ProPlex®

DATA DISTRIBUTION

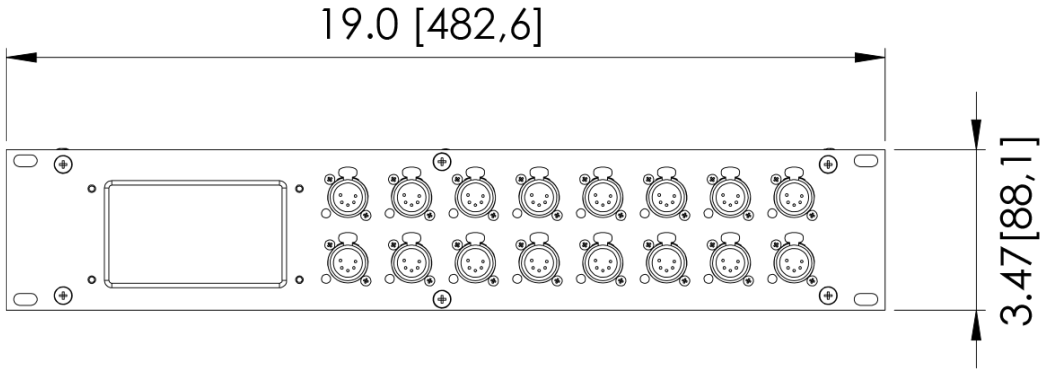
IQ Two 1616 2x

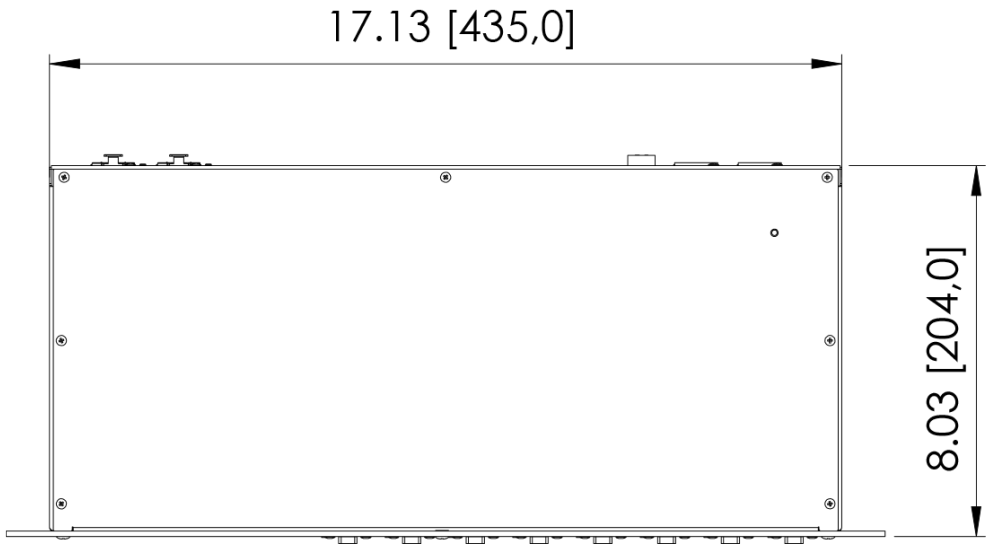
User Manual

ProPlex IQ Two 1616 2x User Manual
ProPlex-IQ-TWO-1616-2x-Manual-v1.3
Effective 17 May 2021

Technical Specifications

Part Number	PPIQB161625RR
Ethernet Ports	2
ArtNet/sACN Universes	16 max.
DMX Ports	16
DMX Connectors	Neutrik XLR5 Female
DMX Port Isolation	Optical, up to 1000V
Ethernet Connector	Neutrik EtherCon RJ45
Network Protocols	ArtNet, sACN (E1.31)
Power	100-240V, 50-60 Hz / PoE In (802.3af)
Power Connector	Neutrik PowerCon NAC3MPA
Power Consumption	20 W
Fuse	1 A, 250 V
Operating Temp.	-20º to +40º C
Unit Dimensions (WxHxD)	19 x 3.47 x 8.03 in [48,6 x 88,1 x 204 mm]
Unit Weight (unpacked)	8.4 lb [3.8 kg]
Shipping Dimensions (WxHxD)	21 x 8 x 16 in [533 x 203 x 152 mm]
Shipping Weight	10.9 lb [4.9 kg]





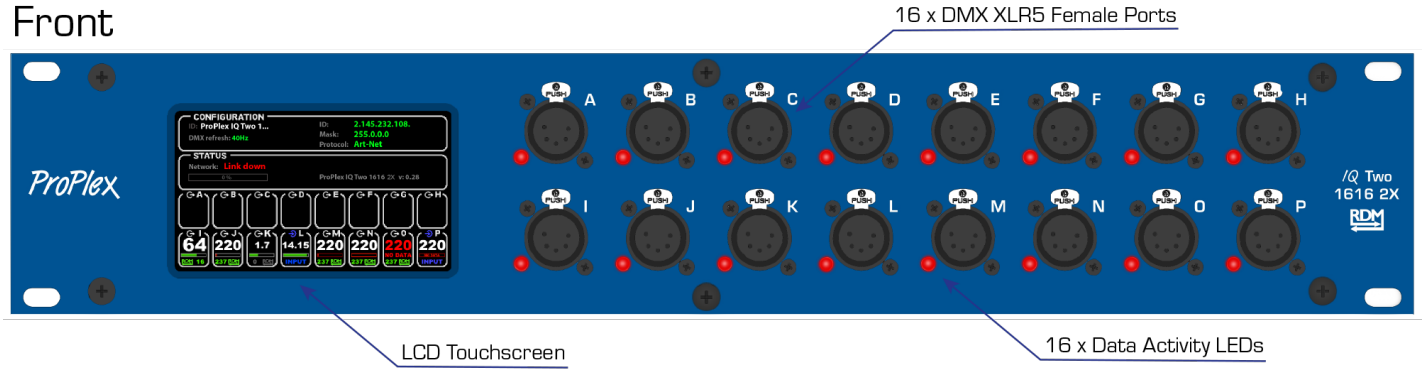
Overview

The ProPlex IQ Two 1616 2x is a 16-way bidirectional ArtNet/sACN-DMX Node with dual EtherCon ports and PoE power in. Features include:

- Assign 16 DMX Connectors to up to 16 Art-Net/sACN universes
- Input or output on any connector
- Dual EtherCon ports allow very low latency linking of units and, with GBS and EZ-LAN, ring topology for speed and redundancy
- Full RDM functionality
- Merge Art-Net or Streaming ACN from multiple sources
- RDM Manager software available for system setup and feedback
- PoE IN (802.3af) support
- Web interface – manage large networks locally or remotely
- Large touchscreen for quick, easy setup and operation
- Rugged, tour-ready ProPlex “Blue Box” RackMount chassis

