

Application

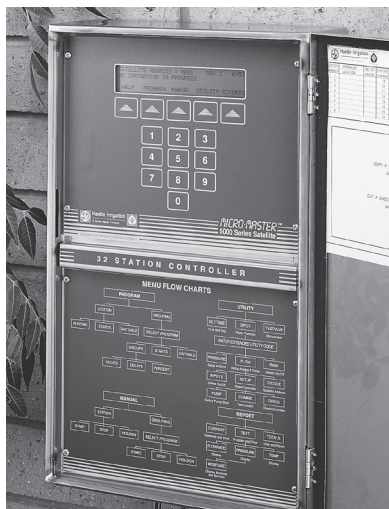
A centrally located computerised control system providing for exact water management at the touch of a button.

Features

- Stand alone operation, pedestal or wall mounted field controllers, networked from a centrally located computer, or operated independently of the central computer if required
- 10 grouping and 32 single station programmes with concurrent operation capability
- 10 valves per group capacity
- With central control installation the MM5000 has the ability to auto-schedule and flow manage irrigation based on ET and the agronomic data for each valve output
- The computer software has the capacity to operate up to 999 individual controllers if required
- Communication is by either underground wiring or radio control
- Software package ensures optimum use watering at all times. An in-built 'flow manager' avoids overloading the system
- Stand-alone weather station (not supplied) can link to the software package
- Software operates on any computer with full IBM compatibility (see computer specification on page 289)

- Up to 14 day programmable calendar with 9 daily cycle repeats per program
- Up to 10 valves per group with a settable run time for manual spot watering
- Internal communication check and set up function for field testing
- Reports on solenoid current, flow testing, run times, and flow and pressure status (optional)

- In-built 'help' facility
- Programs are stored permanently
- Battery back-up keeps accurate time in the event of a power failure
- Password setting for field protection against unauthorised programming adjustments
- Australian Approval Certificate



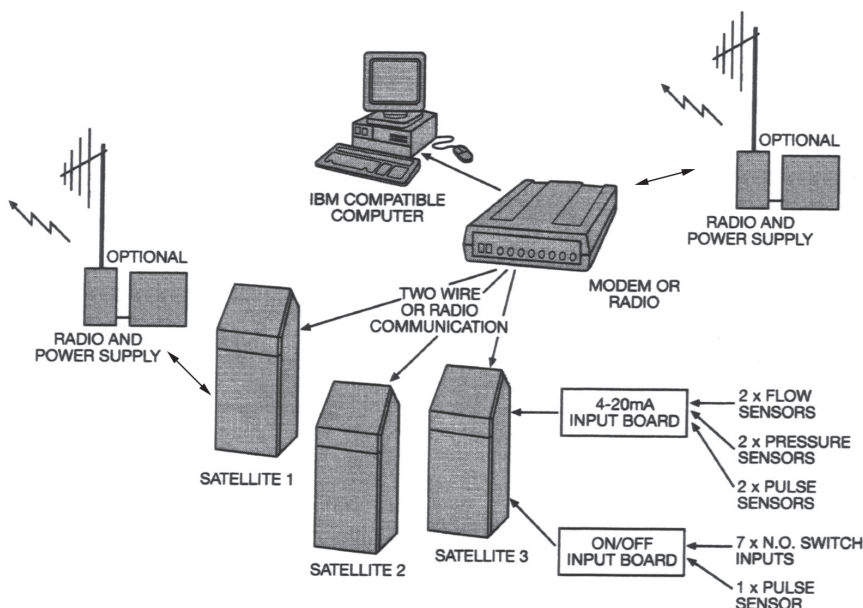
Wall mount controller



Pedestal mount controller

Controllers

- Stainless steel wall mount or pedestal units
- 32 station
- Grouping or single station programs 10 independent grouping programs of up to 10 standard valves per group and 40 groups per program
- 32 Single Station Programs with separate run time, start time and day table for each individual station
- 0-250% percentage global adjustment for fine tuning of programs



Features of the Software

- Windows 98, 2000, ME, XP and VISTA compatible software is graphics based with a main map area
- Ability to zoom down to a secondary level
- The number of secondary levels is user definable
- The status and information can be viewed by moving the mouse over the required icon. All icons are a graphic representation from the main data base that contains all agronomic, sprinkler/emitter, zone pipe size, area and map images and pump databases
- Software is designed for irrigation networks that are radio control and/or 2 wire communication

Flow-managed Programs:

The Flow Manager will create an optimised irrigation program, taking into consideration pump flow, ramp rate, maximum active stations per satellite, zone pipe sizing, and flow velocity. A graph of the irrigation program will then be displayed

Auto-schedule Irrigation:

The Auto-Scheduler calculates the combined loss, each day, of water from both soil and plant surfaces by taking into account different soil types, gradient of slopes, adjustable crop types and prevailing weather conditions. The Flow Manager then creates the irrigation schedule using the valve data base

Single Station Programs:

Single station programs can be useful for operating lights, fountains, BBQ areas

Valve Information Database:

Includes location, sprinkler type, nozzle, arc and flow, sprinkler spacing and efficiency.

