MicroNex

Advanced impressed current cathodic protection control products for concrete and steel infrastructure

World First Non-Proprietary Cathodic Protection Control Systems

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

Smart Modular 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 Technical Support

Optional full commissioning, monitoring and maintenance services. Our team can assist remotely or on-site across Australia.

Australian Manufactured

Quick turnaround times. MicroNex 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

MicroNex
A Division of Remedial Technology

+61 (02) 9063 1434

www.micronex.com.au

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 monitored and tested on-site with no software.

MicroNex systems provide a range of integrated smart and simple website monitoring solutions. These remote solutions work in conjunction with the on-site manual system. Manual functionality is always maintained regardless of any potential temporary issues with remote communication.

Systems are available in the following three configurations:

1. *Manual System*

- Manual monitoring and control functionality.
- Control of each power supply from its front display.

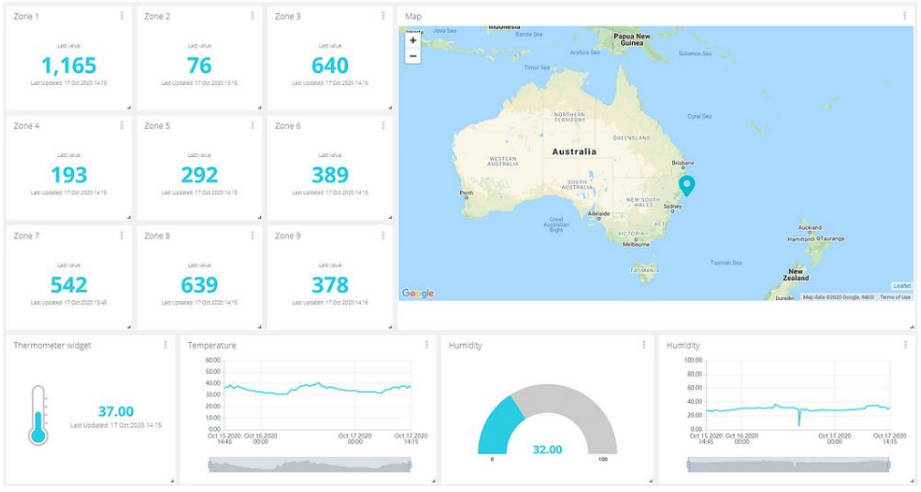
Power Control Unit Interface

2. *Manual System + Remote Monitoring*

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

3. *Manual System + Remote Monitoring + Control*

- Manual system with full remote-control functionality.
- Secure 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 can be fully assembled in new enclosures.

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

316 Stainless Steel

Powder-Coated Galvanised Steel

GRP Fibreglass Enclosure

Specialty

<u>Common features</u>:

- IP66 Rating
- 3-point locking handle
- Padlockable swing handle
- Engraved UV-resistant acrylic-based label

Power Control Units

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

PCU5 0 - 5 Amp output (up to 50V) **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 AC to DC power supply is selected based on the PCU output current and voltage requirements.

PCU5 and PCU20 features:

- DC input power controller
- Automatic 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 Specifications	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)

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 relay timer is used to interrupt all zones simultaneously. One Relay Timer is commonly installed in each system.

The MicroNex Relay Timer is a simple programmable timer designed to drive relay bays. It also features a 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

