SuperDos 45 2.5%	1 1/4"	113712GB	0.4 - 6.9	57 - 10.000	0.2 - 2.5	1:500 - 1:40
SuperDos 45 5%	1 1/4"	113715GB	0.4 - 5.5	57 - 10.000	0.4 - 5.0	1:250 - 1:20

Principle of operation



Fertigation | Automatic dosing systems

FERTIGATION SYSTEMS

IRRITEC fertigators® combine practicality and reliability with a modern nutrient injection system. Fertiliser management is regulated by simple fertigation recipes that can be set according to agronomic and nutritional requirements. Proper water management, which is essential to deliver the right nutrition to the plants, is ensured by years of experience in sizing machines and equipment, and the use of reliable and certified materials.



Fertigation | Automatic dosing systems



Specifications	For soilless crops	For soilless crops
Integrated controller	Commander EVO® Gold	Commander EVO® Gold
Dosage	from 2 to 4 fertilisers - 1 acid	from 2 to 4 fertilisers - 1 acid
Injection mode	to pH and EC set	proportional to flow rate / pH and EC set
Fertigation programmes	64 recipes	64 recipes
Irrigation programming	20	20
Outlet ports- valves	up to 216 (120 with cable +96 radio) with expansion modules from 16 and/or 24 outlet ports	up to 216 (120 with cable +96 radio) with expansion modules from 16 and/or 24 outlet ports
Digital inputs	1 water meter, 1 differential pressure gauge, 10 configurable	1 water meter, 4 fertiliser meters, 1 differential pressure gauge, 5 configurable
Analogue inputs	pH, EC, temperature, solar radiation	pH, EC, temperature, solar radiation
Backwash filter management	10 filters - time and/or press. diff. (DP) common or independent management of the elements	10 filters - time and/or press. diff. (DP) common or independent management of the elements
Pump and master valve management	1 master pump - 4 auxiliary pumps - 1 fertiliser pump	1 master pump - 4 auxiliary pumps - 1 fertiliser pump
Stirrer management	Yes	Yes
Radio system	Yes	Yes
Power supply	380 VAC (230 VAC upon request)	380 VAC (230 VAC upon request)
Communication	GPRS WI-FI ETHERNET	GPRS WI-FI ETHERNET
Web interface	Yes	Yes
Languages	English, Spanish, Italian and German	English, Spanish, Italian and German



Specifications	For open field crops and soilless crops	For extensive open field crops	For extensive open field crops	For extensive open field crops
Integrated controller	Commander NPK®	CCX	-	Ferticlick®
Dosage	3 fertiliser channels - 1 acid	3 fertilisers channels	2 fertiliser channels - 1 acid	1 fertiliser channels
Injection mode	proportional to flow rate / pH and EC SET	proportional to flow rate / number of litres per hour	by volume (manual adjustment)	proportional to flow rate / number of litres per hour
Digital inputs	1 external start - 1 water meter - 3 fertiliser meters	1 water meter - 3 fertiliser meters	-	1 water meter
sensors	1 pH sensor - 1 EC sensor (integrated transmitter)	1 pH sensor - 1 EC sensor (external transmitter)	1 pH sensor - 1 EC sensor (external transmitter)	-
Power supply	230 VAC	230 VAC	pump motor / 230 VAC	12 VDC
Analogue inputs	pH, EC	pH, EC	pH, EC	-



Fertigation | Automatic dosing systems

Shaker



Shaker Set®

SHAKER SET 2/4 FERT BY 500 LT/H

- Acid injection channel
- Electric pump stainless steel impeller
- EC and pH monitoring and control
- Dosing by time
- Premixing tank
- Multi-recipe
- Advanced irrigation management
- Dosing to target pH and EC
- Inline and bypass applications



Shaker Pro™

SHAKER PRO 2/4 FERT BY 500 LT/H

- Acid injection channel
- Electric pump stainless steel impeller
- EC and pH monitoring and control
- Volumetric dosage
- Premixing tank
- Multi-recipe
- Advanced irrigation management
- Dosing to target pH and EC and proportional to EC flow rate
- Inline and bypass applications

