



## Waterresource Nemos N200+WMSi Central Control Irrigation Management System

*Developed in South Australia with Councils for Councils*

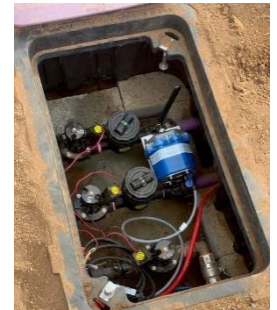
### True Central Control Irrigation for unpowered Irrigated Sites

*Compare the cost of putting in power, above ground infrastructure and comms charges!*

#### Features

Remotely managing 1 to 7 (or 6+mv) DC latching solenoid valves, the Nemos N200+WMSi has additional capabilities to

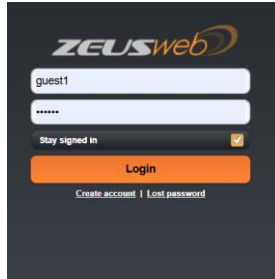
Monitor, record, and report



- **Site water use of water utility meter including**
  - ✓ Daily/Weekly/Monthly automatic email reports showing usage and meter reading to all sites.
  - ✓ Monitors and alarms for Zero Flow/Unscheduled Flow/High Flow of unpowered irrigation sites.
- **Soil moisture**
  - ✓ Alarm notifications for low soil moisture
  - ✓ 'Set & Forget' function to suspend and enable programs based on user defined high and low moisture thresholds.
- **GLOBAL CONTROL!** Imagine being able to turn on and off ALL your DC controllers in 3 clicks! How many man hours will you save, and how much water!?
- **IP68 rated** means the Nemos200+ is not affected by seasonal flooding of valve boxes.
- **Battery life** as much as 10 years subject to configuration
- Multiple alarms for each input, including ZeusMobile notifications, email alarms, and for critical conditions, SMS Alarms to upto 16 recipients all at once or by priority. Restoration message option for a restored condition.
- Retrofit to existing DC latching Valves
- **Pressure monitoring of pipeline option.**
- **Zeusweb** accessible on any internet enabled device with multiple login capability.
- Fully exportable graphs, csv spreadsheets and reports tailored to your requirements.

## Zeus Central Control Platform

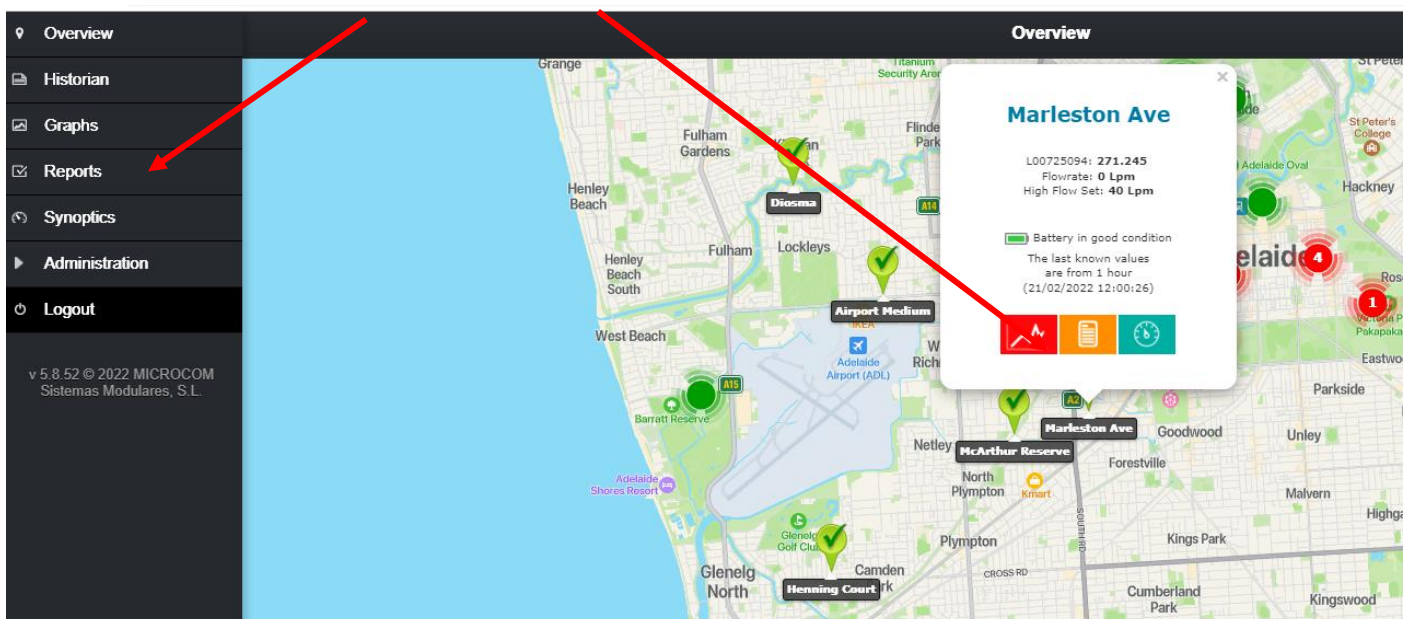
Desktop and mobile device friendly platform giving users in the field easy access to site information and control using the ZeusWeb Map Overview as Central Control,