Front and Rear Panels

Front



Rear

Note! Network Port 1 supports PoE IN (802.3af)

Menu Map

Level 1	Level 2	Level 3	Level 4	Notes
Node setup	Node name			Node name
		Label		Enter node name label.
	Universe format			In this menu you can set the universe format for your needs.
		Base 16 (0-15)		
		Hex (0-F)		
		Decimal (0-32767)		
	Screen lock time			Time after which the screen will automatically get locked.
		0, 5-600		0- off 5- minimum 600- maximum Values in seconds
	LCD/ LED brightness			Adjust LCD and LED brightness settings for your needs.
		Off		
		Dimmed		
		Full		
Protocol setup	Protocol			Choose out of the 2 possible data processing protocols.
		Art-Net		Art-Net protocol
		sACN		sACN protocol
	Easy priority			If EASY PRIORITY is ON, when two or more of the same universes are coming in to the node, the console with the higher channel 512 value will have control over the universe.
		Off		
		On		
	On source loss			This setting determines what will happen on source loss
		Hold output		On DMX source loss, holds the last received DMX values
		Blackout		After DMX source loss, all values will be sent at a value of zero
		Stop DMX		After DMX source loss the outgoing DMX signal will be disabled
	Source loss timeout			This setting determines how long the IQ Two will wait before using the Source Loss setting.
		VALUE		
	ArtNet idle resend			This setting determines the time the IQ will resend an Art-Net packet even if no new DMX packet is received (Applies to ports set to INPUT mode only)
		0.5 s		
		1.0 s		
		2.0 s		
		4.0 s		
	DMX out refresh rate			The refresh rate for outgoing DMX data (actions per second)
		Adaptive		Adapts to the input data
		20Hz		Fixed 20Hz refresh rate
		30Hz		Fixed 30Hz refresh rate

		40Hz		Fixed 40Hz refresh rate
IP setup	IP address			Set the IP address of IQ
		VALUE		
▲	Subnet mask			Set the subnet mask of IQ
		VALUE		
▼		Easy IP		This setting will ensure that software will search for all masks, not only for a specified subnet mask
Configuration profiles	User cfg. 1 (node name)			User configuration profile 1
▲	Load			Button for loading the configuration settings
		Confirm		
		Back		
	Record			Button for recording the configuration settings
		Confirm		
		Back		
	Delete			Button for deleting the configuration settings
		Confirm		
		Back		
	User cfg. 2 (node name)			User configuration profile 2
	Load			Button for loading the configuration settings
		Confirm		
		Back		
	Record			Button for recording the configuration settings
		Confirm		
		Back		
	Delete			Button for deleting the configuration settings
		Confirm		
▼		Back		
Defaults	Port defaults			This setting will restore port defaults
▲		Load		
			Confirm	
			Back	
	Protocol defaults			This setting will restore protocol defaults
		Load		
			Confirm	
			Back	
	Touchscreen calibration			Setting in case the touchscreen calibration is needed.
		Reset		
			Confirm	
			Back	
	Factory defaults			This setting will restore factory defaults (will reset ALL settings)
		Reset		
			Confirm	
▼			Back	

Configuration using LCD Touchscreen

ProPlex IQ Two 2x can be configured locally on the unit by using the touchscreen or remotely through the Ethernet port by accessing the built-in web page with a web browser, or with the ProPlex IQ RDM Manager software.

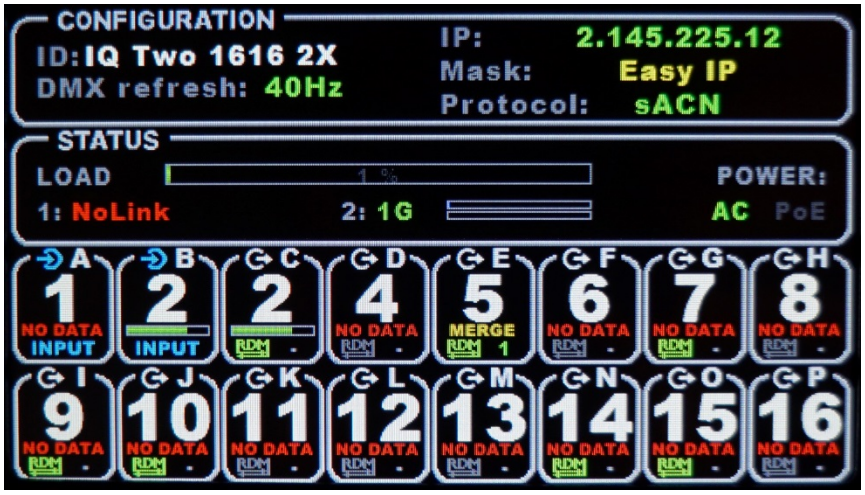
Navigation through menus is done using the LCD touchscreen. When the device is activated, the following welcome screen will appear:

To begin, press anywhere on the screen and a touchscreen calibration screen will appear.

The main status screen is displayed, showing all the important information about the IQ Two 1616 2x node.

CONFIGURATION
-Assigned ID (name) for the ProPlex IQ Two
-IP Address
-Subnet Mask
-Protocol
-DMX Refresh Rate

STATUS
-Network Link Speed / State
-Network Usage (percentage of network saturation)
-Current software version



PORTS

-PORT ID and Direction
-Port Universe
-Port Data refresh rate
-No Port Data
-RDM status
-Number of RDM fixtures on link
-Merge on/off

Top of Touchscreen

Configuration

Device ID: (ProPlex IQ Two 1616 2x);
DMX refresh: (40Hz) – see DMX OUT REFRESH RATE for further information and options IP: (2.145.232.108. in this case);
Mask: (255.0.0.0 in this case); Protocol: (Art-Net in this case).

Middle of Touchscreen

Status:
Network: (Link Down in this case, when there is a network, it shows the network type, 1G FD (1 gigabit, full duplex) for example, and it shows the network usage in percent);
Device and version description: (ProPlex IQ Two 1616 2x v:0.28 in this case)

Bottom of Touchscreen

Port information:
Information of all 16 DMX ports, labeled as A; B; C; etc.
If using the Art-Net protocol, the universes start from universe 0.
When using sACN, there is no universe 0 so universe numbering begins with universe 1.

LED Indicators

The ProPlex IQ 1616 2x has RGBW activity LEDs at each output port:

- DMX activity LED is RED: There is no DMX signal from network incoming.
- DMX activity LED is ORANGE (full power): The port is configured as DMX output and DMX signal is active.
- DMX activity LED is ORANGE (dim): The port is configured as DMX output and there is no active DMX signal.
- DMX activity LED is BLUE (full power): The port is configured as DMX input and DMX signal is active.
- DMX activity LED is BLUE (dim): The port is configured as DMX input and there is no active DMX signal.
- DMX activity LED is GREEN (intermittent): The port has active RDM packets.