Shaker Set



Description

The **Shaker Set**® is a "target-based" fertigation unit designed by **Irritec**® to provide a precise and reliable system able to ensure optimal development of both soil and soilless crops. The simple programming and the advanced functions of the **Commander EVO**® programmer allow complete management of the irrigation system and ensure the correct supply of nutrients based on the pH and EC values set by the user. Precise and responsive, the **Shaker Set**® allows the user to inject up to 4 fertilisers per set plus a corrective acid. Operation is simple: enter the desired pH and conductivity values, along with the relative percentages for each fertiliser solution (e.g. pH 6.0, EC 2 mS, 5% fert. A, 10% fert. B, 10% fert. C, 5% fert. D). Using information from the built-in pH and conductivity probes, the machine injects the necessary quantities of acid and fertiliser to constantly maintain the water at the values entered by the user. The availability of multiple fertigation recipes, one for each irrigation block, and the integrated self-learning system make it possible to produce fertigation solutions with specific characteristics for each sector of the system in the shortest possible time.

General Specifications

Suitable for greenhouse and soilless applications, and multi-recipe with frequent fertigation cycles



Fertigation | Automatic dosing systems

Shaker Set

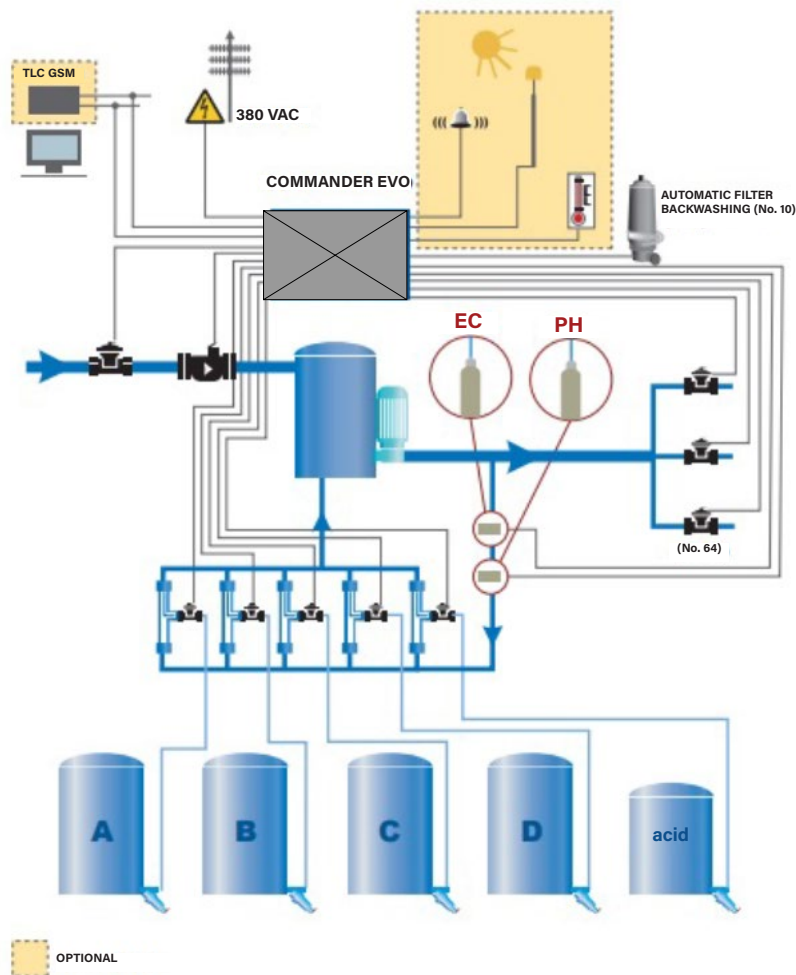
Principle functions:

- Dosage of two to four fertilisers in set mode
- Injection of a corrective acid
- Multiple fertigation recipes (one per irrigation block)
- 20 independent irrigation programmes
- Control via external sensor
- Backwashing management of 10 automatic filters, timed or induced by differential pressure switch
- Pump or master valve control
- Rain sensor inputs and analogue and digital sensor inputs
- Mixers management
- Web interface via software (optional)