Secure login from PC, Tablet and Smartphone with ability to set a hierarchy for multiple user access



Desktop “Overview” of individual sites and alarm notifications with quick access to graphs, Historian and Control

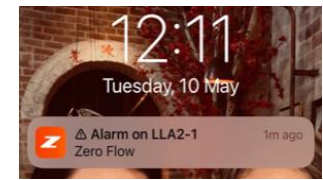
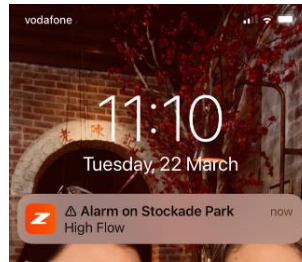




## Alarms & Notifications

Alarms can be Zeus notifications only, as highlighted below on the GIS, along with the ZeusMobile App Notification, and in the case of critical alarms, additional instant SMS notifications can be configured to upto 16 recipients for any input or multiple input alarms. Restoration messages can also be configured.

Upto 4 different Alarm conditions *for every input*.



## Nemos N200+WMSi Thor2

Menu

Byron Bay Blvd

Options

**Water<sup>e</sup>source** Nemos N200+WMSi

MICR.COM

Version v8.82

Byron Bay Blvd

Battery in good condition
 RSSI:99

**Refresh : 09:00 12:00 17:00**  
  
 Last refresh: 06/06/2022 12:00:26  
  
**Meter Read**      6671.98 m3  
  
**Flowrate**            0 Lpm  
  
**Soil Moisture**        30.63 %vmc  
  
**System Pressure**    0 KPa  
  
**High Flow Shutdown Active**    **YES**  
  
 Set & Forget Active

**Program A**  
☒ Programs Enabled      
  
 Start Time 01 : 00  
☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☒ Sat ☒ Sun  
 Station 1            30 min  
 Station 2            30 min

**Program B**  
  
  
 Start Time 00 : 00  
☐ Mon ☐ Tue ☐ Wed ☐ Thu ☐ Fri ☐ Sat ☐ Sun  
 Station 1            0 min  
 Station 2            0 min

**Manual Operation**  
 Manual process press 'Connection Open 15min' and then apply magnet to wake Nemos. Will auto-refresh every 30sec from the top of the clock for 15minutes.
 

May take 60 seconds to start

Menu

Byron Bay Blvd

Options

**Water<sup>e</sup>source** Nemos N200+WMSi

MICR.COM

**Flow Alarms Notifications**  
  
 High Flow Alarm Threshold    150 L/min      
(10 minute settle time)  
  
 Shutdown & Disable on High Flow    **YES**    **NO**

**Soil Moisture Alarms & "Set & Forget" Control**  
  
 Low Soil Moisture Alarm    10 %vmc      
  
 "Set and Forget" Irrigation Control    **YES**    **NO**  
  
 Disable Programs (High %vmc)    30 %vmc      
  
 Enable Programs (Low %vmc)    20 %vmc

Once value set, at next wakeup Nemos will abide by new value, but it will not appear above until subsequent refresh when Zeus confirms it is in the Nemos. All Alarm notifications are triggered by a persistence of 10 minutes after settle time of the condition.

Menu

Byron Bay Blvd

Options

**Water<sup>e</sup>source** Nemos N200+WMSi

MICR.COM

**Help & Links**

**Site Setup**  

+

Set Station Names    1    2  
Coming soon!

Soil Sensor Status    **ON**    OFF

Set Meter Pulse Weight  
☐ 0.5 LPP    ☐ 1 LPP    ☐ 5 LPP    ☐ 10 LPP    ☐ 100 LPP