There are global adjustments on flow and efficiency

Agronomic Information Database:

Includes soil type, compaction factor, ground slope, root depth and crop factor. Global adjustments on crop factor root depth.

Standard Reporting Functions:

Diary of last 7 day's functions including commands at the PC, activity status and error logs

Real Time Flow and Pressure Sensors:

Shows the real time status of all flow and pressure sensors in the system



Central Computer Operation

Expected Flow Graphs:

Graphically shows the expected flow of irrigation program schedules

Valve Current Reports:

Investigates and reports solenoid valve current for maintenance programs

Totalised Time Reports:

Shows totalised station run times

Flow Reports:

Shows totalised flow or irrigation and auxiliary flow sensors

General Purpose Reports:

Show totalised quantities of ancillary meters

Graphical 24 Hour Reports:

Flow, pressure sensors, valve current, controller power, on/off switches

Group Program Naming Facility:

Programs are named for easy identification at field controller i.e. turf, shrubs, greens, etc.

Satellite Password Protection:

A four digit password to avoid unwanted field tampering

Flow Control Limits:

Fully settable for fault reporting

Rain Switch:

Global rain switching function

Program Validation:

Verifies field controller programs to central system software

Manual Program Start and Stop, Field Status:

On-line field status reports all field controller operations valve, and sensors as they happen

Pump Set-up:

Can control up to ten pumps with ramping rate, and loading factors

Electric Capacity Limiter:

Restricts the maximum number of stations operating at each satellite

Weather Station Control:

Wind and rain alarm functions. High and low temperature program triggers for frost or germination stressing

Agronomic History and Schedule Reporting:

Daily reports of agronomic and watering condition

Global Overrides:

Assists in the fine tuning of the irrigation system

Flow Adjust:

Hydraulic flow adjust percentage for fine tuning by sprinkler

Efficiency:

Sprinkler application efficiency adjustment by sprinkler type

Crop Factor:

Global percentage crop factor adjustment by location name

Root Depth:

Global percentage root depth adjustment by location name

Velocity:

Hydraulic velocity adjustment for flow manager

Technical Data Controllers

- Input Power:

240 volt 50 Hz single phase or 28 volts AC 50 Hz

- Power Consumption:

180 mA at 240 volt 50 Hz (add 25 mA per solenoid)

75 mA at 28 Volt AC 50 Hz (add 25 mA per solenoid)

(Add solenoid inrush current/s for wire sizing)

- Transformer:

27.5 Volt AC 3 amp output, overload protection and secondary thermal 3 amp fuse protection

- Lightning Protection:

Pedestal Controllers: 20,000 Amp/20 µsec. Primary Gas Arrestor, Secondary 6,500 amp/20 µsec, and tertiary 6,500 amp/20 µsec 10 amp relay protection.

Wall Mount Controllers: Primary 6,500 amp/20µsec, secondary 6,500 amp/20µsec 10 amp relay protection.

- Communication Cable:

0.64 mm² poly/poly sheathed two pair communication cable (red/black/blue/white). Always use screened sensor cable. Maximum cable distance is 20 km

- Radio Equipment:

Recommended Maxon Type DM-0500 or equivalent transceivers with power supply, cabling and antennae. Seek local radio equipment suppliers for specific site requirements.

- Flow Sensors:

Signet type 8511 4-20 mA flow transmitters (or equiv). No power supplies required with transmitters

- Pressure Sensors:

Genspec GS 4000 4-20 mA transducers (or equivalent). No power supplies required with transducers

- Pulse Sensors:

Dry contact magnetic pulse sensors from 1 to 99 pulses per flow unit

- Switch Contacts:

Dry N.O. switch contacts

- Cabinets:

Stainless steel wall mount or pedestal units

- Capacity:

32 station

- Programs:

Grouping or single station programs

- Grouping Programs:

Ten independent grouping programs of up to 10 standard Irritrol valves per group, (maximum of 2.5 amps) and 40 groups per program

- Single Station Programs:

For fixed control uses, eg. lighting control, fountains, BBQ areas, etc.

