# Embedded Web-based Interface Supplemental Manual

# SLA5800 & SLAMF Series Digital Mass Flow Controllers & Meters with EtherNet/IP<sup>™</sup> and PROFINET<sup>™</sup>



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## Models Affected

All models configured with Ethernet/IP or PROFINET communications.

#### Summary

This manual is specific to the built-in web interface on SLA Series Ethernet/IP and PROFINET devices. It is recommended to review the Installation and Operation Manual (IOM) for the SLA Series and the Supplemental Manual for either the Ethernet/IP or PROFINET digital protocol that is being utilized.

The embedded web interface on the SLA Series Ethernet/IP and PROFINET devices is a powerful tool that can be utilized locally using an ethernet cable or remotely via the local area network. It allows reviewing and editing settings such as protocol addressing, alarm and warning thresholds, and more. The device can be controlled through the web interface as well. With the control level login credentials, you can change the active gas page, read the flow signal, give a controller a setpoint or perform a valve override among other features.

You can connect to the SLA device using a standard ethernet cable connected to the ethernet adapter on your computer (or a USB-Ethernet adapter connected to your computer), using a web browser (i.e. Chrome). If encountering connectivity issues with your device, refer to the following related knowledge base articles on the Brooks Instrument website.

Related Knowledge Base Articles: <u>Changing IP Address using Built-in Web Interface</u> <u>SLA EthernetIP and PROFINET – Finding the IP Address of a Device when the Value is Unknown</u>

## Initiating Communications through the Web Browser

By default, SLA Series EtherNet/IP<sup>™</sup> MFC is shipped with DHCP enabled. If no DHCP server is available on the network, the device defaults to the following TCP/IP connections settings:

IP Address:192.168.1.100 NET Mask: 255.255.255.0 Gateway Address: 0.0.0.0 DNS1: 0.0.0.0 DNS2: 0.0.0.0 Domain Name: brooksinstrument.com Host Name: SLA

To configure the Brooks device using a web browser, connect it to a network or PC that is configured with the same subnet as the device (192.168.1.xxx).

By default, most PC Network adapters are configured for Dynamic Host Configuration Protocol (DHCP). DHCP is a network management protocol that automatically configures IP addresses and communication parameters of network devices and is widely used in corporate or public networks.

In industrial control networks, the network settings of the client devices should always be static, meaning that they are not set dynamically by DHCP.

A direct connection to a PC will require a private network between the two devices. In that case, there is no DHCP server assigning addresses on this network, so the PC network card settings will need to be changed manually.

The following steps will detail how to configure the network adapter on a windows PC for static settings so that it can communicate with the SLA and utilize the embedded web interface.

On the PC, tap the Windows Key and begin typing "Ethernet" until you see the "Ethernet settings" result. Click on it to open the settings.



Choose "Change adapter options" in the upper right of the window that loads.



Then, right-click on the adapter you are using and choose "Properties".



Double-click "Internet Protocol Version 4 (TCP/IPv4)" or select it and click "Properties".

	V Pocap Pack	et Driver (NPCAP) (Wi-	Fi) ^
<ul> <li>Internet Protocol Version 4 (TCP/IPv4)</li> <li>Microsoft Network Adapter Multiplexor Protocol</li> <li>Microsoft LLDP Protocol Driver</li> <li>Internet Protocol Version 6 (TCP/IPv6)</li> </ul>	Bridge Driver	scheduler	
Microsoft Network Adapter Multiplexor Protocol      Microsoft LLDP Protocol Driver      Internet Protocol Version 6 (TCP/IPv6)	Internet Prote	ocol Version 4 (TCP/IP	v4)
Internet Protocol Version 6 (TCP/IPv6)	_		
<	Microsoft Ne	twork Adapter Multiplex	or Protocol
	Microsoft Ne	twork Adapter Multiplex DP Protocol Driver acol Version 6 (TCP/IP)	or Protocol

Select "Use the following IP address" and type an IP that is in the same range as the MFC. The subnet mask below auto-populates and is ok for most configurations. Click "OK" on the two properties windows and close the settings windows.

itemet Protocol Version 4 (TCP)	(IPV4) Properties
General	
You can get IP settings assigned this capability. Otherwise, you n for the appropriate IP settings.	automatically if your network supports eed to ask your network administrator
Obtain an IP address auton	natically
OUse the following IP addres	s:
IP address:	192 . 168 . 1 . 240
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	
Obtain DNS server address	automatically
Use the following DNS serve	er addresses:
Preferred DNS server:	
Alternate DNS server:	
Validate settings upon exit	Advanced
	OK Cancel

A standard Ethernet patch cable is required to connect the SLA58 to your PC. An M12 to RJ45 cable is necessary for SLAMF models.



