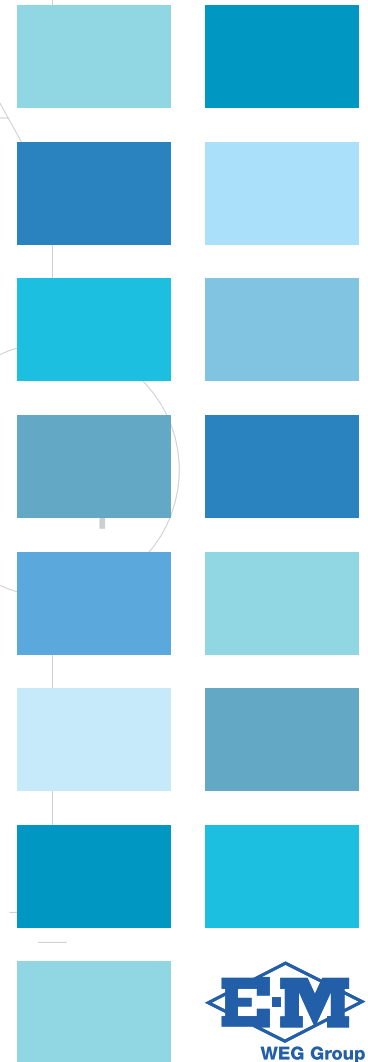
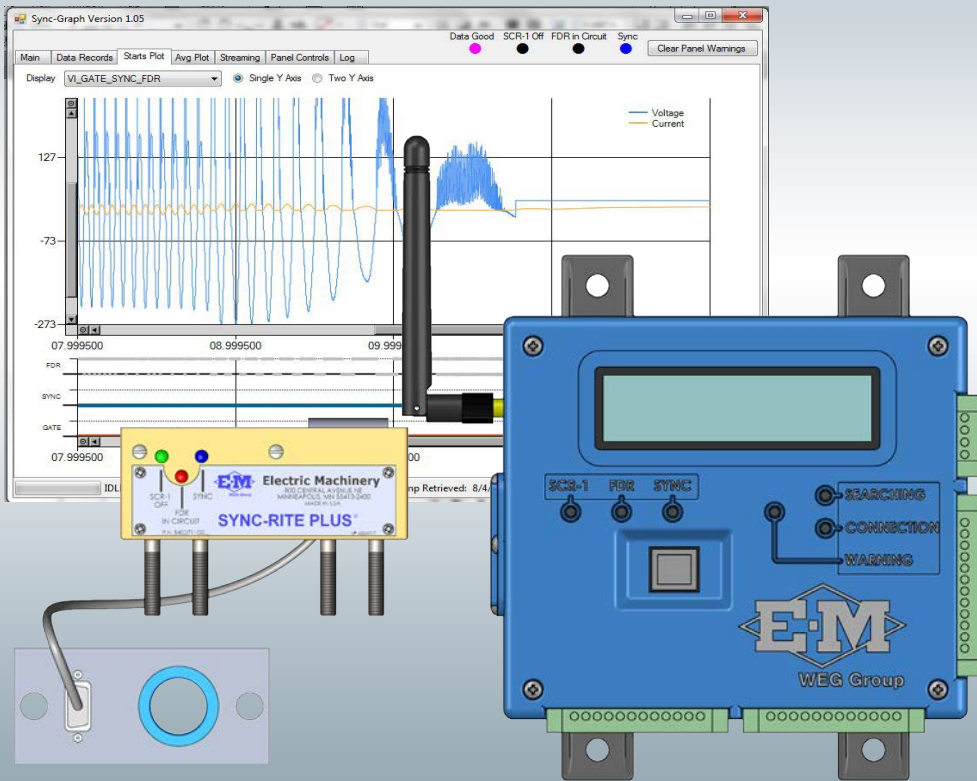


Sync-Rite Plus™ System



Sync-Rite Plus™ System

Features and Benefits

The WEG Electric Machinery Sync-Rite Plus™ System integrates synchronization controls and rotor telemetry to provide the information you need to keep your motor up and running.