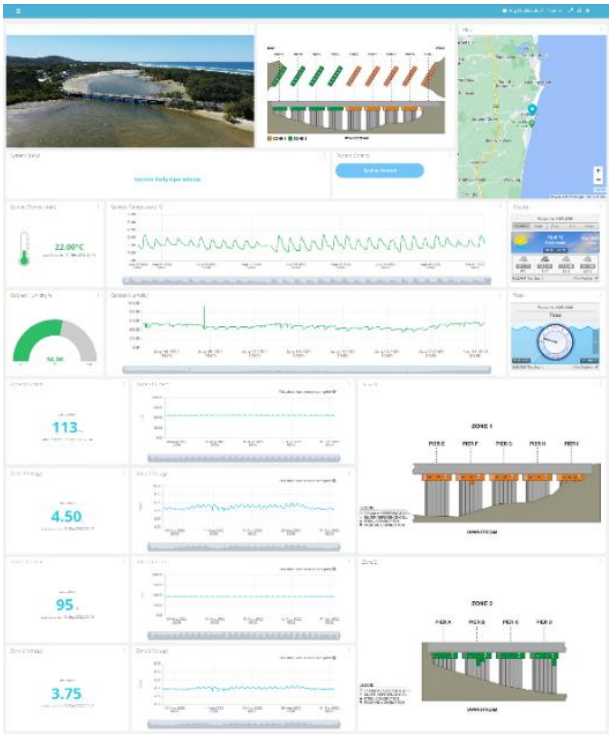
Manual System + Remote Monitoring

An industrial commercially available 4G modem is installed in each CPCU providing remote communication functionality. The modem is pre-installed with a MicroNex SIM (managed and maintained by MicroNex, operating on the Telstra network). The MicroNex SIM connects the on-site cathodic protection control system (CPCU) to the MicroNex cloud dashboard providing users with:

- Central login facility where users can view all their linked systems using one account.
- Ability to set up cloud-based alarms.
- Zone current and voltage data.
- Cabinet temperature and humidity data (optional).
- Structure information, photo and a location map.
- Local weather and tidal information.

A one-year MicroNex SIM subscription is included with all new remote compatible systems. This subscription includes all the remote communication costs in addition to basic system monitoring and remote software updates. Following this period, a maintenance fee will be required to maintain the SIM and dashboard functionality. In the case the MicroNex SIM service is not maintained, the CPCU remains fully operational in manual mode.

.



MicroNex Dashboard

Manual System + Remote Monitoring + Control

In addition to the dashboard functionality highlighted in the previous section, the dashboard provides a direct system control link to the installed onsite MicroNex CPCU computer. Full testing and control capabilities include (but are not limited to):

- Measuring and controlling current and voltage set limits for each zone
- Switching the system ON and OFF
- Measuring reference potentials
- Carrying out instant OFF (IO) testing
- Carrying out interference testing
- Instant measurements and adjustments

A one-year MicroNex SIM subscription is included with all new remote systems. This subscription includes all the remote communication costs in addition to basic system monitoring and remote software updates.

Following this period, a maintenance fee will be required to maintain the SIM and dashboard functionality. In case the MicroNex SIM service is not maintained, the CPCU remains fully operational in manual mode. With our non-proprietary design, the SIM can also be replaced, and remote communication maintained by the client (to test and control the system without the dashboard logging/alarm functionality).

MicroNex Computer

Each MicroNex system with full remote monitoring and control utilises a remote communication computer. The on-site computer communicates with all RS485 components and acts as a web server. All software related to the system is located on the on-site computer and no user software is required. There is no reliance on any external systems.

Features:

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

AD Module

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	
+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-

Temperature and Humidity Sensor

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

Features:

- Temperature range: -40 °C ~ +60 °C
- Humidity range: 0% RH ~ 80% RH
- Temperature accuracy: +-0.5 °C (25 °C)
- Humidity accuracy: +-3%RH
- Temperature resolution: 0.1 °C
- Humidity resolution: 0.1% RH
- Communication protocol: RS485 MODBUS RTU
- Standard 35mm Din-rail Installation with pluggable terminal
- Input Power: 5-30VDC
- Power consumption: <=0.2W

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

Order Form

It is highly recommended that the cathodic protection design drawings detailing the cathodic protection control unit requirements are provided. In case that the design drawings are unavailable, the following information will be sufficient for a system quotation:

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^2):
	Negative terminals No. and size (mm^2):
	Reference electrode terminals No. and size (mm^2):
	Reference return terminal No. and size (mm^2):
Surge Protection:	AC – Yes/No
	DC – Yes/No
Auxiliary power GPO:	Yes/No
Cabinet lighting (LED):	Yes/No
Remote Monitoring:	Yes – Recommended/No

MicroNex systems are available through Remedial Technology or our authorised distributor.

REMEDIAL TECHNOLOGY

MicroNex is a division of Remedial Technology Pty Ltd.
ABN 25 160 687 758

SPA
SAVCOR PRODUCTS AUSTRALIA PTY LTD

Savcor Products Australia (SPA) is an authorised distributor of MicroNex