

**HI 10,000 Series
Overview**



Fully integrated and dynamic PID controller specifically designed for green house industry.

High Capacity Venturi Injectors. Up to 750 l/h (3.8 GPM) of suction.

Industrial grade pH electrode.

Electrical box containing redundant fusing and safety controls.

High speed solenoid valves.

Emergency shut-off capability.

Dual EC probe technology.

Fertigation flow meters.

Wide Range. Flow rate from 5 GPM up to rates exceeding 300 GPM.

8 bolt flange connections for easy installation.

In-line static mixer

High quality circulator pump stainless steel impellar.

Complete Greenhouse Fertigation Control

HANNA, the world's leader in EC and pH control technology has worked with leading growers to develop advanced system solutions for crops of any type. The HANNA Fertigation System provides precise control of pH and fertilizer injection. Unlike flow driven systems of the past, the HANNA Fertigation System constantly measures the actual EC and pH of the water, allowing the system to add the precise concentration of fertilizer directly to the irrigation supply. The HANNA System is a bypass system which does not limit line flow or pressure. This allows the user to accurately inject fertilizer from 5GPM up to 300 GPM.

The HI 8000 series controller included with the system has 10 programs that allow the user to set various EC and pH values for a variety of plants. Each system allows the injection and mixing of up to 4 fertilizers. If preferred, each fertilizer injector can be set to a specific percent, allowing the user to mix combination fertilizers from basic N - P - K elements, providing a considerable cost savings. The HANNA Fertigation System also controls up to 32 irrigation valves for complete automation of the fertigation process.



Quality and Service

The HANNA systems are above all reliable, durable and require little to no maintenance and each unit is backed by impeccable training and support ...just ask our clients!



Fertigation Systems

Irrigation, Fertilization, pH and EC Control



Pro's Choice

HANNA's Fertigation and pH Control Systems can be found in a number of notable greenhouses throughout the USA: Van Wingerden Greenhouses NJ, Gro-Rite NJ, Van Vugt NJ, Michael's Greenhouse CT. Additional installations include such greenhouse leaders such as OVV Greenhouse NJ, and De Groot Greenhouse NJ, Van Wingerden Greenhouses WA.

"We replaced our manual injectors with the HANNA system and are now adding supplemental fertilizers to optimize the nutrients to the plants.

The result is healthier plants and longer shelf life when delivered to our customers".

MARK KELLY

GROWER
Grower Direct Farms
CT USA

"Best mums ever since integrating the HANNA system".

MIKE VANDEVREDE

GROWER
Gro Rite
Lincoln Park, NJ USA

Powerful Features

- **Precise control** via continuous EC and pH monitoring
- **8 to 300 GPM** flow rate range
- **65 to 75 PSI** operating range
- **Bypass system** — unit does not interfere with main line flow
- **3 fertilizer injectors** and 1 minor or (mild) acid
- **Make your own combination fertilizer** — Each fertilizer can be set to a specific percent. Ex: Injector #1 (N = 20%), Injector #2 (P = 10%), Injector #3 (K = 20%)
- **10 programs** for various EC and pH set-points and fertilizer percentages
- **Save money** on fertilizer usage
- **Optimize** the nutrients to your plants
- **Control over 32 valves** — Valves can be controlled sequentially, or x 2, x 3 ...up to x 8 at once
- **Programs can be triggered** by time, external switching, and/or flow
- **Flow activated** to allow for spot watering — timer adjustable
- **Control agitators** and filter cleaning
- **Alarm Control** and Redundant Monitoring
- **GSM compatible** for remote monitoring and control from PC



“The main reason I buy HANNA instruments® is the existence of HANNA all around the world. I work with foreign customers and if they need some pieces to replace, they can go and search these pieces in their home country. HANNA instruments® is always developing and improving their equipment to fulfill market necessities.”

JOSÉ BARATA
ENGINEER, CEO
UPV—Comercial Norte, Lda.
Portugal



Control Panel



1. Fertilizer and acid injection indicators (LEDs)
2. Main pump and alarm indicators (LEDs)
3. Multiple zone valve indicators (LEDs)
4. Touch Keypad
5. Backlit LCD

SPECIFICATIONS	HI 10,000 controller (head unit)
Range	pH : 0.0 to 14.0; EC: 0.0 to 10.0 mS/cm
Resolution	0.1 pH / 0.1 mS/cm
Accuracy (@20°C/68°F)	pH: ±0.0546; EC: ±0.078 mS/cm
Typical Inputs	2 pH electrodes, 3 conductivity probes, 4 fertilizer tanks, 1 acid tank, 5 tank level controls, 1 mixing tank level control, 2 differential pressures, 1 irrigation counter, 1 temporary break, 1 conditional stoppage
Typical Outputs	2 non-consent alarms, up to 32 zone valves, 2 filter flushing, pump, agitator, 4 fertilizer tank electro-valves, 1 pH tank electro-valve
Number of Programs	10
Program Method	With keypad or through a PC using proprietary software
Irrigation Capacity	1, 4, 8 and 32 zone valves
Irrigation Control	time/volume control, 1 to 6 different timetables per program,
Readout	20-digit, 4 level LCD with graphic symbols and messages
Power Supply	115V/220V ±10%; 50Hz/60Hz
Environment	HI 8002: NEMA 4X specifications
Dimensions	Wall mounted: 280 x 330 x 165 mm (11.2 x 13.2 x 6.6"); Panel mounted: 178 x 260 x 115 mm (7.1 x 10.4 x 4.6")
Weight	Wall mounted: 4.95 Kg (11 lb.); Panel mounted: 3.4 Kg (7.5 lb.);