Merging

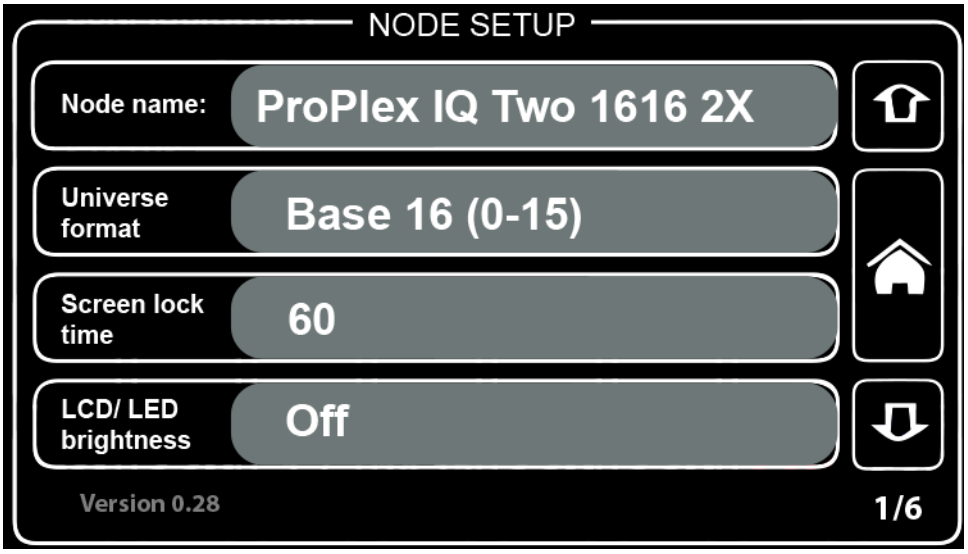
What happens with more than one source of DMX, Art-Net or Streaming ACN?

The IQ series of nodes can merge multiple instance of the same universe number coming from multiple sources.

The IQ Two 1616 2x will automatically merge HTP universes coming from multiple sources that have the same priority. Art-Net sources, by default have the same priority so they will be merged HTP unless Easy Priority is set to ON. Streaming ACN has priority built into the protocol by default. If the priority of two or more sources is the same, HTP merging will occur unless Easy Priority is set to ON. DMX inputs have a “Port Priority” setting which can assign priority to DMX ports in INPUT mode. If two or more ports have the same INPUT priority, HTP merging will occur.

Configuration Menu

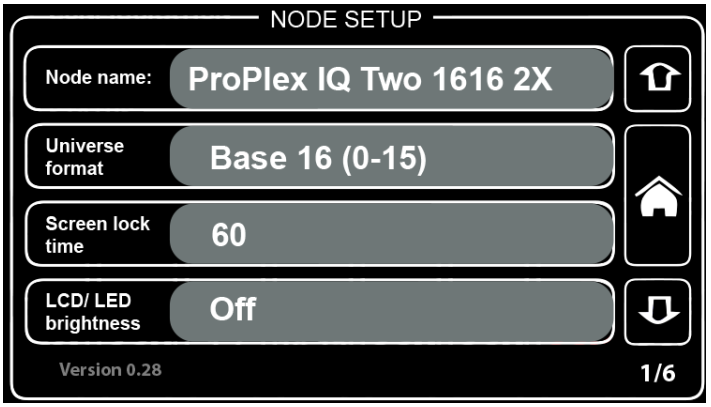
By pressing the "Configuration" button, a new configuration sub menu will appear.



There are six “pages”:

1) Node setup
2) Protocol setup
3) Protocol setup
4) IP setup
5) Configuration profiles
6) Defaults

Node Setup



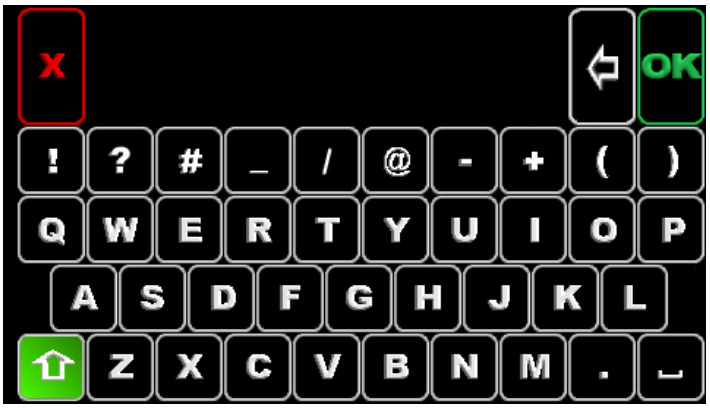
Node name

Here you can exchange the node name, replace the default name (ProPlex IQ Two 1616 2x is the default) with your desired name.

By pressing this button, a new window will appear:

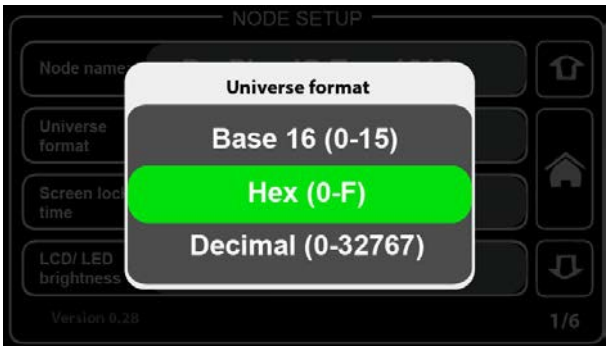
Using this virtual keyboard, the user can replace the default name with desired name.

Press the lower-left shift (Level 2 Select key) button on the virtual keyboard to change to uppercase letters or symbol options in place of numbers.



Universe format

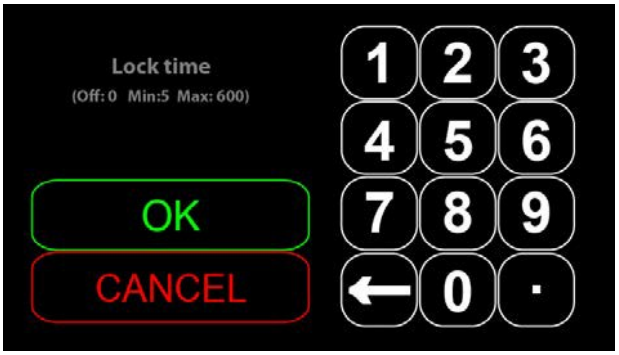
By pressing the "**Universe format**" section, a new window will appear.



In this window, universe format may be chosen. By default, the universe format is set at Hex (hexadecimal) but may be changed to Base 16 or decimal counting system.

Screen lock time

By pressing the "**Screen lock time**" section, a new window will appear.

