



## World First Non-Proprietary Cathodic Protection Control System

MicroNex systems offers the first global industrial non-proprietary components for cathodic protection control systems.



## Modular Smart Designs

Reliable, Simple to operate, compact, highly efficient, low heat modular designed DIN rail components.



## Full Manual + Remote Monitoring and Control

All systems operate in full manual mode with optional software free web remote monitoring and control configurations.



## Full-Service Support

Optional full commissioning, monitoring and maintenance services. Our team can assist remotely or onsite all-around Australia.



## Australian Manufactured

Quick turnaround times. Systems are designed and assembled in Australia incorporating the latest technology from around the world.



## Compliant with:

TfNSW QA Specification B361D

Australian Standard AS 2832.5—2008 (R2018)

Technical Report No. 73 Cathodic Protection of Steel in Concrete



## System Configurations

MicroNex systems have been designed to be simple, easy to use and reliable. All MicroNex components are self-isolated and can be manually monitoring and tested onsite with no software.

MicroNex systems can provide a range of integrated smart, simple web-site monitoring solutions. These remote solutions work in conjunction with the manual onsite system. Manual functionality is always maintained regardless of any potential issues with remote communication. MicroNex Systems can provide system with the following configurations:

### 1. Manual System

Full manual monitoring and control functionality. Full control of each power supply via its own front display.



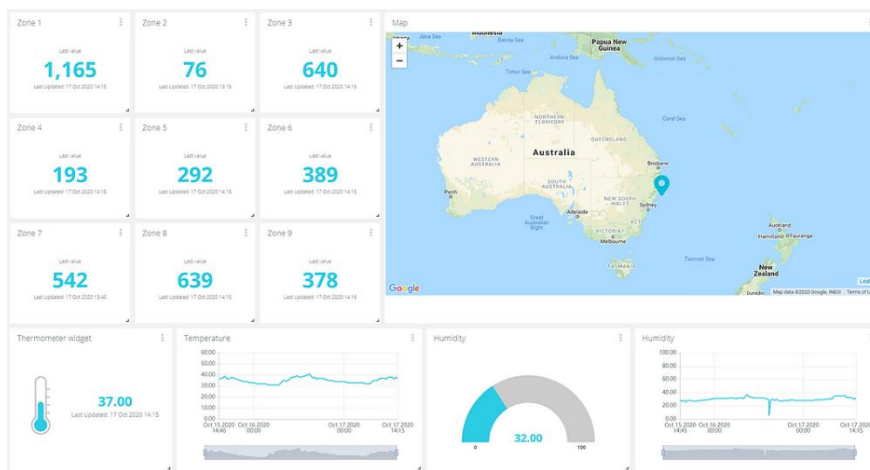
Power Control Unit Interface

### 2. Manual System + Remote Monitoring

Manual system with the addition of cloud based remote logging of voltage, current, temperature and humidity. Simply website link for viewing.

### 3. Manual System + Remote Monitoring + Control

Manual system with full remote-control capability. Website link for system viewing, testing and adjustment.



Remote Monitoring Dashboard

## Enclosures

MicroNex Systems can be installed in existing electrical cabinets (replacing an existing system) or fully assembled in new enclosures.

When provided with the technical requirements, MicroNex Systems will provide suitable sizing options.

We use different suppliers to source the most suitable enclosure for each system. Some examples of commonly supplied enclosures are:



316 Stainless Steel IP66



GRP Fibreglass Enclosure IP66



Specialty IP66 (Mining)

## Power Control Units

MicroNex Systems offers two power control units (PCUs) based on current output requirements.

**PCU5** – 0 - 5 Amp output (up to 50V (10V recommended))

**PCU20** – 0 - 20 Amp output (up to 50V)

All MicroNex PCUs are powered by Meanwell AC to DC power supplies. These are installed alongside each PCU. The model of Meanwell AC to DC power supply is determined by the output requirement of each zone.

### PCU5 and PCU20 Features:

- DC input power controller
- Constant current/constant voltage
- Current and voltage limiter
- Highly efficient ultra-low heat generation
- Low ripple
- Full control from front panel interface
- 1.44-inch wide angle front panel colour LCD
- Screw terminal plug connector for easy installation (PCU5)
- Screw terminal plug connector for communication (PCU20)
- Spade terminal connector for DC input and output (PCU20)
- Custom 3D printed enclosures
- Communication protocol: RS485 MODBUS RTU
- Standard 35mm Din-rail Installation



PCU5

### Technical Specification

	PCU5	PCU20
Output Current	0 – 5A DC	0 – 20A DC
Output Voltage Range	0 – 50V DC	0 – 50V DC
Output Current Resolution	1 mA	10 mA
Output Voltage Resolution	10mV	10mV
Output Current Accuracy	± (0.5% + 5 digits)	± (0.5% + 5 digits)
Output Voltage Accuracy	± (0.5% + 3 digit)	± (0.5% + 3 digit)

A compatible Meanwell AC to DC power supply is installed for each PCU. The AC to DC power supply is selected based on the PCU output current and voltage requirements.