ORDERING INFORMATION

Please contact your nearest HANNA instruments® for more information on how the HI 10,000 can benefit your greenhouse.



Seria HI 8000

Sistem computerizat de control al fertirigării

Reglarea fertilizanților și a acidului în funcție de variația valorilor de pH și EC

Simplitatea programării și eficacitatea funcționării sunt punctele de forță ale controlerelor din seria HI 8000. Una din particularitățile acestor modele este posibilitatea de a controla aciditatea apei pentru irigație prin citirea continuă a valorilor de pH prin intermediul electrozilor instalați pe linia de fertirigare; o altă particularitate este posibilitatea de a doza 4 fertilizanți grație controlului valorilor de conductivitate și a angrenării a 4 electrovalve independente.

Garanția unei citiri corecte este dată de dublul control al valorilor de pH și EC a apei, atât la intrare cât și la ieșire. Sistemul dispune de 10 programe de fertirigare, fiecare din acestea fiind independent și autonom atât pentru valorile de pH/EC cât și în ce privește numărul de sectoare asupra cărora acționează. Activarea fiecărui program poate fi făcută manual, cu temporizare, prin intermediul radiației solare sau cu activare externă.

Sistemul de fertirigare permite de asemenea curățarea filtrelor și controlul complet automat al pompei principale.

Toate modelele sunt dotate cu port de comunicare RS232 pentru conectarea la computer sau pentru control la distanță printr-o rețea GSM (HI 504901).

Caracteristici

- Instalare și punere în funcțiune rapidă
- Multiple puncte de monitorizare on-line, din faza de intrare a apei până în faza de ieșire a acesteia pentru irigație
- Controlul cantității de fertilizant și acid injectat prin monitorizarea valorilor de pH și EC în mai multe puncte
- De la 8 la 32 sectoare de irigare independente
- 10 programe de irigare diferite
- Programe cu activare temporizată, prin comandă externă, prin intermediul unui senzor de radiație solară sau manuală
- Multiple nivele de alarmare disponibile, pentru a garanta un nivel maxim de siguranță și fiabilitate
- Control la distanță cu ajutorul calculatorului

HI 800104 - Software



HI 504901 - GSM





Versiunea de perete



Versiunea de panou

1. Indicatorie injectoare fertilizant
2. Indicatorie pompă și alarme
3. Indicatorie valve de irigare
4. Structură impermeabilă
5. Intrări de conectare
6. Panou pentru consultarea programelor și setarea parametrilor
7. Tastatură numerică
8. Afișaj cu cristale lichide retroiluminat

HI 8000 Series

Fertigation Control Systems

- Fertigation (fertilizer and irrigation) controllers
- Time or volume control with up to 10 irrigation programs for up to 32 sectors
- 4 fertilizer dosing control based on EC, volume or ratiometric
- Agitators controlled
- Filter cleaning detection and control
- Up to 2 pH and up to 3 EC probes connected through analog transmitters
- pH and EC reading temperature compensated on transmitter level
- Solar radiation, wind, temperature sensors
- Power engine back-up management (HI 801X only)
- Mixing input water control (HI 804X, HI 805X)
- Alarms for controlled parameters, water presence, pH or EC out of range and self system diagnostics
- Logging organized on three levels, user selectable
- RS232 connection to PC



Wall Mount

Variety and customization of models

A wide variety of models are available to cover the requirements of specific fertigation applications. The HI 8000 series are fully customizable and upgradable on the hardware and program level.

HI 8000 series models can be selected based on the irrigation and fertilization type of control along with the additional features that are proper for the specific application.

Some of the most important criteria in selection of controller type are: number of irrigated sectors: 8, 16, 24, 32; type of irrigation control: in volume or in time; type of fertilizer control: by EC, by Volume, ratiometric; type of pH correction: acid or alkaline; control

of incoming water: one, two or three sources of water; control of dosing with venturi or motorized electrovalves; redundancy of the conductivity or pH probes; mounting solution: panel or wall mounted.

Irrigation control

Irrigation control differs based on the type of control: by irrigation water volume or by irrigation time; the number of sectors that have to be irrigated, the available sources of water for irrigation - one or more with or without reusing the irrigation drain water.