Set Timezone  
☐ SA    ☐ AET    ☐ WA    ☐ Qld    ☐ NT

Controller Configurations & Synoptics Copyright 2021

## Nemos N200+WMSi Thor7 (7stn or 6+MV)

Menu

Mermaid Reserve

Options

**Water<sup>e</sup>source**
Nemos N200+WMSi

MICR.COM

Version v8.82

Mermaid Reserve

Battery in good condition
 RSSI 99

Refresh : 09:00 12:00 17:00

Last refresh: 06/06/2022 12:01:15

Meter Read 3199m3

Flowrate 0 Lpm

Soil Moisture 19.69 %vmc

System Pressure 0 KPa

High Flow Shutdown Active

Set & Forget Active

Alarms

Set Meter

Help/Setup

Program A

☒ Programs Enabled

Save

Start Time 01 : 00

☒ Mon
☐ Tue
☐ Wed
☒ Thu
☐ Fri
☐ Sat
☐ Sun

Station 1 30 min

Station 2 30 min

Station 3 30 min

Station 4 30 min

Station 5 0 min

Station 6 0 min

Program B

☐ Programs Enabled

Save

Start Time 06 : 00

☐ Mon
☒ Tue
☐ Wed
☐ Thu
☒ Fri
☐ Sat
☒ Sun

Station 1 0 min

Station 2 0 min

Station 3 0 min

Station 4 0 min

Station 5 60 min

Station 6 60 min

Manual Operation

Manual process press Connection Open 15min and then apply magnet to wake Nemos. Will auto-refresh every 30sec from the top of the clock for 15mins.

Connection Open 15 minutes

Test ALL 1 minute

May take 60 seconds to start

Manual 1

STOP 1

Manual 2

STOP 2

Manual 3

STOP 3

Manual 4

STOP 4

Manual 5

STOP 5

Manual 6

STOP 6

Disable Pgms

Enable Pgms



## Galloway Reserve, Christies Beach

From this (Nov2021) to this (March 2022)



## Global Control


All sites irrigation programs can be disabled and re- enabled in 4 clicks ***'Globally'***



## Flow Alarms & Shutdown


The Nemos N200+WMSi is configured for the following Flow Alarms, along with the ability to shut down and disable the programs on high flow.

### 1 High Flow. (User defined)

Once a normal threshold has been determined, a high flow alarm threshold can be set on the Synoptic Control. By default, it will notify the operation via Zeus notification on their mobile device, with an alarm indicator  on the Overview page. (If required, SMSs can also be configured).

To set the value, on the Synoptic control screen, go to the “Alarms” page, ‘Click to Set’, enter value and OK. On the next refresh the logger will receive the new value and react accordingly, however the value will not update on the control synoptic until the second refresh when Zeus reads the logger again to confirm it is in the logger.

#### Alarm Only option

The alarm notification will remain  until it is acknowledged, or after 12 hours. Programs will remain enabled so will continue to run on programs.


#### High Flow Shutdown

If selected, Zeus will close ALL VALVES and disable all programming and alarm.

You will need to re-enable programming when ready to. The alarm will stay in the red state until you have re-enabled the programming or acknowledged as “Read”.

“Set & Forget” will also be disabled.

### 2 Zero Flow.

When an irrigation valve is programmed to run and there is no flow for >10mins, a Zero flow condition is registered. The alarm notification will remain  until it is acknowledged, or after 12 hours.