To a built-in network adapter:



Or a USB network adapter:



Once the PC setting have been changed and the cable is physically connected between the PC adapter and the Brooks Instrument mass flow meter or controller, open a web browser and enter the IP address of the SLA (default 192.168.1.100) as the URL at the top. Hit "Enter" or click "Go" to load the SLA Embedded Web Interface.

## Access Levels and Login

The Embedded Web Interface opens showing the dashboard screen with the "Operational" access level as shown in the upper right of the screen. This login level is read-only access.

shboard	Process Gas 1	:N2 0.1 L/	min @	21.1°C						Device Statu Bk_Stream
ms						1			120.00	Int_Comms NV Mem Fail
minac										Dev Exec
minys										Flow_Valid
nfiguration										Temp_Valid
										Dev_Zeroing
Interface										Zero_Recomme
									-5.00	Zero_Op_Inhibit
rice Update		· · · · ·						1	1 3140	VIv_Override
	egend		C	ontrol Para	meters					Ctri_Overnide
rice Log	Elow (%)	-0.04	S	afe State Flag						Dev_Error
vice & Support	Cotopiet (9/ ):	0.00		cale claic ring.		0	1 2	2		Dev_starm
nuo u oupport	Setpoint (%).	0.00	C	Control Mode:		Č –	0			Zero Bin Disabl
rice Info	Valve Position (%):	0.00				Automatic Control			Ramping	
1	femperature (°C):	36.72					Set Control Mode			
in	Now Totalizer (Liters):	6.57	-	and the second						
K			S	etpoint (%):		0.00				
Chart Control			Va	alve Position (	%):	0.00				
			V	alve Override:		Normal		~		
	r Min:	-5	V	alve Safe Stat	e:	Closed		~		
	(Max:	120	C	alibration Pag	e.	1-N2-0	11/min @ 3	1 1°C -		
	Submit		0	unterner Flore	Tetalizer Control	0.00	·			

The menu tree is always on the left side of the screen. The current device status is always on the right side of the screen.

To change the configuration, click the Login tab. On the Login page that loads, select a different access level from the dropdown box.

- Operational is view only.
- Configure allows basic device configuration.
- Control enables all functionality including controlling device flow on an MFC.

The default password for Configure is 'configure' and the default password for Control is 'control'.

Choose the access level and enter the password. Click "Submit" and a success banner will display briefly at the top of the page.

	Login success. Permissions set to Control	
NSTRUME	Device Configuration 📡	Access: Control Logout
Beyond Measur	e	
Dashboard	Login	Device Status
	Login	Bk_Stream
Alarms	Access Level: Control V	Int_Comms
	Password:	NV_Mem_Fair
Warnings		Flow Valid
Configuration	Submit	Temp Valid
Comgaration	Session	Dev_Zeroing
Net Interface	56551011	Zero_Recommend
	Session Timeout(min):	Zero_Op_Inhibit
Device Update	Valid Range: 1 to 120 min(s)	Vlv_Override
	Fractional min(s) will be rounded down to the nearest whole min(s)	Ctrl_Override
Device Log	Submit	Dev_Error
0	-	Dev_Alarm
Service & Support	Change Baseword	Dev_Warning
Device Info	Change Password	Zero_Btn_Disabled
	Access Level: Configure 🗸	Ramping
Login	Current Password:	
	New Password	
	o-12 Undratuers, vanu Undratuers, A-2,8-2,9-9,7,1,8,#,&	
	Subinit	

On this same page, it is possible to change the session timeout and change the password, if desired. There is also a "logout" button that appears in the upper right where the current access level is shown.

NOTE: If you change a password, ALWAYS record the changes with identifying information such as serial number and physical location. Without the password, you will not be able to utilize the embedded web interface functionality.

### The Dashboard

Navigate back to "Dashboard" on the left menu. If you are logged in as Control access level, you can control the MFC from the Dashboard and see feedback similar to the graph screen in BEST.

Notice the radio button for "Safe State Flag" on the left side of the dashboard. If it is gray, then the device is in safe state and the valve will be in the configured safe state. By default, the valve safe state is closed.