Irrigation control is started by opening the irrigation valves and starting the main irrigation pump. The control of all these elements is performed by the controller based on concepts of irrigation programs.

Irrigation programs

Up to 10 irrigation programs can be set by the user with different irrigation parameters: irrigation periods, type of irrigation control, irrigated sectors and volume or irrigation time specified for each sector, conditions to start irrigation such as time, accumulated solar radiation, low level in tanks (hydroponic crops), temperature variations, linked to another program, priority of program, number of repetitions. For irrigation water, each program has a defined pH set point, EC set point (if the quantity of fertilizer is dosed according with conductivity), and receipt of fertilizers. Control of agitators is specified by programs according with the irrigation periods.



Panel Mount

Irrigation water

The quality of irrigation water is assured by proper control of pH and the quantity of nutrients (fertilizers) present in irrigation water.

Fertilization control

Fertilizer can be dosed during irrigation using the Venturi tubes principal or with motorized valves. The control of the quantity of dosed fertilizer can be performed using the volume counters. The system supports dosing from up to 4 fertilizer tanks with specific receipts.

The concentration of the fertilizer in irrigation water can be controlled based on the conductivity reading, proportional with irrigation water based on the receipt or ratiometric, in which case the certain quantity of fertilizers are added with the amount of programmed water.

pH control

The pH control is performed in order to adjust the pH of water to the irrigation program set point.

The pH correction can be performed with alkaline or acid solution based on the characteristic of the incoming water.

The control of pH and EC is performed with PID, PI or proportional control. The tuning of the PID control can be accomplished by the user manually, or automatically by the PID auto-tuning feature.

Agitators and filter cleaning

The automatic control of agitators used in fertilizers tanks and filter cleaning system complete the needs of a standard fertigation system.

In order to keep the fertilizer concentration constant before and during the irrigation program, the fertilizers are mixed in their tanks based on the agitators program. The system can manage up to two filters mounted to protect the probes and in-line dosing elements.

With differential presostates, the filters are monitored and when necessary, the irrigation programs are automatically suspended and washer filter cleaning is started. This process removes any deposits and sediments that may appear on filters to increase the systems life.

Redundancy of EC and pH probes

For safety reasons, the systems can be equipped with 2 conductivity probes and two pH electrodes in redundancy so that the system can generate an alarm in the case of reading differences between them. A third conductivity probe can be mounted to verify and compensate the incoming water conductivity.

Logging system

The logging of the controller can be selected on three levels: input reading variations, statistics of reading (average of pH and EC) or events (start of programs, opening valves, ...).

Alarm system

The alarms of these systems are related to measured water quality parameters like conductivity and pH: out of range, differential reading between redundant probes; over dosing of conductivity or acid or alkaline correction solution, tanks at low level or no dosing detected by counter movement. Similar alarms can be generated after the units self-diagnostic tests are run.

Sensor connections

All the sensors: EC, pH, temperature are connected to the controller via transmitters.

pH and EC are temperature compensated on the transmitter level. The output of analog transmitters can be calibrated at two points for pH and conductivity. Also, the controller offers a calibration in two points for pH and one point for conductivity.

User interface and digital connection

The user interface is based on an 4 x 20 character line LCD, organized for settings and consultancy. The UI has multi-language support.

The RS232 connection permits the connection to a PC (dedicated PC software HI 800104).

Internal back-up system

The systems internal back-up power system offers a special feature; in the case of losing external power, the controller will stop the irrigations and memorize the irrigation programs that were not performed. The controller will start from the uncompleted programs after power has been restored. The programs will be executed based on their priority level with full respect of the quantity of irrigation water, pH level, and concentration of fertilizers.

Additional features that can be found are control of the external power supply and control of mixing of different water sources (clean water, drain irrigation water).





HI 8001 and HI 8002 models

The HI 8001 and HI 8002 fertigation controllers provide up to 10 programs to irrigate up to 32 sectors using time or volume irrigation control. Each irrigation program has one pH and one EC setpoint. The start condition of the program, the irrigation sectors and the time or volume for each sector are user defined. The irrigation water is pH corrected based on the pH control, with acid or alkaline solution and can contain nutrients for crops based on up to 4 fertilizer receipts. Correction of time or volume of irrigated water can be based on accumulated solar radiation or can be manually requested by user. Agitator control and filter cleaning control are performed automatically. The instruments read up to 3 EC probes, one to verify the incoming water EC, and the other two are in-line redundant for safety to measure the current irrigation water EC. The two pH electrodes are mounted in-line redundant for safety to read the irrigation water pH. The instruments provide an alarm system and logging organized on user selectable three levels.