Terminals						
1	2	3	4	5	6	7
V+ In DC	V- In DC	RS485 - A	RS485 - B	RS485 - GND	V- Out DC	V+ Out DC

## Relay Timer

All MicroNex PCUs have a built-in interrupter. For multizone systems a common timer relay is used to interrupt all zones simultaneously. One Relay Timer is commonly installed in each cabinet.

MicroNex Relay Timer is a simple programmable timer designed to drive relay bays. Built-in single channel RS485 Modbus controlled relay for remote interruption.

- Dual digital display relay timer
- Timing range: 0-999s, 0-999m, 0-999h
- 12VDC Input
- Sends 12V DC output to any 12V DC relay / relay bay
- Front panel ON/OFF switch
- Custom 3D printed enclosure
- Communication protocol: RS485 MODBUS RTU
- Standard 35mm Din-rail Installation with pluggable terminal



Terminals						
1	2	3	4	5	6	7
V+ In DC	V- In DC	RS485 - A	RS485 - B	-	V- Out DC	V+ Out DC

## Manual System + Remote Monitoring



### Remote Communication

An industrial commercially available (Teltonika) 3G/4G modem is installed in each cabinet providing remote communication functionality.

A SIM card (managed and maintained by MicroNex Systems, operating on the Telstra network) is pre-installed in the modem. All new MicroNex units are provided with a standard one-year subscription.

Following this period, a maintenance fee will be required to maintain the remote monitoring and control service. These services include access to cloud dashboard (enables remote logging, alarms, easy online web access), DDNS service, M2M sim card cost, 24/7 sim card data usage monitoring and control, basic system functionality monitoring, and remote software updates. It is recommended that the communication service is maintained with MicroNex System.

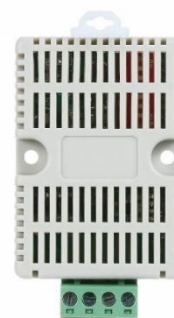
In case the remote monitoring/control service is not maintained, the CPCU remains fully operational on manual mode. With our non-proprietary components, the SIM card can be replaced, and remote communication maintained by the client.

### Temperature and Humidity Sensor

Each MicroNex System can be installed with one or more internal cabinet temperature and humidity sensors.

#### Features:

- Temperature range:  $-40\text{ }^{\circ}\text{C} \sim +60\text{ }^{\circ}\text{C}$
- Humidity range:  $0\% \text{ RH} \sim 80\% \text{ RH}$
- Temperature accuracy:  $\pm 0.5\text{ }^{\circ}\text{C}$  ( $25\text{ }^{\circ}\text{C}$ )
- Humidity accuracy:  $\pm 3\% \text{ RH}$
- Temperature resolution:  $0.1\text{ }^{\circ}\text{C}$
- Humidity resolution:  $0.1\% \text{ RH}$
- Communication protocol: RS485 MODBUS RTU
- Standard 35mm Din-rail Installation with pluggable terminal
- Input Power: 5-30VDC
- Power consumption:  $\leq 0.2\text{ W}$



Terminals			
1	2	3	4
RS485 - B	RS485 - A	V- In DC	V+ In DC

# Manual System + Remote Monitoring + Control



## MicroNex Computer

Each MicroNex system with full remote monitoring and control utilises a remote communication computer. The onsite computer communicates with all RS485 components and acts as a webserver. All software related to the system is located on the onsite PC. There is no reliance on any external systems.

### Features:

- Standard Din-rail mounted
- Lan connection for remote access via modem



## AD Modules

MicroNex systems utilise analog to digital (AD) modules for the measurement of reference potentials for systems with remote monitoring and control. Each module consists of 8 fully isolated channels.

### Features:

- 8 channel / reference isolated input
- Up to 400VAC opto-coupler relay isolation
- High impedance
- Communication protocol: RS485 MODBUS RTU
- Standard 35mm Din-rail installation with pluggable terminals
- Input Power: 9-36VDC
- Device power consumption: <=1W



Power/Communication Terminals			
1	2	3	4
V+ In DC	V- In DC	RS485 - A	RS485 - B

Reference Terminals (Channel)															
1		2		3		4		5		6		7		8	
+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-



## Order Form

It is highly recommended that the cathodic protection design drawings detailing the cathodic protection control unit requirements is provided. In the case that the design drawings are not available, the following information will be sufficient to quote a system.

- Enclosure:
  - IP rating (commonly IP66):
  - Enclosure materials (commonly 316SS):
  - Mounting type (commonly wall mounted):
  - Any other requirements (pad-lockable):
- PCU:
  - Number of circuits/zones:
  - Output current per zone:
  - Maximum voltage per zone:
- DC terminals:
  - Positive terminal No. and size (mm<sup>2</sup>):
  - Negative terminals No. and size (mm<sup>2</sup>):
  - Reference electrode terminals No. and size (mm<sup>2</sup>):
  - Reference return terminal No. and size (mm<sup>2</sup>):
- Surge Protection:
  - AC – Yes/No
  - DC – Yes/No
- Auxiliary power GPO:
  - Yes, No./No
- Cabinet lighting (LED):
  - Yes/No
- Remote Monitoring:
  - Yes – Recommended/No

MicroNex Systems



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

MicroNex Systems are available directly through Remedial Technology, or through our authorised distributor.



MicroNex Systems is Developed by the R&D Division of Remedial Technology Pty Ltd. ABN 25 160 687 758

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