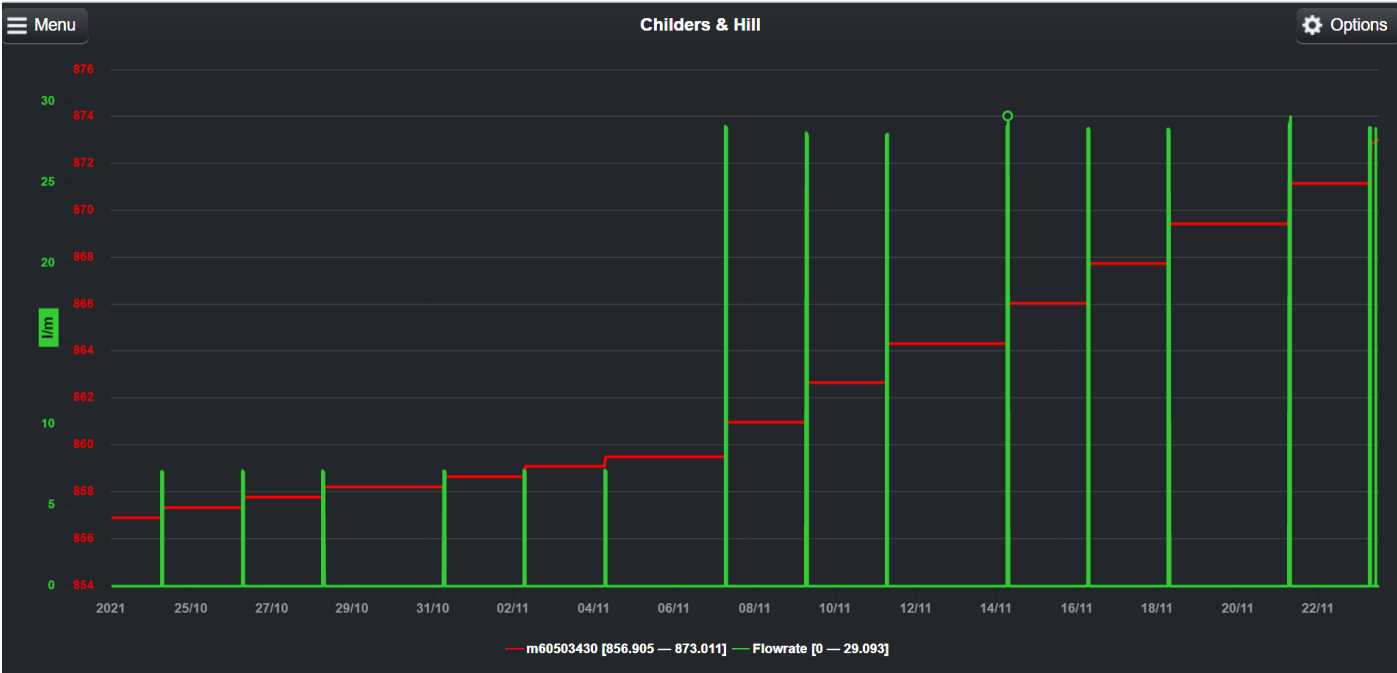
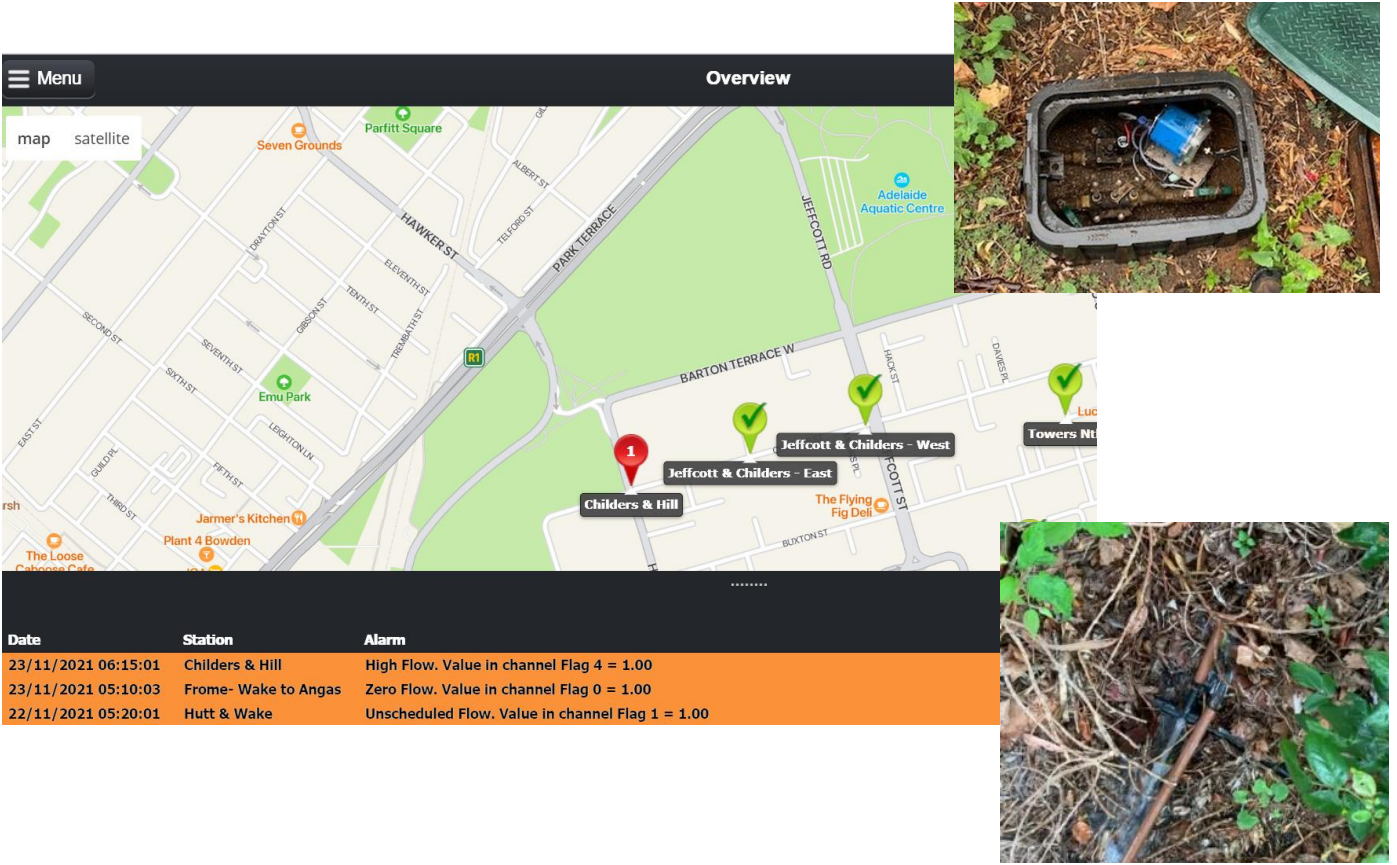
### 3 Unscheduled Flow.