Configuration

100 litre mixing tank • Up to 4 high aspiration 500 l/h venturi injectors for fertilisers • 1 high aspiration 350 l/h venturi injector for acid • Specific acid and fertiliser solenoid valves • Compact stainless steel structure 80 x 120 x 80 (LxWxD) • Commander EVO GOLD Programmer • Integrated electric pump • Conductivity probe • pH electrode • Power supply: (3 F+N+T) VAC 50 Hz

Installation diagram



Shaker Pro



Description

The **Shaker Pro**™ is a "target-based as well as proportional" fertigation unit designed by Irritec to provide a precise and reliable system able to ensure optimal development of both soil and soilless crops. The simple programming and the advanced functions of the **Commander EVO**® programmer allow complete management of the irrigation system and ensure the correct supply of nutrients based on the pH and EC values set by the user or based on the desired percentage values. Precise and responsive, the Shaker Pro allows the user to inject up to 4 fertilisers per set plus a corrective acid. Operation is simple. For set mode management, enter the desired pH and conductivity values along with the relative percentages for each fertiliser solution (e.g. pH 6.0, EC 2 mS, 5% fert. A, 10% fert. B, 10% fert. C, 5% fert. D). Using information from the built-in pH and conductivity probes, the machine injects the necessary quantities of acid and fertiliser to constantly maintain the water at the values entered by the user. For proportionate management enter the pH values and percentage injection values for each individual fertiliser (e.g. pH 6.0, 0.5% fert. A, 0.5% fert. B, 0.3% fert. C, 0.2% fert. D). By combining the information received from the main water meter and the fertiliser injection meters, as well as from the pH probe, the machine will maintain the injected solution at the values entered by the user. The availability of multiple fertigation recipes, one for each irrigation block, and the integrated self-learning system make it possible to produce fertigation solutions with specific characteristics for each sector of the system in the shortest possible time.

General Specifications

Suitable for greenhouse and soilless applications, and multi-recipe with frequent fertigation cycles



Fertigation | Automatic dosing systems

Shaker Pro

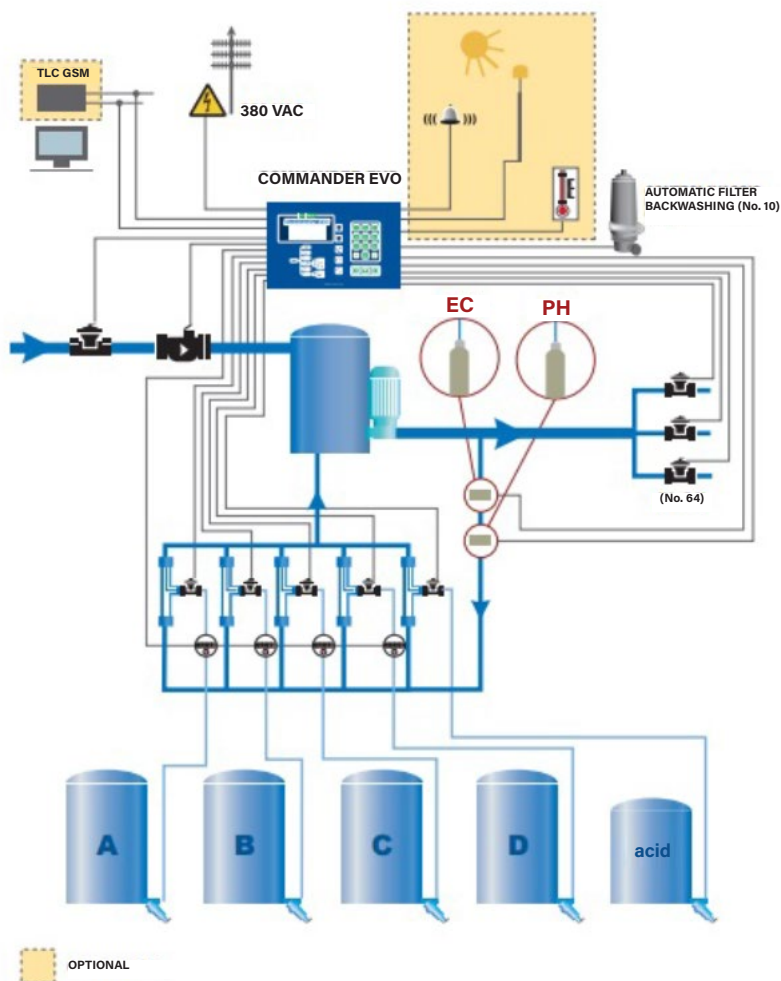
Principle functions:

- Dosage of two to four fertilisers in set mode, or with proportional mode
- Injection of a corrective acid
- Multiple fertigation recipes (one per irrigation block)
- 20 independent irrigation programmes
- Control via external sensor (humidity and temperature sensors)
- Backwashing management of 10 automatic filters, timed or induced by differential pressure switch
- Pump or master valve control
- Rain sensor inputs and analogue and digital sensor inputs
- Mixers management
- Web nterface via software (optional)

Configuration

- 100 litre mixing tank • Up to 4 high aspiration 500 l/h Venturi injectors for fertilisers • 1 high aspiration 350 l/h venturi injector for acid • Specific acid and fertiliser solenoid valves • Up to 4 fertiliser meters • Compact stainless steel structure 80 x 120 x 80 (LxWxD) • Commander EVO GOLD Programmer • Integrated electric pump • Conductivity probe • pH electrode • Power supply: (3 F+N+T) VAC 50 Hz

Installation diagram





Ferticlick[®] Bypass

Backwash programmer Commander EVO Filter

- aspiration 80 - 350 litres/hour
- minimum feed flow rate 130 litres/hour
- Electrical specifications:
- power supply: 12/24 volt DC
- fertiliser meter inlet
- fertiliser valve outlet
- fertiliser pump outlet



Ferticlick[®] Pump

Backwash programmer Commander FLT

- 1 fertiliser with volumetric dosage and proportional to 500 l/h average injection rate at 4 bar
- Insufficient flow rate alarm
- Power supply: 12 VDC • Outputs: 12 VDC