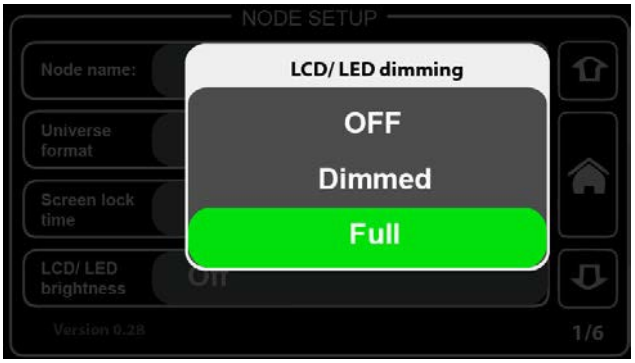


Here screen lock time may be set. This setting will change the time after which the ProPlex IQ Two will lock the screen.

Values may be set from 5 to 600 (5 to 600 seconds).

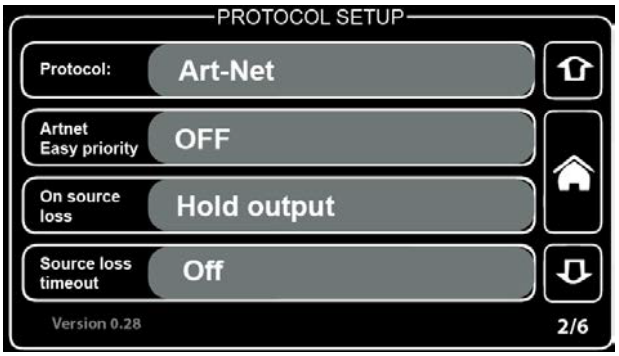
LCD/ LED Brightness

By pressing the "**LCD/ LED Brightness**" button, a new window will appear.



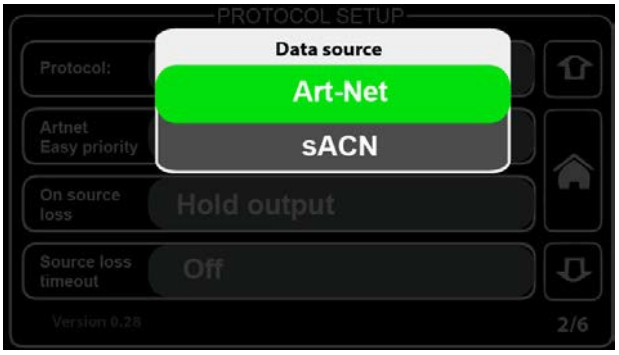
Select one of three settings: OFF, Dimmed, and Full

Protocol Setup



Protocol

By pressing the "**Protocol**" button, a new window will appear.



Select Art-Net or sACN (e1.31).

What is Art-Net and sACN?

***Art-Net**: An Ethernet protocol based on the TCP/IP protocol suite. Its purpose is to allow transfer of large amounts of DMX512 data over a wide area using standard networking technology*

.

***Streaming ACN (sACN)**: A protocol to efficiently transport DMX universes over the network, it is comparable to Art-Net in many aspects. An advantage of sACN is the multicast option allowing very easy and efficient network and DMX universe configuration. Streaming ACN (sACN) is a popular protocol to control large numbers of universes and RGB DMX devices.*

Both Art-Net and Streaming ACN are Ethernet based DMX protocols designed to transport DMX universes over a network. Art-Net allows the RDM protocol to be transported within the Art-Net Protocol. Streaming ACN is currently finishing their addition of the RDM protocol, however it is not finished, so RDM over sACN is currently not supported. When the sACN is ratified to include the RDM protocol, a simple software update of your ProPlex IQ Two Node will add this functionality. The sACN protocol does not allow a universe "0", therefore the first selectable sACN universe is universe "1".

Easy Priority

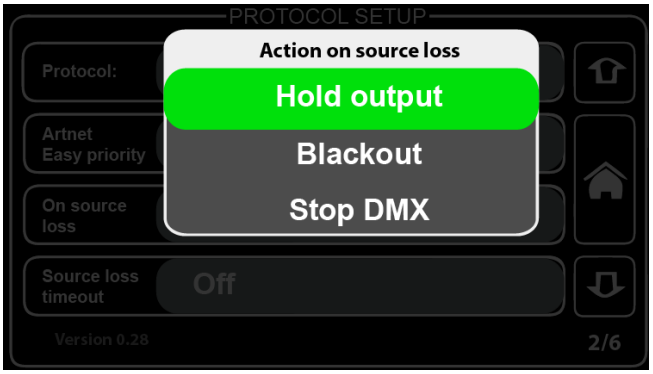
By pressing the "**Easy priority**" section, a new window will appear.

Easy Priority may be ON or OFF.

> ***What is Easy Priority?***
> *When easy priority is ON, when two or more of the same Art-Net/ sACN universes are coming into the ProPlex IQ node, the console with the higher channel 512 on a universe value will have control over that universe.*

On source loss

By pressing the "**On source loss**" button, a new window will appear.

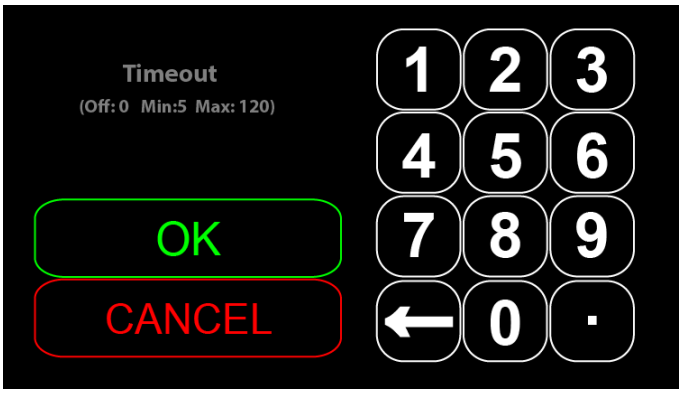


When the "**Hold values**" setting is chosen, after the source DMX is lost, the IQ Two 1616 2x holds the last DMX values it has received and continues to output these values until incoming DMX has been restored.

When the "**Blackout**" setting is chosen, after the source DMX is lost, all DMX values will change to 0 and be held at this value until incoming DMX is restored.

