

FS-8705-50 – Emerson ROC Opcode

Ethernet Driver

DATASHEET – Rev 1

DESCRIPTION

This Ethernet driver implements many of the ROC Opcode services. Using this driver, a customer can connect ROC equipment to another automation system for remote monitoring and control. Like other drivers, this driver can be couple with any of the other 120+ protocols in our library. Thus ROC data may be monitored and controlled using Rockwell Family, Modbus Family, GE Family of protocols as well as BACnet family, Lonworks, SNMP, and many more building and automation protocols



ROC opcodes are used to transfer 'chunks of related data in one message'. This driver is capable of being configured so that

Driver supports various ROC devices.

Non-Plus – ROC300 Series with ROCPAC / FLASHPAC

Floboss 102 / 104 / 107 / 407 / 503 / 504

RegFlow

ROC800 Devices , ROC800L

ROCplus

Production Manager

Well Optimization ... And all other devices.

CONNECTION FACTS

This table summarizes the number of connections this driver supports for each of its modes.

FIELDSEVER MODE	NODES	COMMENTS
Active Client	20-100	A max of ?? ROC devices per gateway Upper limit is determined by gateway memory and speed. This has been tested with up to 20 devices. The same code used in another project supported hundreds of devices. Our sales department can provide more current information.

FORMAL DRIVER TYPE

Active Client

This driver can also be used to emulate one or more ROC devices. Said another way. If you want a BACnet / Modbus / Rockwell etc device to respond to ROC messages – Chipkin has that covered.

COMPATIBILITY

FIELDSEVER MODEL	COMPATIBLE
All legacy products (FS2010/4010/3510)	Yes
All current products as at July 2020	Yes
EZ Gateways, QuickServer, Quickserver classic, Multiport Gateways	Yes

DEVICES TESTED

DEVICE	TESTED (FACTORY, SITE)
Various	2020 Feb – Office Lab with purchased devices and software 2020Jul – Customer site in US. Multiple types of devices. A large ROC network.

BLOCK DIAGRAM

Multiple upstream protocols and connection supported. See list of FieldServer Drivers.

Free BACnet test software with purchase*
Confidently test the BACnet interface.
Discover devices and their objects. Test
and document them. Arm yourself with a
powerful field tool. Full license.

- Other serial protocols such as
- Bacnet MSTP
 - Modbus RTU, ASCII, and other flavors
 - Rockwell DF1
 - GE-SNP
 - JCI Metasys N2
- And more...

Over 120 Protocols
We are always adding and
can add yours.

RS232 / RS485
Port count varies by model



GATEWAY

Ethernet

Ethernet Network

Lonworks
Network

Other bus protocols such as

- Profibus
- DeviceNet
- DH+
- Modbus+
- ControlNet
- BACnet Arcnet

Other ethernet protocols
such as

- HTTP, XML, Json
 - BACnet IP or Eth
 - Modbus TCP
 - AB-CSP
 - Ethernet/IP
 - SNMP, Telnet
 - GE-EGD, GE-SRTP
 - Omron FINS
 - DNP3
- And more...

Bluetooth
Wireless
Cell



 **EMERSON** ROC

DRIVER IS FUTURE PROOF

This driver has been written in such a way that should new devices or Point Types, the driver will be capable of supporting them without new firmware, simply by means of configuration.

Version	Description
1.00	Introduced
1.20	Updated: added offset 103, point type 138
2.00	Updated: defined offset 10, Logical Compatibility Mode
2.02	Updated: added point types, offsets 104-220; defined offset 11, Opcode 6 revision
3.00	Updated: defined offset 12, ROC Sub-type

Most versions of most opcodes are / can be supported without new firmware.

OPCODES SUPPORTED

The following table is updated from time to time on our web site. It is not updated in this document Google “ROC by Chipkin OPCODE SUMMARY xlsx” to get the latest.