HI 8011 model

The HI 8011 fertigation controller provides up to 10 irrigation programs to irrigate up to 16 sectors using volume control. The start condition of the program, the irrigation sectors and the volume for each sector are user defined. The irrigation water is pH corrected based on the pH control, with acid or alkaline solution and can contain nutrients for crops based on up to 4 fertilizer receipts. Fertilizer dosing is performed based on the volumetric control (quantity of fertilizer is dosed in ratio with volume of irrigated water). Another important feature is related to the ability to manage an external back-up power supply. The start of irrigation programs based on the temperature variations (like antifreeze reaction) is also a unique feature offered by this model. Agitator control and filter cleaning control are performed automatically. This instrument provides an alarm system and logging organized on three levels that are user selectable.

HI 8021 and HI 8022 models

The HI 8021 and HI 8022 fertigation controllers provide up to 10 irrigation programs to irrigate up to 16 sectors using time or volume control. Each irrigation program has one pH and one EC setpoint. The start condition of the program, the irrigation sectors and the time or volume for each sector are user defined. The irrigation water is pH corrected based on the pH control, with acid or alkaline solution and can contain nutrients for crops based on up to 4 fertilizer receipts. Fertilizer dosing is performed based on the volumetric control. Additionally, an EC level monitoring/alarm is implemented to stop irrigation should the conductivity exceed the maximum set level in order to avoid damages to irrigated crops. Agitator control and filter cleaning control is performed automatically. The instruments read up to two EC probes redundant in-line for safety to measure the current irrigation water EC. The two pH electrodes are mounted in-line redundant for safety to read the irrigation water pH. The instruments provide an alarm system and logging organized on three user selectable levels.

HI 8051 model

The HI 8051 fertigation controller provides up to 10 irrigation programs to irrigate up to 24 sectors using time or volume control. Each irrigation program has one pH and one EC setpoint. The start condition of the program, the irrigation sectors and the time or volume for each sector are user defined. The irrigation water is pH corrected based on the pH control with acid or alkaline solution and can contain nutrients for crops based on up to 4 fertilizer receipts. Fertilizer dosing is performed based on the EC, volumetric or ratiometric control. Another important feature is the correction of irrigated water volume or time based on accumulated solar radiation or manually requested by user. Agitator control and filter cleaning control is performed automatically. The instrument reads up to 3 EC probes, one to verify the water incoming EC, and the other two redundant in-line for safety, to measure the current irrigation water EC. The two pH inputs are mounted in-line redundant for safety to read the irrigation water pH. This instrument provides an alarm system and logging organized on three user selectable levels. An important added feature is this models ability to mix 3 sources of incoming water. Fresh water, reused water and all dosing are performed based on the motorized valves that are activated by motors that allow different flows of the fertilizers, acid and alkaline solutions used for pH correction.



HI 98143 pH/EC Transmitter

FAMILY	800X	8011	802X	8051
Irrigation control	Time/volume control, 10 programs/5 priority levels with up to 99 repetition			
Irrigation start condition	By Time, by solar radiation, by 5 external tank low level			
Fertilization control	By EC	By volume	By volume, the EC monitored	By EC, By volume, Ratiometric
Fertilizers	Up to 4 valves			Up to 4 motorized valves
pH control/correction	Acid or alkaline	Acid or alkaline, by vol.	Acid or alkaline	Acid or alkaline, motorized pump
Agitators control	Yes	yes	Yes	Yes
Filter control/cleaning	2 differential presostate/2 filter cleaning relays			
Fertilizer tank levels/counters control	Level	No	Counters	Level and counters
Irrigation counter	Yes			
Acid/Alkaline tank level/counter control	Level	No	Counter	Level and counter
EC inputs	Up to 3, 0.0 to 10 mS/cm	No	Up to 2, 0.0 to 10 mS/cm	Up to 2, 0.0 to 10 mS/cm
pH inputs	Up to 2, 0.0 to 14.0 pH	No	Up to 2, 0.0 to 14.0 pH	1, 0.0 to 14.0 pH
Temperature Compensation	EC, pH		EC, pH	EC, pH
Solar radiation input	1; 0 to 2000 W/m ²	1; 0 to 2000 W/m ²	1; 0 to 2000 W/m ²	No
Temperature	No	2	No	1
Wind speed	No	Yes	No	No
Engine power back-up	No	Yes	No	No
Irrigated sectors	Up to 32	Up to 16	Up to 16	Up to 24
Mixing source of water	No	No	No	Yes, 3 sources
PC connectivity	RS 232			
Alarms	Yes, user selectable levels			
Logging	Yes, three level			
Power Supply	115V/220V ±10% 50Hz/60Hz			
Environment	wall mounted: NEMA 4X specifications			
Dimensions	wallmounted: 280 x 330 x 165 mm (11.2 x 13.2 x 6.6"); panel mounted: 178 x 260 x 116 mm (7.1 x 10.4 x 4.6")			
Weight	wall mounted: 4.95 Kg (11 lb.); panel mounted: 3.4 Kg (7.5 lb.)			

ORDERING INFORMATION

Each HI 8000 Series model is supplied instructions.

