Nexus220 Controller

Scalable access control system for small to medium organizations

KEY FEATURES

- ◆ Multiple communications include TCP/IP, USB, RS485, RS232

- ◆ New ARM based processor with TCP/IP 100Mbit native communication

- ◆ Integrated power supply and battery backup with onboard software monitoring

- ◆ Communication redundancy through automatic protocol detection and fallback

- ◆ International power support (110V AC/220V AC)

- ◆ Fully redundant system architecture, true off-line operation

Nexus220 Controller

PHYSICAL SPECIFICATIONS

Width	11"
Depth	4"
Height	15"
Approximate Weight	11 lb

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-25°C to +60°C (-13°F to +140°F).
Storage Temperature	-40°C to +80°C (-40°F to +176°F).
Humidity Range	0 to 95% relative humidity at +40°C (+104°F) non-condensing.
CE Approval	EN301 489-1 and EN301 489-3.
FCC Approval	Pending.
Dust & Splash Resistance	Designed to work in an indoor (dry) environment. The Controller is NOT sealed against water.

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ELECTRICAL SPECIFICATIONS

POWER

Power Input

Main Power Input Port	18 V DC to 32 V DC or 16 V AC to 24 V AC
Battery Input Port	12 V DC to 14 V DC.

Typical Current Distribution

Controller	*Current (mA)*	*Power (W)*
12 V DC with no peripherals connected and relays off	90	1.08
24 V DC with no peripherals connected and relays off	60	1.4
16 V AC with no peripherals connected and relays off	70	1.1
Battery Charging	350 mA Trickle charge at 13.7 V DC maximum.	
External Readers	200 mA continuous at 5 V DC and 12 V DC maximum per port.	
Power Output Port	1 A continuous at 12 V DC to 14 V DC maximum.	
Power Input Protection	Over-voltage and over-current protection are provided on the Main Power Input	

NOTE:	EMC emissions only apply when using the main Power Input Port.
NOTE:	As an alternative to a battery, power the Nexus220 using a 12 V DC uninterrupted power supply connected using the Battery Input.
NOTE:	The Power Output Port provides a nominal 12 to 14 V DC at 1 A continuous current. When using the 12 V Backup Battery, the output provides up to 3 A briefly to cater for in rush currents into locks and other equipment. When using the Controller without the 12 V Backup Battery, then any load that demands more than 3 A from the Power Output Port can cause the Nexus220 to protect against overload. The Controller achieves this by indefinitely entering total shutdown mode. Once the overload is removed, the Nexus220 resumes normal operation after a maximum of 3 seconds

Transformer

Input Voltage	110/230 V AC (nominal) at 50 Hz to 60
Output Voltage	24 V AC
Output Current	1.67 A maximum
Power Rating	40 VA

Battery (Not Included)

Type	12 V Sealed Lead Acid Battery, 7 Ahr (Max).
Length	151 mm (6 in) (Max).
Width	65 mm (3 in) (Max).
Height	99 mm (4 in) including the Terminals (Max)
Charge Voltage	13.8 V DC at 350 mA (Max)

Real Time Clock Backup Battery (RTC)

Battery Type	1 x 3 V, CR2032, Lithium cell battery
Battery Life	6 Years (with power OFF)

Controller Bus

USB Port

Connection	USB Device, Type-B, female connector, 12 Mbps, USB V2.0.

Ethernet Port

Connection	Standard Ethernet RJ45 connector. 10/100 Base T, half or full duplex.

RS232 Port

Connection	9-Way, D-type, female connector or terminal block connection.
Default Baud Rate	38 400.
NOTE:	To achieve RS232 connection, use either the 9-way, D-type, female connector OR the terminal block connection.

RS485 Controller Port

Electrical Interface	RS485.
Default Baud Rate	38 400.
Data Format	8 data bits, no parity, 1 stop bit
Communications Protocol	Amano Secure Communications Protocol
Line Termination (RS485)	Provision is made for line termination.

Terminal Bus

Electrical Interface	RS485.
Baud Rate	38 400.
Data Format	8 data bits, no parity, 1 stop bit.
Communications Protocol	Amano Secure Communications Protocol.
Line Termination	Provision is made for line termination

READER OPTIONS

Antenna Port	2 Fully functional Antenna Reader Ports.

Wiegand Port

Power Output	12 V DC or 5 V DC (selectable) at maximum 200 mA.
Modes Supported	Tag, Tag+PIN, Reason Code, and Personal Access Code Mode.

DIGITAL INPUTS

Input Type	4 x Dry Contact Digital Inputs
Detection Resistance Range	< 2 kOhm
Protection Range	+20 V continuous

RELAYS

Relay Output	2 x Relays, Form C, each with NO, COM and NC contacts.
Contact Ratings	10 A at 28 V DC, 5 A at 220 V AC, 12 A at 120 V AC.
Operations	100 000 Minimum

ALARM

Alarm Signal	IN: Dry Contact Digital Input.
	GND: Ground reference.
	OUT: Open Collector Digital Output.

Alarm Relay	
Relay Output	1 x Relay, Form C with NO, COM and NC contacts.
Contact Ratings	10 A at 28 V DC,
	5 A at 220 V AC,
	12 A at 120 V AC.

OTHER

SD Card Adaptor Reserved for future use.	Standard 9-Pin SD Mode Interface, 2 GB max
Anti-tamper Switch	1 Switch, detects opening of the Top Cover

FACTORY DEFAULTS

Baud Rate	Factory-set to 38 400.

Beep Codes	
Fails Power-on Self-test	Single long beep of 2 second duration.
Passes Power-on Self-test	Two short beeps of 200 ms duration, separated by a 200 ms inter-beep pause.

USER INTERFACES
Liquid Crystal Display (Reserved for furture use)

Characters	16 Characters by 4 lines.
Character Sets	English.
Contrast	Adjustable using the Trimpot.
Back-lighting	Turned on and off via the Communications Protocol.

Keypad (Reserved for furture use)

Buttons	12 Alphanumeric and function keys.
Back-lighting	Yes.
NOTE:	The LCD and Keypad back-lighting operate independently of each other.

Controller

Status Indicator

Status LED	Power applied to the Controller indicated by steady Red LED (internally visible).

Diagnostic Indicators

Incoming RS485 Data	Flashing Green LED (internally visible).
Outgoing RS485 Data	Flashing Red LED (internally visible).
Incoming RS232 Data	Flashing Green LED (internally visible).
Outgoing RS232 Data	Flashing Red LED (internally visible).
Speed LED (Ethernet)	Steady Red LED (internally visible).
Link LED (Ethernet)	Steady Red LED (internally visible).
Active LED (Ethernet)	Flashing Red LED (internally visible).
Relay LED	Steady Red LED (internally visible).
SD/MMC Active	Steady Red LED (internally visible).
USB 2.0 Active	Steady Red LED (internally visible).
Digital Inputs	Steady Green LED (internally visible).

Reader Interfaces

Wiegand Reader	2 Standard interfaces, including 12 V DC and 5 V DC Power Outputs, 0 and 1 Data Streams, LED Control, Buzzer Control and Scanner Inhibit.
Antenna Reader	2 Individual standard interfaces.

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ORDERING INFORMATION

Nexus-220/A867	Nexus 220 Standalone Controller - communicates via RS232, RS485, USB or TCP/IP
Nexus-220/A868	Nexus 220 System Controller - communicates via RS232, RS485, USB or TCP/IP
ISU902-0-0-AC	Nexus 220 Standalone Controller Upgrade

Amano reserves the right to change specifications without prior notice.