Where there is flow >10mins outside of an irrigation program i.e., valve stuck, on, leaking, or unauthorised bleeding of a valve.

A restoration notification will be sent if condition returns to normal for a minimum of 10 minutes.

For a continual chronic leak, on the next irrigation it will restore, but then if after the program is finished the leak continues, it will alarm again as unscheduled flow.

Flow alarm examples for both chronic and high flow



## Set & Forget Valve Control - Soil Moisture Management

'Set & Forget' is available on the Thor2 & 7 versions of the Nemos N200+WMSi and utilizes an attached soil moisture sensor to suspend (disable) and re-enable the irrigation programming based on a user defined high and low soil moisture thresholds.

The principal use of this system is to act like an 'inground' rain sensor to minimize unnecessary watering during rain events in irrigation season or suspend the controller should you forget to turn off the programming during winter.

The SMT-100 Soil Moisture and Temperature sensor allows for effective rootzone monitoring and alarming.  
The SMT-100 is suitable for any soil type and requires no on-site calibration.  
(Other analogue soil sensors may be used subject to their compatibility)



Once the correct understanding of the moisture sensor location and of the soil moisture holding ability and crop demand, this function can also be utilized during the season to suspend programs when the soil moisture reaches your chosen 'full' level and re-enable irrigation programs when the soil moisture reaches your low refill point.

For this purpose, we recommend running programming for a couple of weeks to gain data whilst observing site conditions before setting levels.

Remember that all programs and stations will be disabled and re-enabled together, so if using on a 7 station system, it is advisable to monitor later stations.  
(Otherwise, if on station1, when disable occurs during irrigation of station1, subsequent stations will not get any irrigation).

Note that should the high threshold point be recorded 'mid Irrigation' all programming will be turned off and disabled at that time.

Here is an example of settings

A high threshold of 30%vmc and a low threshold of 20%vmc has been input.

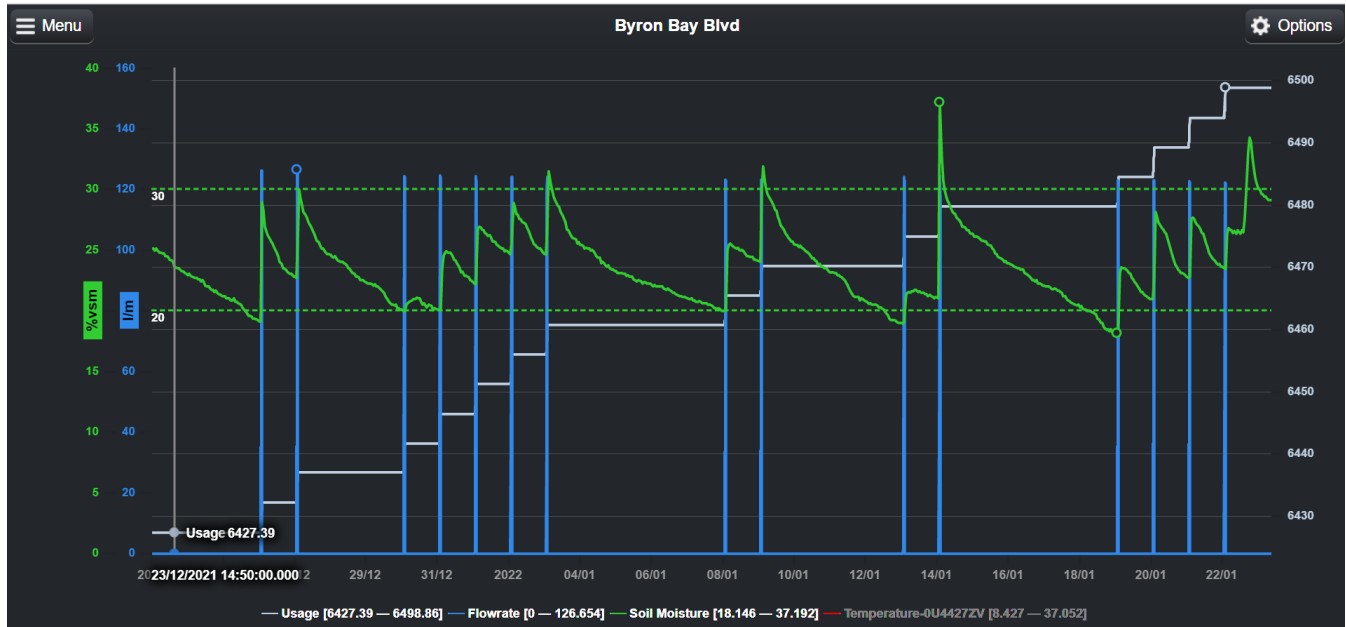
Note also there is also a fall-back alarm for a low soil moisture level to protect plant health against hardware fault or water supply issues that may have been overlooked from a zero-flow alarm, or low flow condition.