Choose your configuration:

- HI 8001-0100U Fertigation controller with priority for pH and EC, panel mount, 8 sectors, English, 115V.
- HI 8001-0100D Fertigation controller with priority for pH and EC, panel mount, 8 sectors, English, 230V.
- HI 8001-0200U Fertigation controller with priority for pH and EC, panel mount, 16 sectors, English, 115V.
- HI 8001-0200D Fertigation controller with priority for pH and EC, panel mount, 16 sectors, English, 230V.
- HI 8001-0300U Fertigation controller with priority for pH and EC, panel mount, 16 sectors, English, 115V.
- HI 8001-0300D Fertigation controller with priority for pH and EC, panel mount, 16 sectors, English, 230V.
- HI 8001-0400U Fertigation controller with priority for pH and EC, panel mount, 32 sectors, English, 115V.
- HI 8001-0400D Fertigation controller with priority for pH and EC, panel mount, 32 sectors, English, 230V.
- HI 8002-0100U Fertigation controller with priority for pH and EC, wall mount, 8 sectors, English, 115V.
- HI 8002-0100D Fertigation controller with priority for pH and EC, wall mount, 8 sectors, English, 230V.
- HI 8002-0200U Fertigation controller with priority for pH and EC, wall mount, 16 sectors, English, 115V.
- HI 8002-0200D Fertigation controller with priority for pH and EC, wall mount, 16 sectors, English, 230V.

- HI 8002-0400U Fertigation controller with priority for pH and EC, wall mount, 32 sectors, English, 115V.
- HI 8002-0400D Fertigation controller with priority for pH and EC, wall mount, 32 sectors, English, 230V.
- HI 8011-0200U Fertigation controller with flow control (irrigation counter), panel mount, 16 sectors, English, 115V.
- HI 8011-0200D Fertigation controller with flow control (irrigation counter), panel mount, 16 sectors, English, 230V.
- HI 8021-0200U Fertigation controller with flow control (irrigation counter), pH dosage and EC monitor, panel mount, 16 sectors, English, 115V.
- HI 8021-0200D Fertigation controller with flow control (irrigation counter), pH dosage and EC monitor, panel mount, 16 sectors, English, 230V.
- HI 8022-0200U Fertigation controller with flow control (irrigation counter), pH dosage and EC monitor, wall mount, 16 sectors, English, 115V.
- HI 8022-0200D Fertigation controller with flow control (irrigation counter), pH dosage and EC monitor, wall mount, 16 sectors, English, 230V.
- HI 8051-0300U Acid based fertigation controller with dual pH control, differential EC control, actuator control, multiple dosing and irrigation pump control, panel mount, 24 sectors, English, 115V.
- HI 8051-0300D Acid based fertigation controller with dual pH control, differential EC control, actuator control, multiple dosing and irrigation pump control, panel mount, 24 sectors, English, 230V.

REQUIRED ACCESSORIES

- HI 98143-22 pH/EC isolated transmitter, 4-20 mA sourcing current output
1 transmitter is needed in configuration with 1 EC probe and 1 pH probe (no probe redundancy feature)
2 transmitters are needed in configuration with 2 EC probes and 2 pH probes (for probe redundancy feature)
3 transmitters are needed in configuration with 3 EC probes and 2 pH probes (for probe redundancy feature and EC water incoming compensation)

ACCESSORIES

- HI 1001 "flow-thru", double junction pH electrode with BNC connector and 3 m (10') cable
1 or 2 electrodes are needed (2 electrodes for probe redundancy feature)
- HI 3001 "flow-thru", 4 platinum ring EC probe with built-in temperature sensor & 3 m (10') cable
1, 2 or 3 probes are needed (2 for probe redundancy feature), (3 for probe redundancy feature and EC water incoming compensation)
- HI 60542 Electrode Holder for Direct Pipe
Order according with the total amount of ordered probes
- HI 800104 Windows compatible PC application
- HI 7004L pH 4.01 buffer solution, 500 mL
- HI 7007L pH 7.01 buffer solution, 500 mL
- HI 7039L 5.00 mS/cm calibration solution, 500 mL
- HI 70300L Electrode storage solution, 500 mL
- HI 7061L Electrode cleaning solution, 500 mL
- HI 710005 115 VAC to 12VDC power adapter
- HI 710006 230 VAC to 12VDC power adapter

For a complete list of Solutions, see the end of pH Section 3 and Conductivity Section 6.

HANNA instruments[®] produce o gamă variată de electrozi pH și sonde de conductivitate. Pentru a vedea lista completă, vizitați www.hannainst.ro sau contactați Hanna Instruments Service.