<https://store.chipkin.com/articles/roc-by-chipkin-opcode-summary-xlsx>

non plus	Left	right	max offset left	max offset right	Plus	Left	right	max offset left	max offset right	800
:4 Opcode 6: ROC300-Series with ROCAPAC 2-9										
:4.2 Opcode 6a: ROC300-Series (w/FlashPAC) and FloBoss 103/104										
:4.3 Opcode 6b: FloBoss 103/104, FloBoss 500-Series										
:4.4 Opcode 6c: FloBoss 107, 2-14										
:4.5 Opcode 6d, System Configuration 2-2										
					2.2 Opcode 6e, System Configuration 2-2					
:5 Opcode 7 2-17										2.2 Opcode 6f, System Configuration... 2-2
:6 Opcode 8 2-18					2.3 Opcode 7a, Read Real-time Clock 2-11					2.3 Opcode 7a, Read Real-time Clock 2-11
ib										
ic										
id										
:7 Opcode 10..... 2-19					8e					8e
:8 Opcode 11..... 2-20					2.5 Opcode 10, Read Configurable Opcode Point Data					2.5 Opcode 10, Read Configurable Opcode Point Data.....
:9 Opcode 17..... 2-21					2.6 Opcode 11, Write Configurable Opcode Point Data					2.6 Opcode 11, Write Configurable Opcode Point Data.....
:9.2 Opcode 17b										
:9.3 Opcode 17c					2.9.3 Opcode 17c					2.9.3 Opcode 17c
:9.4 Opcode 17d					2.9.4 Opcode 17d					2.9.4 Opcode 17d
					2.9.5 Opcode 17e					2.9.5 Opcode 17e
:10 Opcode 18..... 2-22										
:11 Opcode 24..... 2-23					2.8 Opcode 24, Store and Forward..... 2-14					2.8 Opcode 24, Store and Forward... 2-16
					2.9 Opcode 50, Request I/O Point Position					2.9 Opcode 50, Request I/O Point Position

SOME DETAILS

Table 2-2: Opcode 6, System Configuration

Communi- cation Opcode	Host Request to ROC800			ROC800 Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 6: System Configura- tion	6		No data bytes	6	1	The system mode the unit is currently operating in. 0 = Firmware Update Mode – Extremely limited functionality is available. 1 = Run Mode
				7	2	Comm Port or Port Number that this request arrived on. This is not defined if the above value (offset 6) is 0.
				9	1	Security Access Mode for the port the request was received on.
				10	1	Logical Compatibility Status – Version 2.00 See [Point Type 91, Logical 0, Parameter 50]: 0 = 16 points per slot (160 bytes total) – Compatibility Mode is 0 & 9 module slots max 1 = 16 points per slot (240 bytes total) – Compatibility Mode is 0 & 14 module slots max. NOTE: The 15 th module slot cannot be used. 2 = 8 points per slot (224 bytes total) – Compatibility Mode is 1 & 27 module slots max. See Opcode 50, Request I/O Point Position and Table 11, Compatibility Mode, for more information.
				11	1	Opcode 6 Revision (Version 2.02) 0 = Original 1 = Extended for Additional Point Types (offset 104 -220)
				12	1	ROC Subtype 1 – Series 1 0 = Series 2

A complex set of data is returned. Each value is extracted and stored and may be exposed using another protocol like BACnet

2.4 Opcode 8, Set Real-time Clock

Opcode 8 is the only way to calculate the current day of microseconds in the ROC800

All values must be sent at once. Use BACnet or other protocol to set the values and then set the BACnet object we provide to trigger the Opcode (BACnet or

Version	Description
1.00	Introduced

Table 2-4. Opcode 8, Set Real-time Clock

Communication Opcode	Host Request to ROC800			ROC800 Response to Host		
	Data		Description of Data	Data		Description of Data
	Offset	Length		Offset	Length	
Opcode 8: Set current time and date	6	1	Current seconds [UINT8]			No data bytes.
	7	1	Current minutes [UINT8]			Time and date are set and acknowledgment sent back.
	8	1	Current hour [UINT8]			
	9	1	Current day [UINT8]			
	10	1	Current month [UINT8]			
	11	2	Current year [UINT16]			

ROC TLPs

The Chipkin ROC TLP driver is available. It can be coupled with this driver. Part number = 8705-49

CUSTOMER SUPPORT

ROC Opcode Driver for FieldServer was developed by Chipkin, and we are proud to provide support for our products. For technical support, sales and customer service, please call us at 1 (866) 383-1657.

Thanks for choosing Chipkin's products and integration services to meet your building and industrial automation requirements!

Chipkin™ is a building and industrial automation protocol expert. We develop, configure, install and support gateways (protocol converters), data loggers and remote monitor and controlling applications. Founded in October 2000, Chipkin provides expert solutions for converting BACnet®, Modbus®, and LonWorks®—to name just a few—and enabling interfaces for HVAC, fire, siren, intercom, lighting, transportation and fuel systems. The high-quality products we offer (including those from other vendors) interface with Simplex™, Notifier™, McQuay™, GE™ and many others—so you can rest assured that we will select the most appropriate solution for your application.

With Chipkin you are buying a solution. Our configuration expertise in this field combined with free BACnet and other tools ensure your success; and our customer support via phone, email and remote desktop tools means that we are there when you need us. Chipkin is a small responsive company, and we live or die by the quality of our service—and with offices in two time zones—we can provide support when you need it. Give us a call now!

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REVISION HISTORY

This table summarizes the update history for this protocol data sheet. Please contact Chipkin by phone or email for an updated version of this document.

DATE	RESP.	DRIVER VERSION	DOCUMENT REVISION	COMMENTS
Jul 2020	PCM	0.00	0	Created
27 May 2021	YC	0.00	1	Updated to new template