To control flow, you must click the radio button to toggle it from gray to green, putting the device into executing mode.



Items such as setpoint, valve override and calibration page can now be changed.

## **Configuring Device Attributes**

The various device "objects" such as the Flow Meter, Valve Driver, Flow Controller and Temperature Meter objects all have configurations that can be customized.

The embedded web interface is a powerful tool to quickly configure the alarms, warnings, errors, and data units within these objects.

Many alarms, warnings and errors have configurable magnitude, time, and hysteresis thresholds so that you can customize them for your system dynamics.

After selecting the "Configuration" menu, there are submenus for each object.

### **Flow Meter Configuration**

Dashboard		Flow Meter Configuration	l,	Flow Units	Device Status
Alarms	Flow Meter	Flow Alarm Trip Point High (%):	140.00	Unit Of Measure:	Int_Comms
		Flow Alarm Trip Point Low (%):	-1.00	% 🗸	Dev Ever
Warnings		Flow Alarm Hysteresis (%):	0.00	Submit Units	Flow Valid
Configuration	Flow Meter	Flow Alarm Settling Time (msec):	1000		Temp_Valid
	General	Flow Warning Trip Point High (%):	140.00		Dev_Zeroing
Net Interface		Flow Warning Trip Point Low (%):	-1.00		Zero_Recommend
		Flow Warning Hysteresis (%):	0.00		Zero_Op_Inhibit
Device Update		Flow Warning Settling Time (msec):	1000		VIV_Override
Device Log	Flow Meter Totalizer	Zero Warning Time (hours):	0		Dev_Error
		Zero Warning Settling Time (sec):	30		Dev_Alarm
Service & Support		Zero Warning Error Band (%):	0.00		Dev_Warning
Douioo Info		Zero Warning Success Band (%):	0.00		Zero_Btn_Disabled
	Valve Driver	No Flow Limit (%):	10.00		Ramping
Login		No Flow Settling Time (msec):	2000		
		Choked Flow Limit (%):	50.00		
		Choked Flow Settling Time (msec):	10000		
	Flow Control	Back Stream Flow Limit (%):	-20.00		
		Back Stream Time Limit (msec):	30000		
		Totalizer Overflow Threshold (Liters):	0.00		
	Temperature	Submit Parameters Undo Changes			

# Flow Meter General Configuration

Dashboard		Flow Meter General Conf	Device Status		
	Elow Motor		garater		Bk_Stream
Alarms	Flow Meter	Selected Calibration Page:	1:N2 1.0 L/min 🗸	Unit Of Measure:	Int_Comms
		Zero Op Duration (msec):	10000	% 🗸	NV_Mem_Fail
Warnings		Zero Minimum Drift Time (Hours)	0	Submit Linite	Dev_Exec
		Excess Drift Multiplion		Submit Onits	Flow_Valid
Configuration	Flow Meter		1.00		Temp_Valid
	General	Excess Drift Adder:	0.00		Dev_Zeroing
Net Interface		Total Drift:	-0.16		Zero_Recommend
		Submit Parameters Undo Changes			Zero_Op_Inhibit
Device Update					VIv_Override
Device Las	Flow Meter				Ctrl_Override
Device Log	Totalizer				Dev_Error
Sonioo & Support					Dev_Alarm
		-			Dev_Warning
Device Info					Zero_Bth_Disabled
	Valve Driver				Ramping
Login					
	Flow Control				
	Temperature				

# Flow Meter Totalizer Configuration

Dashboard		Flow Meter Totalizer and	Timers	Totalizer Units	Device Status
	Flow Meter				Bk_Stream
Alarms		Iotal Flow Hours:	0	Unit Of Measure:	NV Mem Fail
		Flow Totalizer (Liters):	22.59	Liters 🗸	Dev Exec
Warnings		Customer Flow Totalizer (Liters):	0.00	Submit Units	Flow Valid
Configuration	Flow Meter	Overhaul Due (Hours):	26082		Temp_Valid
	General	Calibration Due (Hours):	8760		Dev_Zeroing
Net Interface		Submit Parameters Undo Changes			Zero_Recommend
					Zero_Op_Inhibit
Device Update					VIv_Override
D	Flow Meter				Ctrl_Override
Device Log	Totalizer				Dev_Error
Sonico & Support					Dev_Alarm
					Dev_Warning
Device Info					Zero_Btn_Disabled
	Valve Driver				ramping
Login					
	Flow Control				
	Temperature				
2	9				