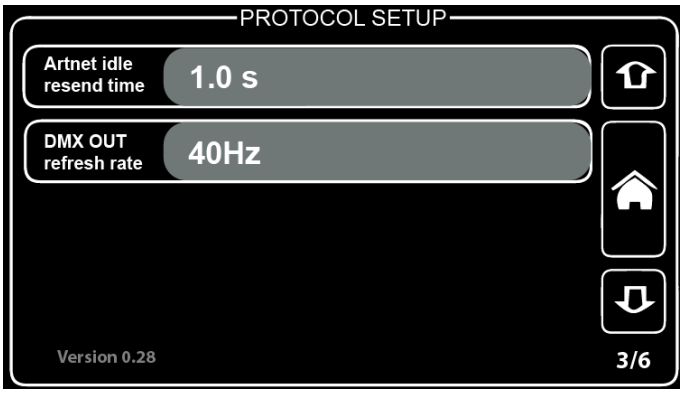
When the "**Stop DMX**" setting is chosen, after the source DMX is lost, the IQ Two 1616 2x will stop outputting any DMX. When the DMX source is restored, the IQ Two 1616 2x will continue outputting the source DMX.

Source loss timeout
By pressing the "**Source loss timeout**" button section, a new window will appear.

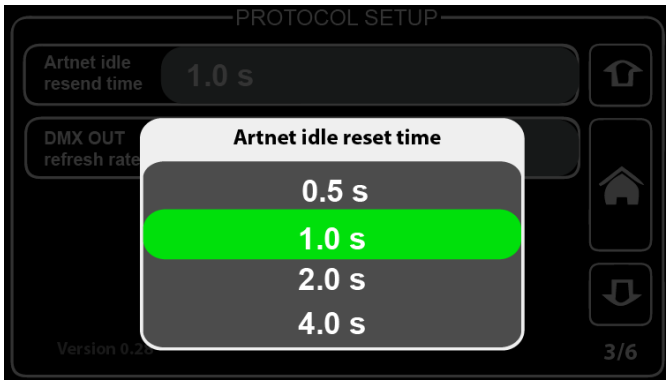


This setting determines how long the IQ Two 2x will wait before using the Source Loss setting. This time is set in seconds (5-120). Once the source loss timeout time has been reached, the IQ Two will revert to the Source Loss timeout setting.

Protocol Setup



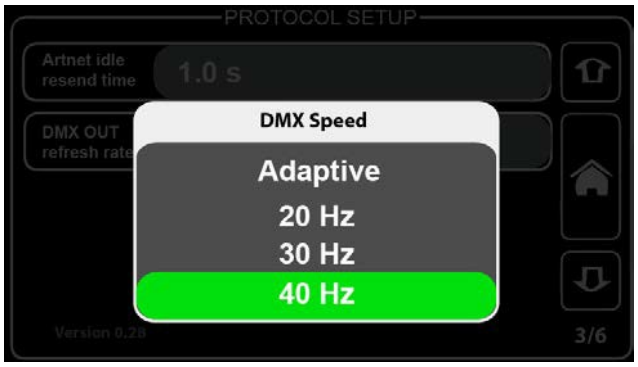
Art-Net idle resend time
By pressing the "**Art-Net idle resend time**" section, a new window will appear.



This setting determines the time Art-Net will refresh the signal after idling.
Select from 0.5s, 1s, 2s or 4s, depending on the requirement. This only applies to ProPlex IQ Two 2x DMX connectors set to input mode. Some consoles may not resend a DMX packet if there is no change in the value. Art-Net idle resend time ensures Art-Net regenerates the unchanged value as some devices – e.g. media servers and moving lights – need recurring DMX over Art-Net even if no change in values exist.

DMX OUT refresh rate

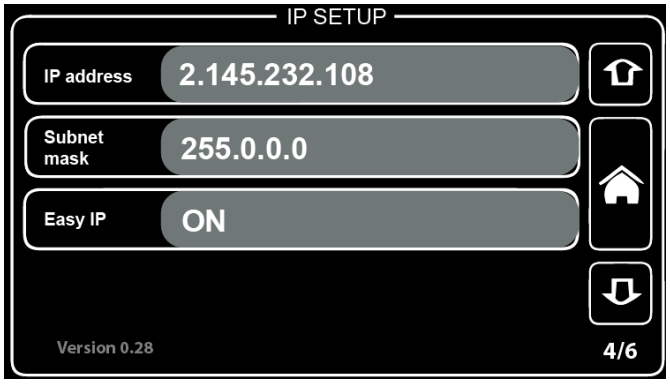
By pressing the "**DMX OUT refresh rate**" section, a new window will appear.



Select one of four options for "DMX out refresh rate" (Adaptive, 20Hz, 30Hz, 40Hz).

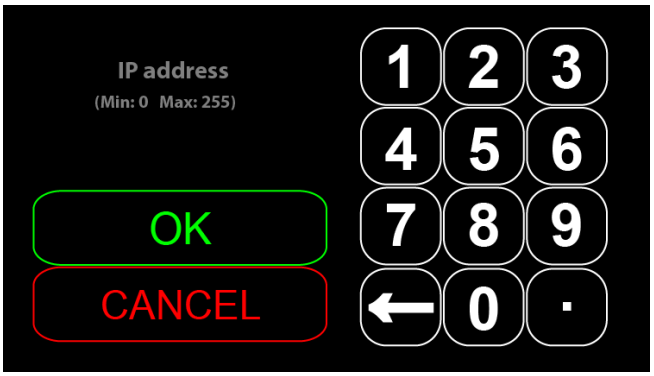
The DMX refresh rate setting controls how many times per second the IQ Two outputs DMX over 5-pin XLR connectors. Some DMX devices work better using different refresh rate settings. For high-speed devices like LED walls and displays, using the "Adaptive" option can improve response time by matching the incoming refresh rate of DMX coming from the source.

IP Setup



IP address:

By pressing the "**IP setup**" button, a new window will appear.



Here the user can set the IP address for the ProPlex IQ Two 1616 2x

Subnet mask:

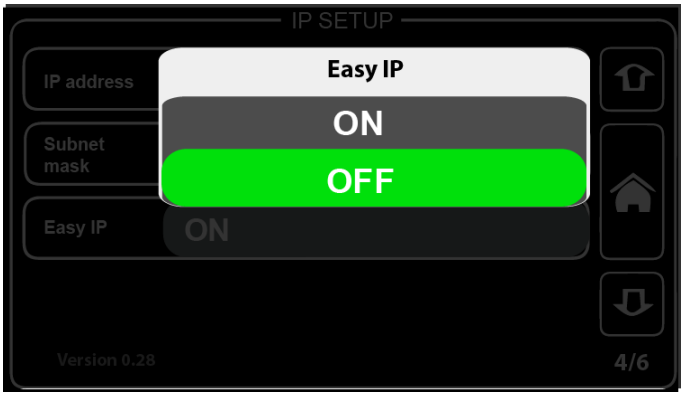
By pressing the "**Subnet mask**" button, a new window will appear.

Here the Subnet mask of the device may be set. To change the assigned subnet mask, replace the current network subnet mask with the desired network subnet mask.

NOTE: If Easy IP setting is On, mask setting cannot be changed.