Once reaching the high moisture threshold (30%vmc), programs are disabled as indicated, and will not be re-enabled until breaching the low threshold (20%vmc).



Below are the results from the previous month.

Soil Moisture in Green, irrigation events in Blue. Dotted green lines are Enable/Disable thresholds.

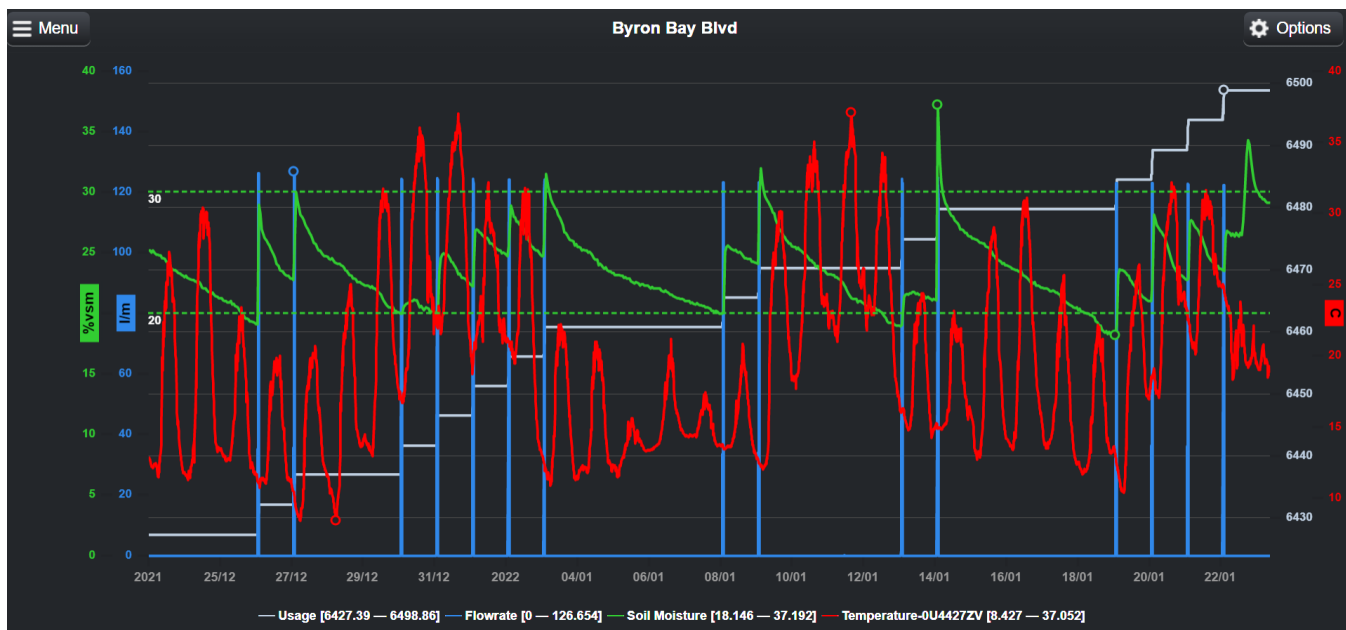


Now to show a correlation with actual air temperatures.

Temperature data from a neighbouring weather station (20Km away) has been overlayed in red.

You can see that when the daily temperature rose, the irrigation (in blue) was required nightly to keep moisture levels at the status quo, and when daily temperatures dropped to below 21C, soil moisture drops slowed, nightly irrigation was not required.

(Weather station located 25km away in Adelaide Hills so Nemos site temperatures would typically be 3 to 4C higher than those displayed)



## Easy to Follow wiring Schematics

All required connectors supplied with easy-to-follow instructions.

## Water**e**source

[www.wateresource.com.au](http://www.wateresource.com.au)

ABN 54 095 023 975

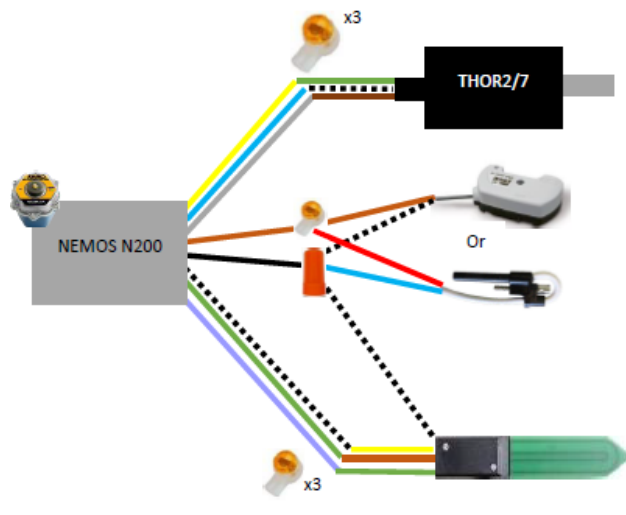
Use supplied and recommended nuts/connectors