# Valve Driver Configuration

Dashboard		Valve Configuration		Device Status
	Flow Motor	Jane Comganation		Bk_Stream
Alarms	T IOW Meter	Valve Warning Trip Point High (%):	120.00	Int_Comms
		Valve Warning Trip Point Low (%):	-1.00	NV_Mem_Fail
Warnings		Valve Warning Hysteresis (%)	0.00	Dev_Exec
		Value Safe State:		Flow_Valid
Configuration	Flow Meter	Value Safe Value (%):		Temp_Valid
	General	valve Sale value (%).	0.00	Dev_Zeroing
Net Interface		Submit Parameters Undo Changes		Zero_Recommend
Davias Undeta				Zero_Op_innibit
				Viv_Override
Device Log	Flow Meter			Dev. Error
	Totalizer			Dev_Litor
Service & Support				Dev_Mamino
				Zero Btn Disabled
Device Info				Ramping
	Valve Driver			
Login				
	Flow Control			
	· · · · · · · · · · · · · · · · · · ·			
	remperature			
2.				

# Flow Controller Configuration

Dashboard	5	Flow Control Configurati	on	Control Units	Device Status
	Flow Meter	5			Bk_Stream
Alarms		Control Warning Settling Time (msec):	5000	Unit Of Measure:	Int_Comms
		Control Warning Error Band (%):	200.00	%	NV_Mem_Fail
Warnings		Ramp Time (msec):	0	Submit Units	Dev_Exec
0	Flair Mater	Setpoint Limit (%):	12000.00		Flow_valid
Configuration	Flow Meter General	Setpoint Limit Action	None ¥		Dev. Zeroina
Net Interface					Zero Recommend
		Submit Parameters Ondo Changes			Zero_Op_Inhibit
Device Update					VIv_Override
	Flow Meter				Ctrl_Override
Device Log	Totalizer				Dev_Error
					Dev_Alarm
Service & Support					Dev_Warning
Douiso Info					Zero_Btn_Disabled
	Valve Driver				Ramping
Login					
	Flow Control				
	lemperature				

# **Temperature Meter Configuration**

ms _Fail c id id jing commend _Inhibit
E Fail id iid ping commend Inhibit
id lid ping commend
lid Ilid Ding commend
alid ping commend Inhibit

Alarms and Warnings are disabled by default and must be enabled after configuring them. They can be enabled by navigating to the Alarms or Warnings menu items and toggling the radio buttons to green.

#### Alarms





# Warnings

Dashboard			1		Device Status
	Warnings	Off/On	Warnings	Off/On	Bk_Stream
Alarms	Low Flow Warning		Calibration Due Warning	0	Int_Comms
	High Flow Warning	0	Totalizer Overflow Warning	0	NV_Mem_Fail
Warnings	Choked Flow Warning		Overhaul Due Warning	0	Flow_Valid
Configuration	Excessive Zero Drift Warning		High Temperature Warning		Temp_Valid
Net Interface	Bad Zero Warning	•	Low Temperature Warning	0	Zero_Recommend
Device Undete	Valve High Warning	•	Supply Volts High Warning	0	Zero_Op_Inhibit
	Valve Low Warning	•	Supply Volts Low Warning	0	Ctrl_Override
Device Log	Valve Ctrl Warning				Dev_Error
Service & Support	Setpoint Deviation Warning	0			Dev_Alarm Dev_Warning
Device left	Setpoint Overrange Warning	0			Zero_Btn_Disabled
	Setpoint Limited Warning	0			Ramping
Login	Toggle All				

Dashboard					Device Status
	Warnings	Off/On	Warnings	Off/On	Bk_Stream
Alarms	Low Flow Warning	0	Calibration Due Warning	0	Int_Comms
	High Flow Warning	0	Totalizer Overflow Warning	0	NV_Mem_Fail
! Warnings	Choked Flow Warning	0	Overhaul Due Warning		Flow_Valid
Configuration	Excessive Zero Drift Warning	•	High Temperature Warning		Temp_Valid
Net Interface	Bad Zero Warning	•	Low Temperature Warning	•	Zero Recommend
	Valve High Warning	0	Supply Volts High Warning	0	Zero_Op_Inhibit
Device Update	Valve Low Warning	0	Supply Volts Low Warning	0	VIv_Override
Device Log	Valve Ctrl Warning	0			Dev_Error
		_			Dev_Alarm
Service & Support	Setpoint Deviation Warning				Dev_Warning
Dovico Info	Setpoint Overrange Warning	0			Zero_Btn_Disabled
	Setpoint Limited Warning	0			Ramping
Login	Toggle All				
	J. 199				

## **Changing Device Network Settings**

To configure the network parameters of the device, click the Net Interface tab.