Easy IP

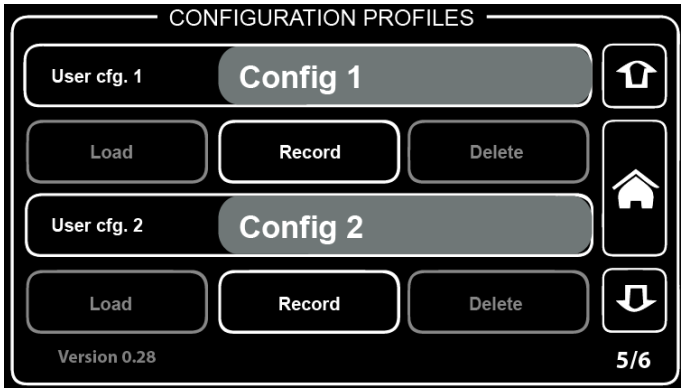
By pressing the "**Easy IP**" button, a new window will appear.



This setting ensures that software will search for all masks, not just the one specified. If Easy IP setting is turned ON, the Subnet Mask cannot be changed. Easy IP is very useful for most networking situations where subnet filtering is not required. The IQ Two 1616 2x will automatically find and output Art-Net and sACN information regardless of IP or Subnet Mask settings.

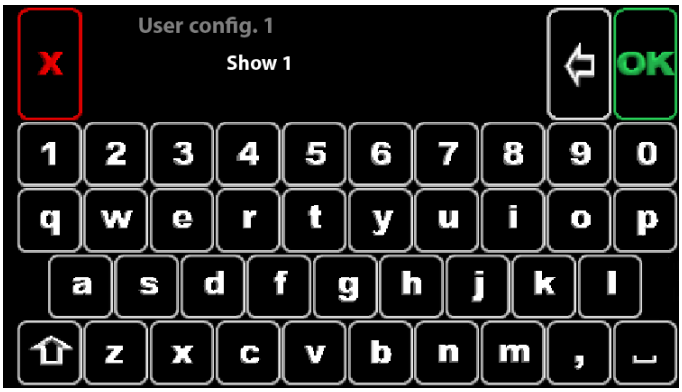
Turning off Easy IP is useful when using subnet filtering to help separate different areas of a network when used in conjunction with a managed switch network. An example of this would be multiple TV studios having independent networks all attached to one console.

Configuration Profiles



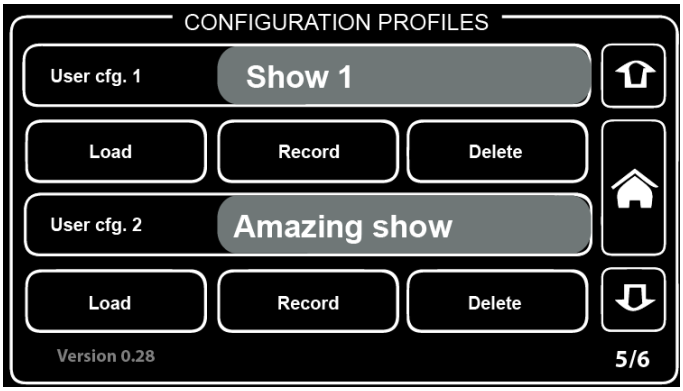
The current configuration can be saved in a User Config slot in the IQ Node. Two save slots are available. Choose which configuration to save (**User cfg. 1** or **User cfg. 2**).

For example, name the User config. 1 as "**Show 1**":



And User config 2 as "**Amazing show**":

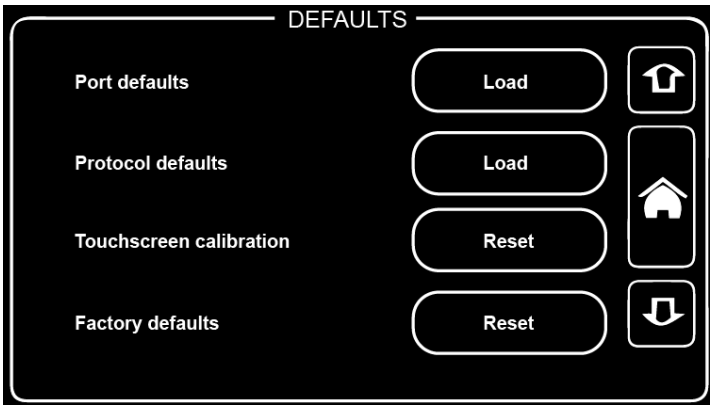
Now press "**Record**" button in order to record the current configuration. This will return to the previous menu.



In the main Configuration Profiles screen, either **load** or **delete** the configuration saved.

If the "**Load**", "**Record**" or "**Delete**" button is pressed, a confirmation window will appear. Press "**OK**" to confirm choice or "**X**" to return to the menu.

Defaults



In this menu system defaults can be loaded and touchscreen calibrated:

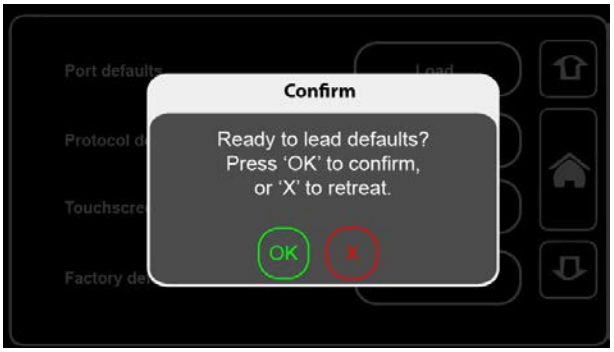
Port defaults: Reset all DMX port related settings.

Protocol defaults: Reset all protocol related settings (sACN/ Art-Net settings).

Touchscreen calibration: Open touchscreen calibration menu.

Factory defaults: Reset all settings and restart the system.

After pressing the Load/ Reset buttons, there will be a new confirmation window:



Where you will need to press "**OK**" to confirm your choice or "**X**" to return to the previous screen.

Status Menu

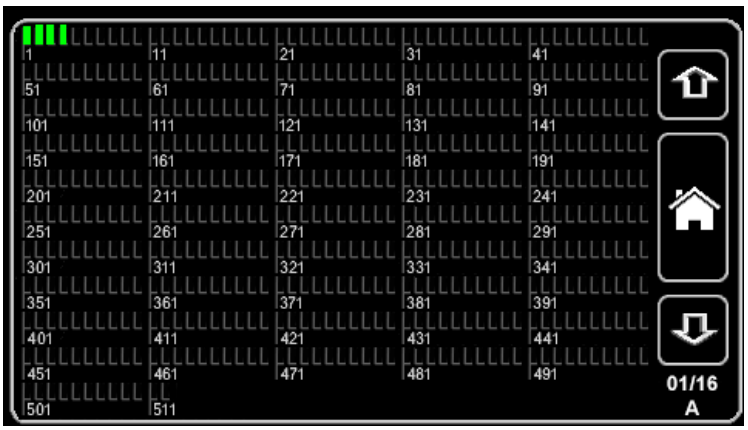
Access DMX status for all 16 DMX ports.