HI 1006-1005

Electrod pH combinat "Flat Tip"

- Pin de referință
- Membrană din sticlă specială
- Corp din PVDF
- Filet extern 3/4" NPT la ambele extremități

Specificații	HI 1006-1005
Jonctiune	din PTFE
Electrolit	polimer
Temperatură	-10 la 80°C
Presiune atmosf. max	6 bar
Conector	BNC
Cablu	5 m



Senzorul cu vârf plat reduce acumularea depunerilor



HI 1002

Electrod pH pentru monitorizare continuă în linie

- Filet 1/2" NPT pentru instalare în linie
- Jonctiune din PTFE
- Referință cu jonctiune dublă
- Corp din PVDF



Specificații	HI 1002
Jonctiune	dublă, din PTFE
Electrolit	polimer
Temperatură	-5 la 80°C
Presiune atmosf. max	6 bar
Conector	BNC
Cablu	3 m (HI 1002/3) 5 m (HI 1002/5)

HI 1090B/5

Electrod pH "Easy"

- Conector BNC
- Instalare în linie sau imersare
- Corp din sticlă



Specificații	HI 1090B/5
Jonctiune	dublă, din sticlă mată
Electrolit	polimero
Temperatură	-5 la 95°C
Presiune atmosf. max	3 bar
Conector	BNC
Cablu	5 m

HI 3001 - HI 3002

Sonde de conductivitate cu 4 inele din platină

- Senzor de temperatură intern
- Instalare în linie

Specificații	HI 3001 - HI 3002
Compensare termică	automată de la 0 la 50°C cu senzor NTC
Corp	PEI și PVDF
Temperatură	de la 0 la 80°C
Presiune atmosf. max	6 bar



HI 7635

Sondă de conductivitate pentru instalare în linie

Specificații	HI 7635
Compensare termică	automată de la 0 la 50°C cu senzor NTC
Corp	polipropilenă
Temperatură	de la 0 la 80°C
Presiune atmosf. max.	5 bar



Suport pentru electrozi

- HI 60542** Suport electrod din PVC pentru electrozi industriali de 3/4" NPT pentru instalare directă în conducte, cu filet de 2 NPT
- HI 6054B** Suport pentru electrozi cu filet 3/4"x16 UNF, pentru conducte
- HI 6054T** Suport pentru electrozi cu filet PG 13.5, pentru conducte

- HI 6050** Suport electrod din PVC, submersibil, pentru electrozi industriali, lungime 605 mm
- HI 6051** Suport electrod din PVC, submersibil, pentru electrozi industriali, lungime 1155 mm
- HI 6052** Suport electrod din PVC, submersibil, pentru electrozi industriali, lungime 1605 mm

- HI 60501** Suport electrod din PVC pentru electrozi industriali cu filet de 3/4", lungime reglabilă, pentru instalare prin imersare
- HI 60503** Suport electrod din PVC pentru electrozi industriali cu filet de 3/4", pentru instalare prin imersare
- HI 60545** Suport electrod din PVC pentru electrozi industriali de 3/4" NPT, pentru instalare în configurații by-pass

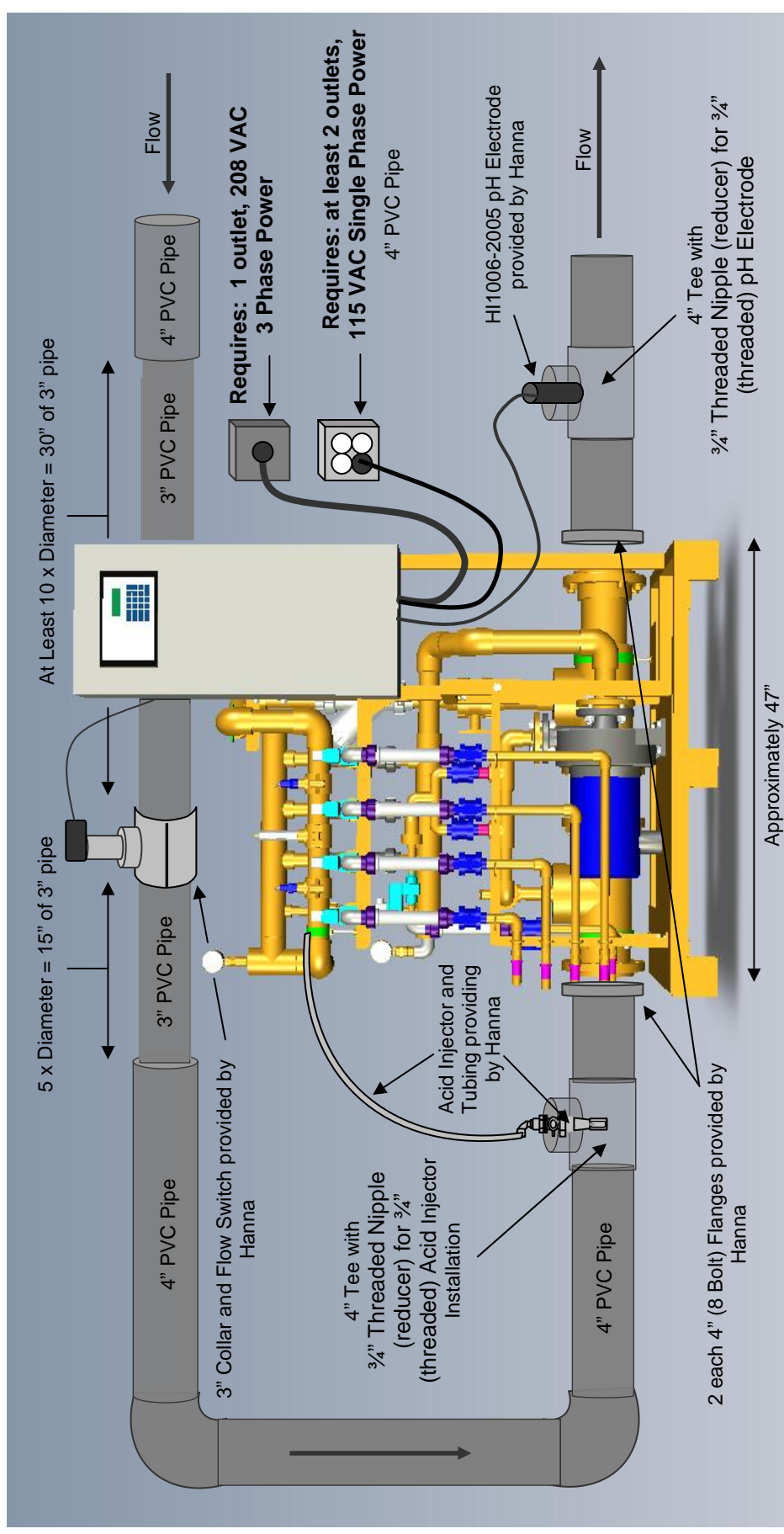
HI10000 INSTALLATION DIAGRAM WITH ACID INJECTION SYSTEM

