

F8000 COMMAND MODULE

Central Communication and Control of F8000 Instruments

The **Command Module** is embedded with each F8000-series chassis and controls all instrument operations from Protection Suite and RTS software. Communication and synchronization functions are hosted, and instrument status is displayed. IEC 61850 standard-based protection scheme testing options are available.



Communications

- 3 x Ethernet ports (10/100/1000 Mbps each)
- 1 x 40 W Power over Ethernet (PoE) port
- 2 x SFP (copper & fiber) ports (1 Gbps each)
- 1 x USB 3.0 port (Type C)

Time synchronization

- Pulse-per-second (PPS)
- IRIG-B modulated & unmodulated
- Simple Network Time Protocol (SNTP)
- Network Time Protocol (NTP)
- IEEE 1588 / IEC 61850-9-3 Precision Time Protocol (PTP)
- Global Navigation Satellite Systems (GNSS)

IEC 61850

- Sampled Values - IEC 61850 9-2 Amendment 1 (includes IEC 61869-9 & 9-2 LE profiles)
- GOOSE / R-GOOSE (publishing & subscribing)

Options Available:

- F8860 GOOSE
- F8870 Sampled Values
- F8053 PTP



F8000 Command Module Technical Data

Communications	Ethernet	Ports 3, 4 & 5 Port 5 PoE at 40 W (57 V) 10/100/1000 Mbps each
	SFP	Ports 1 & 2 Copper/fiber selectable 1 Gbps each
	USB	1 x 3.0 Type C
Time Synchronization	PPS	NTP GNSS (Global Navigation Satellite Systems): GPS, QZSS, GLONASS, BeiDou
	IRIG-B	Modulated B120 Unmodulated B000
	PTP	1588 v.2 as Grandmaster or subscriber IEC 61850-9-3 Power Profile and Power Utility Profile as subscriber only
	SNTP	IP v.4 and IP v.6 Networks
IEC 61850	Performance	Type 1A Class P2/3 (IEC 61850-5)
	Certifications	IEC 61850 Edition 2 with Amendment 1 Parts 6, 7-1, 7-2, 7-3, 7-4, 8-1, 9-2, and IEC 61869 First Edition Part 9 Conformance Blocks: 9a: GOOSE publish 11a: Sampled Values publish 9b: GOOSE subscribe 13a: Time Sync SNTP 13b: Time Sync PTP Certificates available upon request.
	VLAN Support	Selectable priority and VLAN-ID
	Publishing - Sampled Values	IEC 61850 9-2 Amendment 1 (includes IEC 61869-9 and 9-2 LE profiles) 12 streams 64 sources* *The maximum of 12 streams cannot contain more than the maximum of 64 total available sources. Apply sources in your test cases in consideration of the following: <ul style="list-style-type: none"> • For 61869-9, maximum of 24 sources per stream. • For 9-2 LE, fixed quantity of 8 sources per stream. • I/O expends only one source regardless of quantity of analog and/or digital I/O signals.
	Publishing - GOOSE / R-GOOSE	> 1024 configurable virtual outputs (128 messages)
	Subscribing - GOOSE / R-GOOSE	1024 configurable virtual inputs
Other	Future Use	1 x USB 3.0 Type A
		1 x EXP Port
General	Display	Diagnostics at boot up
	Weight	2.25 lbs. (1.02 kg)



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PUBLISHED: JANUARY, 2024