Press **arrow up**: Switches to the next port settings (for example, if editing port "1" settings, pressing this button will switch to port "2").

Press **arrow down**: Switches to the previous port settings (for example, if editing port "2" settings, pressing this button will switch port "1").

Pressing the HOME button (green button) returns to the main menu.

Arrow up Arrow down

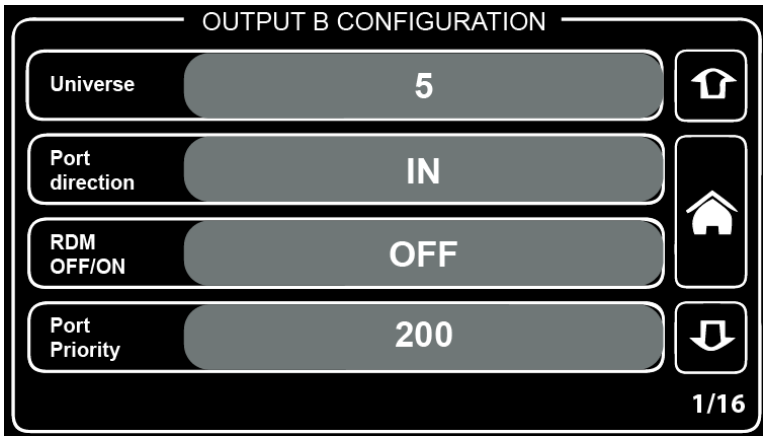


This is an example of port A DMX value status.

The four green bars display the DMX value being outputted depending on the DMX value the IQ Two 1616 2x is receiving from the source. If the DMX value received is 255, then the green bar will be full; if DMX value is 0, then no green bar is visible.

In the example above, channel 1-4 is at 100% (255), but channels 5-512 are at zero.

Output Configuration Menu



Port settings may be changed.
For each port, assign:

Universe Port direction
RDM (ON or OFF

Port priority

Arrow up Arrow down

User can change settings for all 16 DMX ports (i.e., change universe, port direction, RDM status and port priority setting).

Press **arrow up**: Switches to the next port setting screen (e.g., if currently you are editing port "1", by pressing the up button you will be switched to port "2").

Press **arrow down**: Switches to the previous port (e.g., if editing port "2", pressing the down button switches to port "1").

Pressing the HOME button (green button) returns to the main menu.

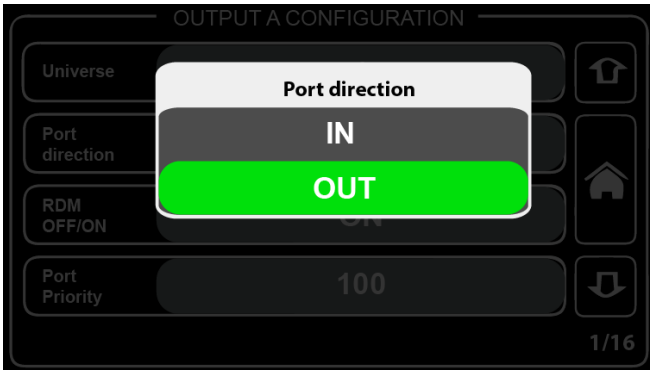
Universe

Assign the universe for the selected DMX port. By pressing the button, a new window will appear:

Set the universe (from 0 to 32767) for the selected DMX port.

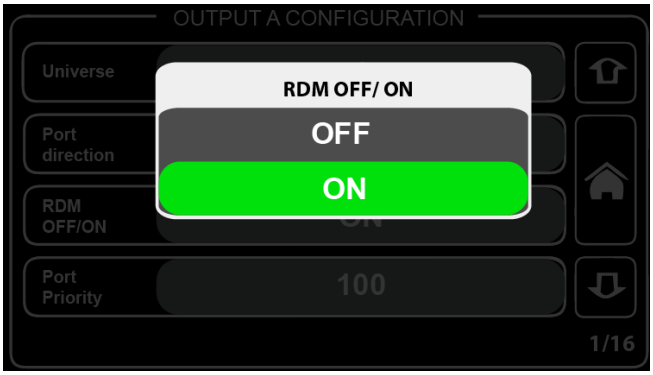
Port direction

Assign the port direction for each DMX port.



RDM OFF/ON

Active or deactivate RDM for the selected DMX port.



What is RDM?

Remote Device Management or RDM is a protocol enhancement to DMX512 that allows bi- directional communication between a lighting or system controller and attached RDM compliant devices over a standard DMX line. This protocol will allow configuration, status monitoring, and management of these devices in such a way that does not disturb the normal operation of standard DMX512 devices that do not recognize the RDM protocol.

(*source: www.rdmprotocol.org*)

NOTE: You cannot use RDM when you are using the sACN protocol because the sACN protocol (E1.31) doesn't currently support RDM officially. Once ratified, this will be a simple software update for the IQ nodes.

Port priority

Port priority (from 0-200) may be set.

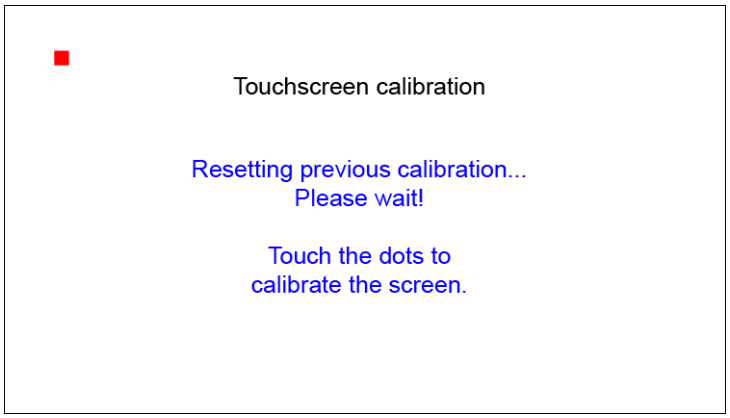
When signal is lost on the highest priority port, the DMX signal will be taken from the port that has the next highest priority.

In cases where the user wishes to have multiple DMX sources “talking” to the same Art-Net or sACN universe, port priority allows for prioritization of input ports. If two or more ports have the same priority, they will be merged when their priority is currently highest.

Touchscreen calibration

There are two ways to open the touchscreen calibration menu:

1) When the node is activating, press anywhere on the "ProPlex 1616" illustration
2) Open the device defaults settings where "touchscreen calibration" reset setting can be seen.