For Ethernet/IP devices, you will need to change:

- IP address most configurations should use a static IP. DHCP option is available.
- Subnet mask
- Default gateway
- Device name
- You might also configure DNS servers and a domain name.

For PROFINET devices, you will need to change:

- The device name.
- Choose a unique name that conforms to the PROFINET International (PI) naming rules.
- You should also configure a static IP address and a subnet mask. This will allow the use of the embedded web interface for each unique device.
- Siemens recommends that you do not use an IP address in the 192.168.x.241 to 192.168.x.250 range for client devices because programming devices can be automatically assigned addresses in this range if necessary.

By default, DHCP is selected. To manually configure the network settings, select the 'Stored Value' radio button.

The network configuration fields will become active. Click 'Submit' after setting the network configuration.

A pop-up confirmation window will appear. Click "OK"



A success banner will be displayed briefly at the top of the page.

IP Configuration Changes Successfully Saved						
INSTRUME Beyond Measu	N T re	Device Configuration	Access: Control Logout			
Dashboard	Net Interface		Device Status			
Alarms	Stored Value	ODHCP	Int_Comms			
Warnings	IP Address:	192.168.1.101	NV_Mem_Fail Dev_Exec Flow Valid			
Configuration	Gateway Address:	0.0.0.0				
Net Interface	Name Server: Name Server 2:	0.0.0.0	Dev_Zeroing Zero_Recommend			
Device Update	Domain Name:	brooksinstrument.com	Viv_Override			
Device Log	Host Name:	sia-1	Ctrl_Override Dev_Error Dev_Alam			
Service & Support			Dev_Warning			
Device Info			Zero_Btn_Disabled Ramping			

NOTE: Once the settings have been changed, the new TCP/IP address will need to be reentered in the URL field of the browser to reconnect with the device and confirm the network settings.

NOTE: We recommend labeling the device with the new communication settings and recording the changes with identifying information such as serial number and physical location. It will be very difficult to recover this information without the diagnostic cable and BEST Software.

We created a knowledgebase article describing some alternative methods to find the IP address of a device that is unknown which may be helpful in this scenario. The article can be found on our website here:

SLA EthernetIP and PROFINET – Finding the IP Address of a Device when the Value is Unknown

## **Getting Help**

We recommend starting with the Installation and Operation Manual (IOM) and the Supplemental manual for the digital communication protocol, if applicable. These documents are searchable so CTRL+F can be used in the PDF viewer to search for specific terms within the document.

After reading the manuals, we recommend utilizing the Knowledgebase section of our website. Navigate to "Service & Support" and select "Knowledgebase".



On the Knowledgebase landing page, you can browse the articles or click the magnifying glass in the upper right corner to search.

Home	Knowledgebase	Decontamination Forms	٩	Login

Search by product name such as "SLA" or "GT1600", digital protocol such as "Ethernet/IP" or "PROFINET", or by specific article numbers.

After you have reviewed the relevant content for your product, if you still need any technical support please contact Brooks Instrument Technical Services at 215-362-3798 or via email at <u>Brooks.TechSupport@BrooksInstrument.com</u>

## LIMITED WARRANTY

Visit www.BrooksInstrument.com for the terms and conditions of our limited warranty.

#### **BROOKS SERVICE AND SUPPORT**

Brooks is committed to assuring all of our customers receive the ideal flow solution for their application, along with outstanding service and support to back it up. We operate first class repair facilities located around the world to provide rapid response and support. Each location utilizes primary standard calibration equipment to ensure accuracy and reliability for repairs and recalibration and is certified by our local Weights and Measures Authorities and traceable to the relevant International Standards.

Visit www.BrooksInstrument.com to locate the service location nearest to you.

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Brooks Instrument can provide start-up service prior to operation when required.

For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/ or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

#### SEMINARS AND TRAINING

Brooks Instrument can provide seminars and dedicated training to engineers, end users and maintenance persons.

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Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.

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