PARTS AND ACCESSORIES PROVIDED BY HANNA

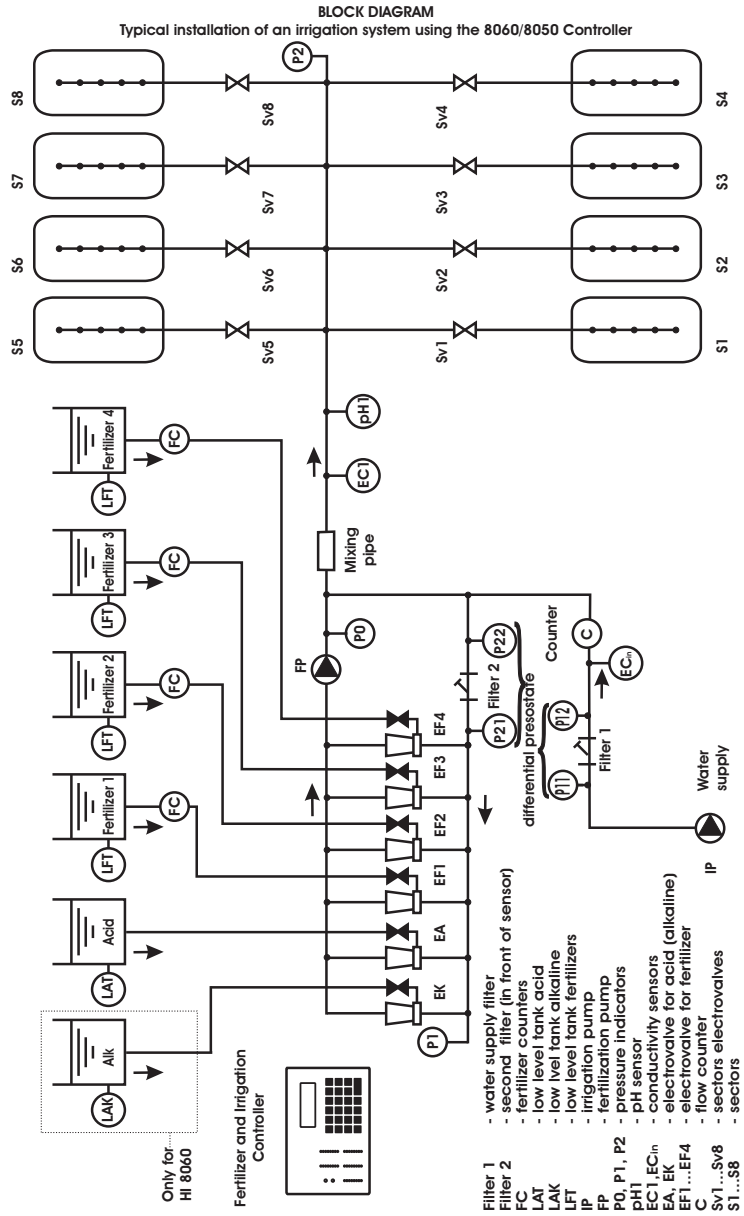
- HI10000 FERTIGATION SYSTEM AS ORDERED
- EXTERNAL FLOW SWITCH WITH 3" COLLAR FOR 3" LINE
- 2 EACH 4", 8 BOLT FLANGES
- ACID INJECTOR, ACID TUBING TO AND FROM FERTIGATOR, PH ELECTRODE FOR ACID, FOOT VALVES, ETC.