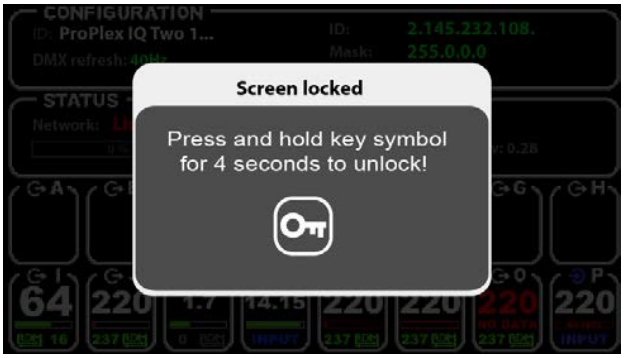


Press the red dots to calibrate the touchscreen. There will be four dots in total, each dot in all four corners.

Calibration has been completed when you see this message.

Unlocking the screen

By default, the IQ 1616 2x automatically locks the screen after 60 seconds of being idle. To unlock the screen, press and hold key symbol for four seconds to unlock the screen.

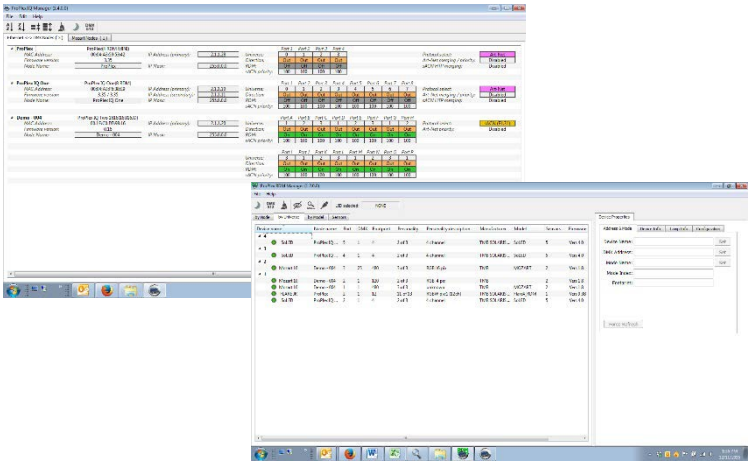


APPENDIX

Remote Configuration and Monitoring of IQ Nodes

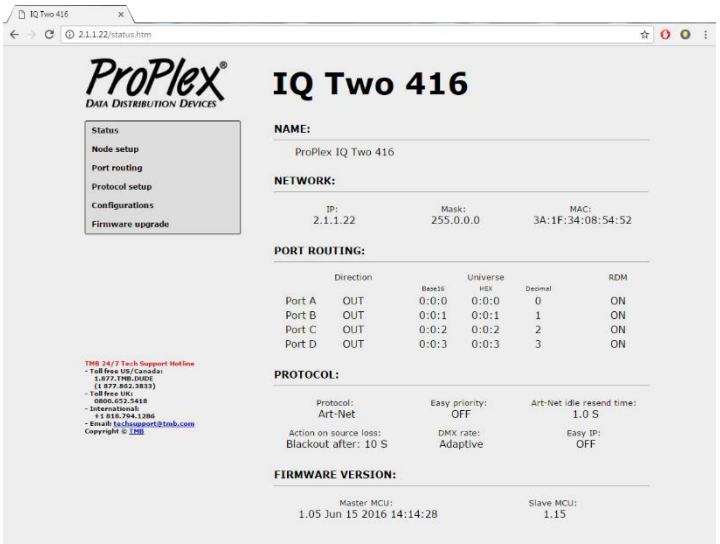
ProPlex IQ Ethernet to DMX nodes can be configured and monitored via two methods: ProPlex Software and via a web browser.

The ProPlex Software is available as a free PC download from www.tmb.com . This software includes a full suite of configuration and monitoring features and makes managing multiple nodes on a network extremely easy. The Software also includes an RDM management suite for devices connected the IQ nodes or via a ProPlex RDMigo Cable.



ProPlex IQ Ethernet to DMX nodes can also be remotely configured via their onboard webserver.
Using a PC or Mac internet browser, connect to individual IQ nodes by typing their IP address into the internet address bar.

For more information on ProPlex Software, RDMigo Cable, and other ProPlex IQ series products, please visit www.tmb.com



Limited Warranty

ProPlex Data Distribution Devices are warranted by TMB against defective materials or workmanship for a period of two (2) years from the date of original sale by TMB.

TMB's warranty shall be restricted to the repair or replacement of any part that proves to be defective and for which a claim is submitted to TMB before the expiration of the applicable warranty periods.

This Limited Warranty is void if the defects of the Product are the result of:

- Opening the casing, repair, or adjustment by anyone other than TMB or persons specifically authorized by TMB
- Accident, physical abuse, mishandling, or misapplication of the product.
- Damage due to lightning, earthquake, flood, terrorism, war, or act of God.

TMB will not assume responsibility for any labor expended, or materials used, to replace and/or repair the Product without TMB's prior written authorization. Any repair of the Product in the field, and any associated labor charges, must be authorized in advance by TMB. Freight costs on warranty repairs are split 50/50: Customer pays to ship defective product to TMB; TMB pays to ship repaired product, ground freight, back to Customer.

This warranty does not cover consequential damages or costs of any kind.

A Return Merchandise Authorization (RMA) Number must be obtained from TMB prior to return of any defective merchandise for warranty or non-warranty repair. For all repairs please contact TMB Tech Support Repair using the contact information below or email TechSupportRepairNA@tmb.com.

US
527 Park Ave.
San Fernando, CA 91340
Tel: +1 818.899.8818
Fax: +1 818.899.8813
tmb-info@tmb.com
www.tmb.com

UK
21 Armstrong Way
Southall, UB2 4SD England
Tel: +44 (0)20.8574.9700
Fax: +44 (0)20.8574.9701
tmb-info@tmb.com
www.tmb.com

Return Procedure

Please send returned merchandise prepaid and in the original packing. Freight call tags will not be issued for shipping the product to TMB, but TMB will pay the freight for return to the customer. Clearly label package with a Return Merchandise Authorization Number (RMA #). Products returned without an RMA # will delay service. Please contact TMB and request an RMA # prior to shipping the unit. Be prepared to provide the model number, serial number, and a brief description of the cause for the return. Be sure to properly pack the unit; any shipping damage resulting from inadequate packaging is the customer's responsibility. TMB reserves the right to use its own discretion to repair or replace product(s). Proper UPS packing or double- boxing will better ensure product integrity when shipped.

Note: If you are given an RMA #, please include the following information on a piece of paper inside the box:

1) Your name
2) Your address
3) Your phone number
4) The RMA #
5) A brief description of the symptoms

TMB 24/7 Technical Support

US/Canada: +1 818.794.1286
Toll Free: 1 877.862.3833 (877.TMB.DUDE)
UK: +44 (0)20.8574.9739
Toll Free: 0800.652.5418
e-mail: techsupport@tmb.com