Ferticlick® Bypass



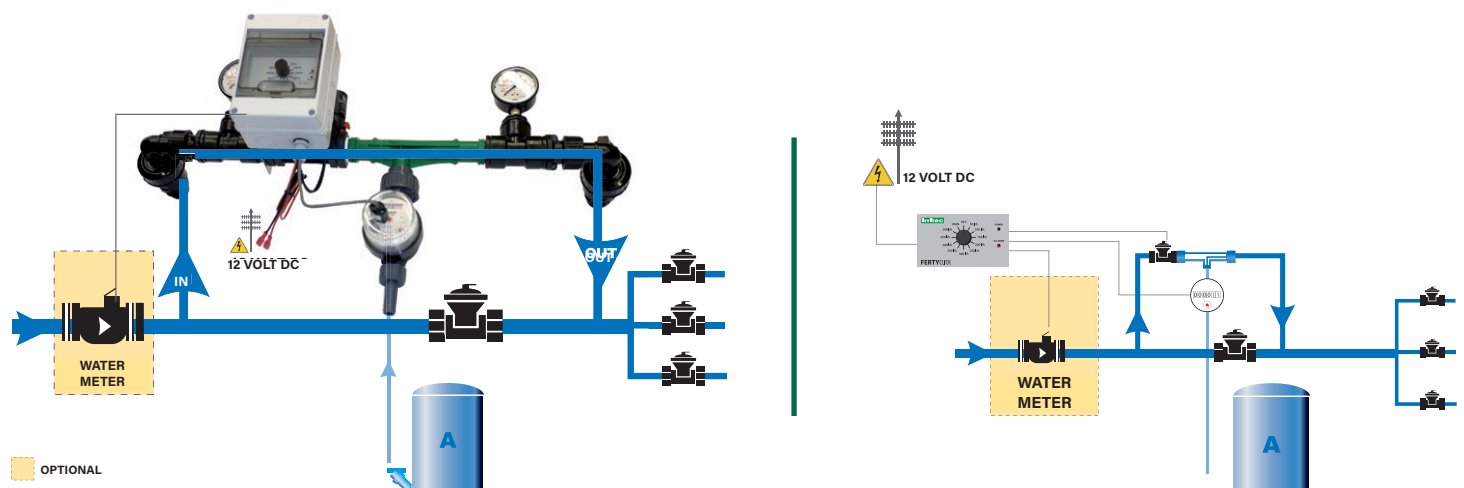
Description

The **Ferticlick® Bypass** is the accurate system for simple proportional or volumetric fertigation of a fertiliser. It consists of an easy-to-program printed circuit board, a venturi bypass, a volumetric meter (10 pulses/litre) and a common solenoid valve. Programming is straightforward, simply set the control area to the desired percentage or volume. For the machine to work on a percentage basis, a meter with a pulse emitter- 100 or 1000 litres per pulse - is required on the main line. Otherwise, injection is volumetric from 50 to 350 l/h. The Ferticlick controller has two LEDs: the green LED confirms operation, while the red LED indicates the flow rate is insufficient to reach the percentage entered.

General Specifications

- Suitable for open field, orchard or extensive horticultural crop applications
- Simple and intuitive thanks to the dosage selection control which can be set with a "click"
- Requires a pressure difference (generates pressure losses)

Installation diagram



Ferticlick[®] Pump



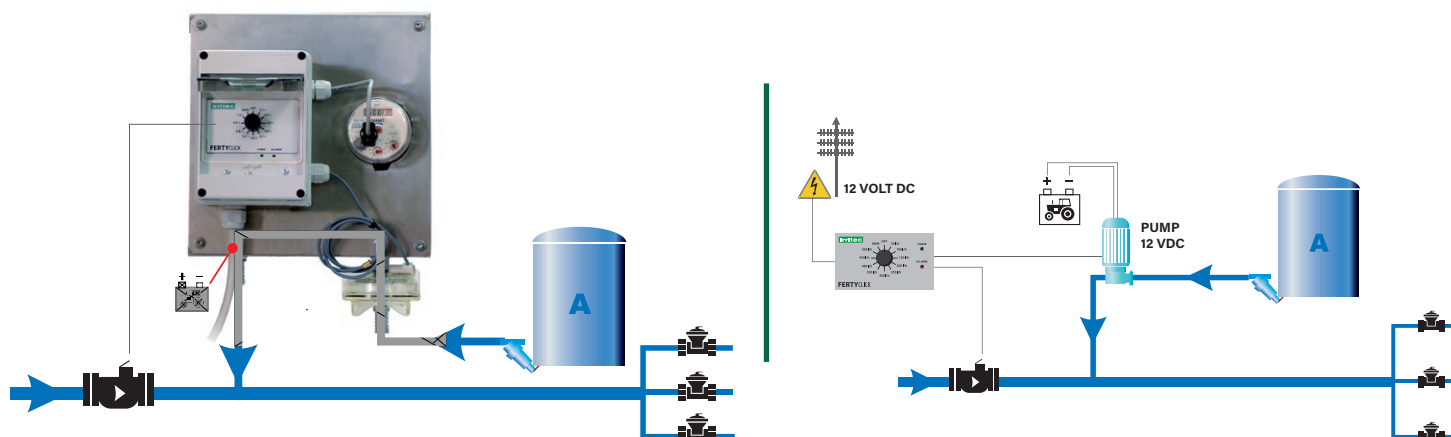
Description

The **Ferticlick[®] Pump** (IJFTK - PUMP) is an accurate system for the simple proportional or volumetric fertigation of a fertiliser. It consists of an easily programmable printed circuit board, a 12 volt gear pump and a volumetric meter (10 pulses/litre). Automatic 12 VDC proportional dosing system

General Specifications

- Suitable for open field, orchard or extensive horticultural crop applications
- Simple and intuitive thanks to the dosage selection control which can be set with a "click"
- Requires a 12 volt power supply

Installation diagram



Fertigation | Semi-automatic dosing systems

Dosabox[®]



Dosabox[®]

2/4 Fert (500 l/h) – Electric pump with stainless steel impeller – EC and pH monitoring - volumetric dosing - premixing tank