### Nemos N200+ Wiring Instructions

**MAKE ALL WIRE CONNECTIONS BEFORE CONNECTING CABLE TO THE NEMOS**

..... Represents WHITE



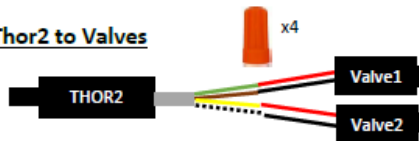
Nemos N200+	Thor
Yellow	Green
Blue	White
Grey	Brown

Nemos 200+	Cyble	V100
Brown +	Brown	Red
Black -	White	Blue

Nemos N200+	Moisture & Temp
Green	Brown (+)
White	Yellow (M)
Purple	Green (T)
Black	White (Gnd)

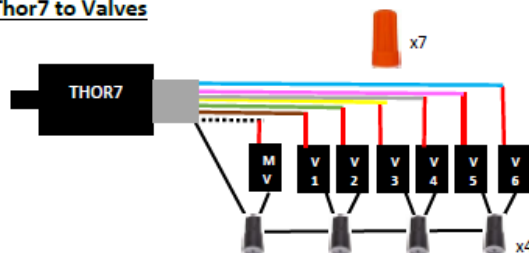
NOTE: Water meter pulse output & soil moisture sensor share BLACK ground of Nemos.  
Strip back 10mm, pre-twist and trim, and use orange wire nut provided.

### Thor2 to Valves



Thor2	Valves 12vDC
Green	V1 Red+
Brown	V1 Black-
Yellow	V2 Red+
White	V2 Black-

### Thor7 to Valves



Thor7	Valves 12vDC
White	MV Red+
Brown	V1 Red+
Green	V2 Red+
Yellow	V3 Red+
Grey	V4 Red+
Pink	V5 Red+
Blue	V6 Red+
Black	Common GND

85 Vicks Road IRONBANK SA 5153, AUSTRALIA - Phone 08 8388 2042 - Mobile 0438 336148 - [geoff@wateresource.com.au](mailto:geoff@wateresource.com.au)

Automatically emailed Usage Reports Daily/Weekly/Monthly to multiple email addresses in both pdf and csv.



## Report Battery Nemos Irrigation Sites (Monthly) from 22/01/2022 to 21/02/2022

0

	Station	Channel	Unit	Consumption	Meter Read Start of Period	Start of Period	Meter Read End of Period	End of Period
				<b>Total = 9631.971</b>				
Global	KW Tram 34 (5827)	96050070	m3	42.549	146.172	22/01/2022 00:00:00	188.721	21/02/2022 06:30:02
Global	KW Tram 12 (6281)	M3070000478	m3	54.113	6806.121	22/01/2022 00:00:00	6860.234	21/02/2022 07:00:02
Global	Kintore Ave (727859)	K51225161	m3	1147.3	10183.86	22/01/2022 00:00:00	11335.065	21/02/2022 15:00:00
Global	Montefiore Hill (10388)	K51225090	m3	138.865	267.325	22/01/2022 00:00:00	407.065	21/02/2022 08:00:00
Global	Tynte & Tower (752220)	kk8090245	m3	3.85	364.34	22/01/2022 00:00:00	368.19	21/02/2022 06:30:02
Global	Tynte & OConnell (752425)	kk8010385	m3	5.88	333.98	22/01/2022 00:00:00	339.86	21/02/2022 06:30:02
Global	Tynte & Mansfield (752128)	k61025304	m3	19.135	676.336	22/01/2022 00:00:00	695.471	21/02/2022 07:00:02
Global	Tynte & East of Margret (9461)	m61201727	m3	21.126	6835.2	22/01/2022 00:00:00	6856.326	21/02/2022 06:35:00
Global	Tynte & Curtis (9467)	w60200228	m3	29.786	37.906	22/01/2022 00:00:00	67.692	21/02/2022 06:00:02
Global	Tynte & Centenary (9487)	k80700639	m3	15.405	253.73	22/01/2022 00:00:00	269.135	21/02/2022 07:00:02
Global	Tynte & 88 OConn. (9490)	w01200391	m3	19.692	426.303	22/01/2022 00:00:00	445.995	21/02/2022 07:35:00
Global	Towers Nth (8839)	M505020194	m3	24.95	2526.551	22/01/2022 00:00:00	2551.501	21/02/2022 05:30:00
Global	St Helena (754238)	KK8030047	m3	5.95	170.07	22/01/2022 00:00:00	176.02	21/02/2022 06:30:02