- Percentage Override:

0 to 250% global adjustment per program for fine tuning of programs

- Delays:

Inter-group and cycle delay times

- Cyclic Ability:

Allows up to 9 cycle repeats per program

- Schedule:

14 day schedule per program

- Manual Operation:

With start, stop and hold function

- Manual Spot Watering:

Up to ten valves with a settable run time

- Test Valve:

Manual sequential valve operation

- Self Test Diagnostics:

Internal communications check and set-up function for field testing

- Password Setting:

For protection against un-authorized use

- Standard Reports:

Current: Solenoid current checking to database for field maintenance.

Flow: Flow testing program to database for flow reporting (flow sensors must be installed).

Total Times: Totalised run time reporting database per station.

Instantaneous: Flow and pressure status (optional input boards must be installed).

- Display:

Easy-to-read four row by 40 character self-prompting display

- Help Facility:

In-built help facility

- Permanent Memory:

Programs are stored permanently

- Back-Up Battery:

Keeps time and day in the event of a power failure

- Auto-Reset Transformer:

Temperature overload on transformer to protect system on overload

- Standard Multi-Stage Lightning Protection:

Offering high level protection

Cabinet Dimensions

	Wall Mount	Pedestal
H	485mm	890mm
W	300mm	355mm
D	140mm	330mm

Optional Accessories Controllers

Input Boards:

(Installed into controllers)

4-20mA Flow and Pressure: Up to two analog flow and two analog pressure sensors can be installed per board. There is also capability for up to two pulse flow sensors. This board should be used if instantaneous flow and pressure readings are required.

On/Off Input Board: Up to seven programmable N.O. switches which can be programmed to start, stop, hold and auto-skip programs. There is also the capability of attaching one pulse flow meter to be used for alarming and override functions.

Minimum Computer System Requirements (4000, 4500, 4500 Plus and 5000 Series)

- Speed: 500 mhz or greater
- Memory: 512 MB or greater
- Hard Disc: 40 GB or greater
- Video Card: AGP 8-16 MB or greater
- Monitor: 17 inch or greater
- Modem: Internal 56, no voice, configured to serial port 3
- Additional Serial Ports: 1 and 2
- Parallel Port: 1
- Sound: Yes
- Speakers: Yes
- CD Rom: Yes
- Mouse: PS2 Bus Mouse
- Keyboard

Additional Software Required

- Windows 98, 2000, ME, XP or Vista
- PC Anywhere — to allow remote service of Micro-Master Software

Ordering Information

Code	Description
Micro-Master® 5000 - Wall Mount Controllers, Two Wire Communication Systems	
1013549	5000 Wall Mount Controller, 32 Station, Two Wire Communication
1013568	MM5000 software (Windows)
CMM500080	Modem protection unit
1013563	2 wire termination boards (required to be fitted to the two furthest satellites)
CMM5000301	5000 Series Windows upgrade chip - one per controller
Micro-Master® 5000 - Wall Mount Controllers, Radio Communication System	
1013560	5000 Wall Mount Controller, 32 Station, Radio Communication
1013568	MM5000 software (Windows)
CMM500060	Radio Protection Board
CMM5000301	5000 Series Windows upgrade chip - one per controller
Micro-Master® 5000 - Pedestal Mount Controllers, Two Wire Communication Satellite Systems	
1013547	5000 Series Hardware 32 Station 240 VAC System (to fit pedestal, Code 1013548)
1013548	5000 Series Pedestal (to mount hardware, Code 1013547)
1013568	MM5000 software (Windows)
CMM500080	Modem protection unit
1013563	2 wire termination boards (required to be fitted to the two furthest satellites)
CMM5000301	5000 Series Windows upgrade chip - one per controller
Micro-Master® 5000 - Controllers Accessories	
1013553	5000 Series Screened Sensor Cable - 500 m
1013554	5000 Series Screened Sensor Cable - 1000m
1013542	5000 Series On/Off Input Board (7 Inputs, 1 x Pulse)
1013543	5000 Series Input Board (4-20 mA) (2 x Flow, 2 x Pressure, 2 x Pulse)
1013563	5000 Series Two Wire Termination Board (required to be fitted to the end of Communication Cable runs)
CMM500022	2 Wire Protection Board