Dosabox Junior

2 Fert, 500 lt/h – Two-stroke water pump, 30 m head – EC and pH monitoring - volumetric dosing

Dosabox Junior automatic

2/4 FERT (500 l/h), – Electric pump with stainless steel impeller – EC and pH monitoring - volumetric or proportional dosing

Dosabox Advanced

3 FERT (500 l/h) – Electric pump with stainless steel impeller – EC and pH monitoring - volumetric dosing - premixing tank

Fertigation | Semi-automatic dosing systems

Dosabox[®]



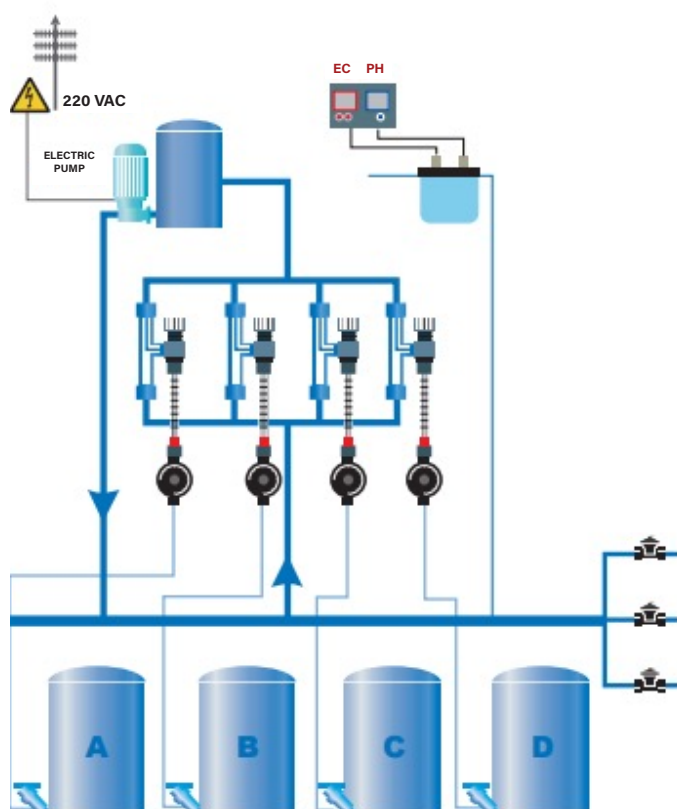
Description

DosaBox[®] is a modular device that can dose 2 to 4 fertilisers volumetrically and adjust the aspiration speed for each of the nutrients used. The presence of flow meters and the pH and EC monitor allows continuous monitoring of the properties of the irrigation water which can be modified by manually adjusting the injection of each individual aspiration channel. **DosaBox[®]** pre-mixes fertilisers so that the nutrient solution is more homogeneous and does not cause drops in pressure on the main pipe.

General Specifications

- From 2 to 4 fertiliser aspiration channels (500 l/h each)
- Deliverable volume from 10 to 500 litres (in intervals of 10 litres) for each channel
- 1.2 Kw electric pump with stainless steel impeller
- Premixing tank
- Continuous monitoring of tank level

Installation diagram



Fertigation | Semi-automatic dosing systems

Dosabox® Junior



Description

DosaBox® Junior is a modular device that can dose 2 fertilisers volumetrically and adjust the aspiration speed for each of the nutrients used. The presence of flow meters and the pH and EC monitor allows continuous monitoring of the properties of the irrigation water, which can be modified by manually adjusting the injection of each individual aspiration channel. **DosaBox® Junior** injects the fertilisers and, thanks to the motorised pump, it does not cause drops in pressure on the main pipe.