G19										
4508.71										
	A	B	C	D	E	F	G	H	I	J
1	From	To	Station	Channel	Unit	Consumption	Meter Read Start of Period	Start of Period	Meter Read End of Period	End of Period
2						Total = 9631.971				
3	Global		KW Tram 34 (5827)	96050070	m3	42.549	146.172	22/01/2022 0:00	188.721	21/02/2022 6:30
4	Global		KW Tram 12 (6281)	M3070000478	m3	54.113	6806.121	22/01/2022 0:00	6860.234	21/02/2022 7:00
5	Global		Kintore Ave (727859)	K51225161	m3	1147.3	10183.86	22/01/2022 0:00	11335.065	21/02/2022 15:00
6	Global		Montefiore Hill (10388)	K51225090	m3	138.865	267.325	22/01/2022 0:00	407.065	21/02/2022 8:00
7	Global		Tynte & Tower (752220)	kk8090245	m3	3.85	364.34	22/01/2022 0:00	368.19	21/02/2022 6:30
8	Global		Tynte & OConnell (752425)	kk8010385	m3	5.88	333.98	22/01/2022 0:00	339.86	21/02/2022 6:30
9	Global		Tynte & Mansfield (752128)	k61025304	m3	19.135	676.336	22/01/2022 0:00	695.471	21/02/2022 7:00
10	Global		Tynte & East of Margret (9461)	m61201727	m3	21.126	6835.2	22/01/2022 0:00	6856.326	21/02/2022 6:35
11	Global		Tynte & Curtis (9467)	w60200228	m3	29.786	37.906	22/01/2022 0:00	67.692	21/02/2022 6:00
12	Global		Tynte & Centenary (9487)	k80700639	m3	15.405	253.73	22/01/2022 0:00	269.135	21/02/2022 7:00
13	Global		Tynte & 88 OConn. (9490)	w01200391	m3	19.692	426.303	22/01/2022 0:00	445.995	21/02/2022 7:35
14	Global		Towers Nth (8839)	M505020194	m3	24.95	2526.551	22/01/2022 0:00	2551.501	21/02/2022 5:30
15	Global		St Helena (754238)	KK8030047	m3	5.95	170.07	22/01/2022 0:00	176.02	21/02/2022 6:30

1

## Weekly Usage Checks to keep on top of off-season leaks.



Report Weekly Usage and Meter Reads - Streetscape from 02/05/2022 to 08/05/2022

0

	Station	Channel	Unit	Period Usage (kL)	Meter Read Start of Period	Min date	Meter Read End of Period	Max date
				<b>Total = 36.25</b>				
Global	Wainhouse West	Usage	m3	3.974	162.671	02/05/2022 00:00:00	166.758	05/05/2022 02:05:00
Global	Wainhouse East	Usage	m3	2.57	139.83	02/05/2022 00:00:00	142.487	04/05/2022 01:10:00
Global	Sherwin	Usage	m3	0	0 (= max)	02/05/2022 00:00:00	0 (= min)	02/05/2022 00:00:00
Global	Orwin	K40401343	m3	0	0 (= max)	02/05/2022 00:00:00	0 (= min)	02/05/2022 00:00:00
Global	Marleston Ave	L00725094	m3	17.02	417.08	02/05/2022 00:00:00	434.1	08/05/2022 10:30:00
Global	Henning Court	L00625154	m3	0	36.25 (= max)	02/05/2022 00:00:00	36.25 (= min)	02/05/2022 00:00:00
Global	Eltham	Usage	m3	0	0 (= max)	02/05/2022 00:00:00	0 (= min)	02/05/2022 00:00:00
Global	Atlantic Reserve	M50503359	m3	0.006	2.946	02/05/2022 00:00:00	2.952	07/05/2022 18:25:00
Global	West Beach Road	WBR Usage	m3	8.21	23044.105	02/05/2022 00:00:00	23052.315	04/05/2022 11:50:00
Global	Airport Medium	Airport Usage	m3	3.285	5397.465	02/05/2022 00:00:00	5400.75	05/05/2022 14:00:00
Global	Diosma	Usage	m3	1.185	4118.05	02/05/2022 00:00:00	4119.235	03/05/2022 23:00:00

## What your peers think of the Wateresource Nemos N200+WMSi?

(Here's a couple. After all, they helped build it!)

Adam Gunn, City of Adelaide Technical Officer Irrigation & Horticulture	0438 867681
Scott Murray, City of Onkaparinga Operational Sustainability Officer	0416254952
Dave Ward, City of West Torrens, Work Group Leader, Turf & Irrigation	0418 827046
Simon Ruminski, City of Mitcham, Team Leader, Parks & Sportsground Maint.	0488 101846
Nick Pettigrew, City of Gawler, Supervisor Horticulture, Parks & Ovals	0439 626157

Cheers

Geoff Zerna

Wateresource

0438 336148