PROVIDED BY CUSTOMER

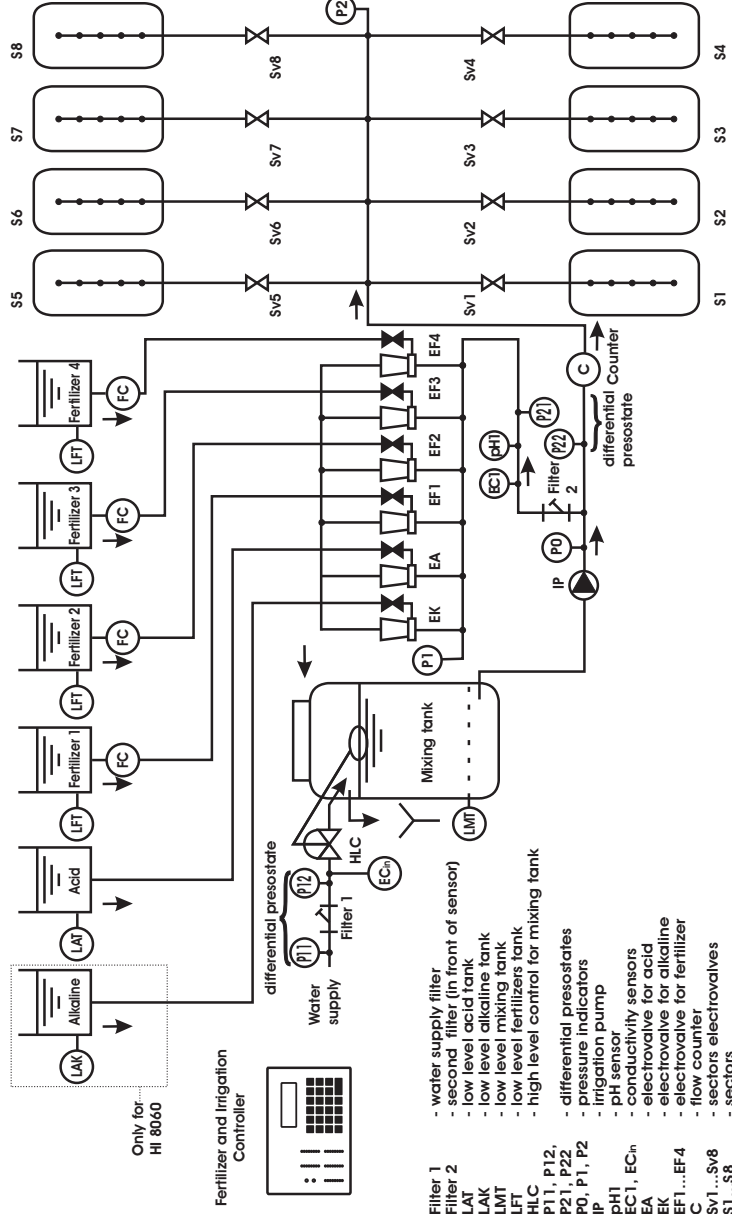
- ALL PVC PIPING AND FITTINGS, VALVES, ETC. TO AND FROM FERTIGATOR
- STRAIGHT RUN OF 3" LINE PRIOR TO FERTIGATOR FOR FLOW SWITCH. AT LEAST 5' OF STRAIGHT RUN.
- 1 OUTLET PROVIDING **208 VAC 3 PHASE POWER**. MUST SPECIFY BEFORE SHIPMENT IF POWER IS 240 3 PHASE.
- 2 OUTLETS PROVIDING 115 VAC SINGLE PHASE POWER. RECOMMEND 1 BOX WITH 4 OUTLETS.
- FERTILIZER AND ACID TANKS, FERTILIZER TANK FILTERS, AND HOSES FROM FERTILIZER TANKS TO FERTIGATOR



INSTALLATION BLOCK DIAGRAM



BLOCK DIAGRAM
Typical installation of an irrigation system using the 8050/8060 Controller



Only for...
HI 8060

Fertilizer and Irrigation
Controller

- water supply filter
- second filter (in front of sensor)
- low level acid tank
- low level alkaline tank
- low level mixing tank
- low level fertilizers tank
- high level control for mixing tank
- differential presostates
- pressure indicators
- irrigation pump
- pH sensor
- conductivity sensors
- electrovalve for acid
- electrovalve for alkaline
- electrovalve for fertilizer
- flow counter
- sectors electrovalves
- sectors
- fertilizer counters

- Filter 1
- Filter 2
- LAK
- LAK
- LMT
- LFT
- HLC
- P11, P12,
- P21, P22
- PO, P1, P2
- IP
- pH1
- EC1, ECn
- EA
- EK
- EF1...EF4
- C
- Sv1...Sv8
- S1...S8
- FC1...FC4