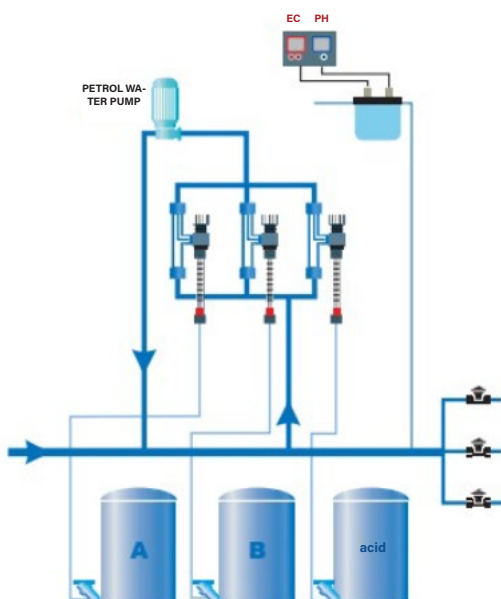
General Specifications

- Suitable for open field applications with no electrical power supply
- Management of a nutritional recipe
- Version without motorised pump

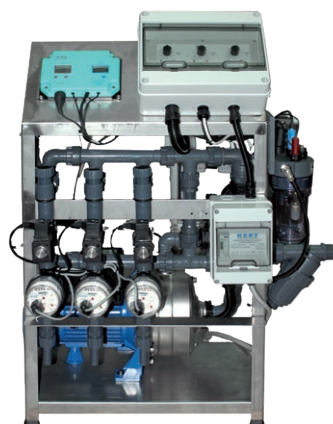
Technical Specifications

- 2 fertiliser aspiration channels (500 l/h each)
- Deliverable volume from 10 to 500 litres (in intervals of 10 litres) for each channel
- Two stroke water pump with 30 m head
- Continuous monitoring of pH and EC
- Easily automatable

Installation diagram



Dosabox[®] Junior Automatic



Description

DosaBox[®] junior automatic is a valuable accessory for all farms that want to approach fertigation in an economical and simple manner. This manual operation fertigator, equipped with a device for automatic proportional management of nutrient injection, offers the user the prospect of optimum results with minimum effort. Simplicity and precision, the **DosaBox[®] junior automatic** is a modular device that allows the volumetric or proportional dosing of 3 fertilisers. The presence of the pH and EC monitor allows continuous monitoring of the properties of the irrigation water which can be modified by semi-automatically adjusting the injection of each individual aspiration channel.

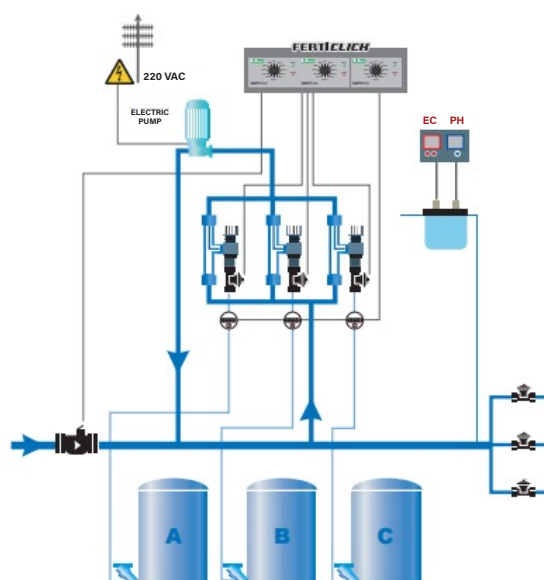
General Specifications

- Suitable for open field and greenhouse applications (not soilless)
- Management of a nutritional recipe

Technical Specifications

- 3 aspiration channels (max 500 l/h) • 3 fertiliser meters (10 pulses/litre) • Injection pump with 304 stainless steel impeller and seals - 220 volt AC (20 l/min at 56 m - 80 l/min at 36 m) • Electric ON/OFF switch and automatic pump control • Display and pH / EC probes • Flow control probe holder with automatic flow control valve • Connections (IN 1" male OUT 1" female) • Inlet filter (5 m³/h with 120 mesh) • Check valve • Dimensions: Height 75 cm Width 66 cm Depth 27 cm • Stainless steel support structure • Proportional dosage (with pulse emitter meter) from 0.1% to 1% • Insufficient flow rate alarm

Installation diagram



Dosabox® Junior Advanced



Description

DosaBox® junior Advanced is a valuable accessory for all farms that want to approach fertigation in an economical and simple manner.

This unit allows recipe management according to an operator-defined formula, automating the injection of nutrients into the water and improving the efficiency and effectiveness of the entire irrigation system. It is possible to start up the fertigation unit in 3 modes: manual, semi-automatic and automatic (e.g. via a common irrigation programmer).

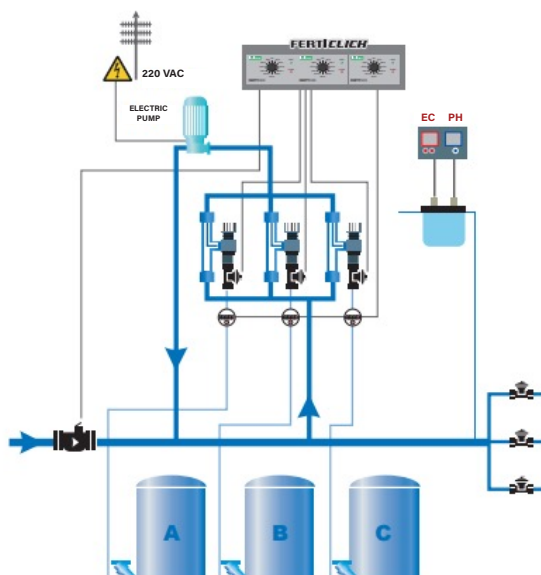
The Commander NPK programmer (supplied), unique in its segment, makes the unit extremely versatile as it allows the user to select the best injection method to use (proportional, by volume or by target EC and PH) depending on the requirements of the crop.

The unit also manages the fertiliser stirrer system and up to 4 digital meters (1 for water and 3 for fertiliser).

General Specifications

- Suitable for open field crops and soilless crops
- Dosage: 3 fertilisers
- Injection mode proportional to flow rate and to pH and EC SET
- Power supply: 230 VAC

Installation diagram



Certifications

System	Brand	Standard / Regulation	Description	Body	Certificate no.
	 	UNI EN ISO 9001:2015	Quality Management System	Kiwa	19303 - A
		UNI EN ISO 14001:2015	Environmental Management System	Kiwa	19303 - E
		UNI EN ISO 45001:2018	Occupational Health and Safety Management System	Kiwa	19303 - I
		UE 952/2013	Authorised Economic Operator	Customs Agency and State Monopolies	IT AEOF 16 1155

Product	Country	Brand	Standard	Description	Body	Certificate no.
	ITALY		UNI 9561:2006	Connecto™ +Ultra	Kiwa	KIP-107560
			UNI 7990:2015	Irritec® BD Genlene® BD drinkable	Kiwa	KIP-107561 KIP-107562
			UNI EN ISO 9261:2010	Drip line Tandem® - Multibar™ C Multibar™ C Rootguard	Kiwa	KIP-107564
				Drip line D5™	Kiwa	KIP-107564
				Drip line Junior®	Kiwa	KIP-107564
				Drip line P1®	Kiwa	KIP-107564
			UNI EN 12201-2:2013	Irritec® - Genlene®	Kiwa	KIP-107557
			UNI EN 1622:2006			
			Italian Ministerial Decree 174:2004			
			UNI EN 15494:2018	Irritec® - Genlene®	Kiwa	KIP-107559
			ISO 8779:2010	Gpipe® - Irripipe®	Kiwa	KIP-107563
	GERMANY		GW 335-B3:2011	Connecto™ +Ultra	DVGW	DW-8616BT0102
	SOUTH AFRICA		SANS 14236:2003	Connecto™ +Ultra	SABS	8357/13262
	SWITZERLAND		TPW 157	Connecto™ +Ultra	SVGW	1103-K 298
	AUSTRALIA		AS/NZS 4129:2008	Connecto™ +Ultra	SAI GLOBAL	WMKA21524
	UNITED KINGDOM		BS 6920-1:2000	Connecto™ +Ultra	WRAS	1712054

Notes



Irritec S.p.A. is a Benefit Corporation

Via Gambitta Conforto, C.da S. Lucia SNC - 98071 Capo d'Orlando (Me) - Italy
Tel. +39 0941 922111 - Fax +39 0941 958807 - www.irritec.com - irritec@irritec.com

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