Less Downtime

Information is the key to reducing downtime. When a motor won't synchronize or has a component failure, it is often difficult to know where to start in addressing the issue. The typical solution is trial and error until the problem is resolved. The Sync-Rite Plus™ System eliminates this slow and costly process by providing you with the telemetry data required to immediately identify the issue. With this information, problems can be solved quickly and motors put back into service with minimal downtime.

Wireless and Data Logging

- Data logging capability insures that valuable telemetry data is always saved.
- Wireless capability allows access to data without shutting down the machine.
- No slip rings, external antennas or wireless receivers needed in close proximity to rotating transmitter.

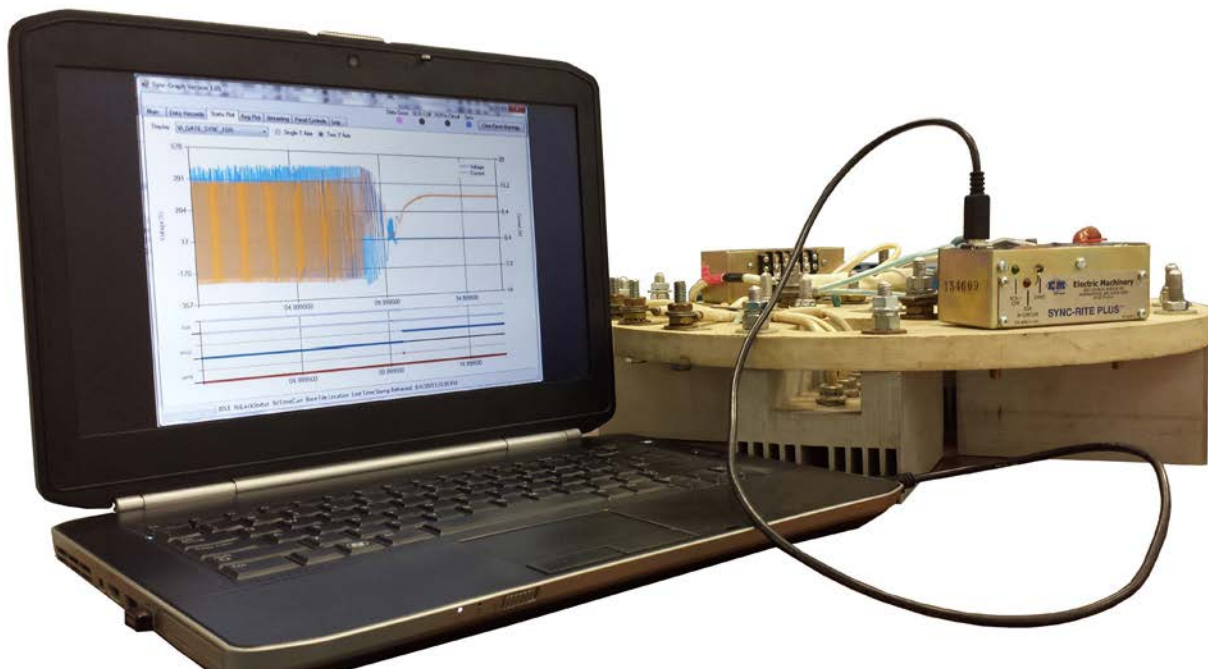
Integration

Unlike other telemetry options, the Sync-Rite Plus™ System does not require the installation of a separate telemetry system. By integrating the telemetry system into the synchronization controller you get the following benefits:

- High reliability and easy installation due to less components and less complexity.
- Ability to correlate the controller's actions with actual measurements.
- Cost savings from only purchasing a single system.

Availability

- Components of the Sync-Rite Plus™ System are standard products for WEG Electric Machinery and are stocked domestically within the USA.
- Field tested for multiple industries.
- System solutions available including NEMA 4X enclosures for hazardous areas.



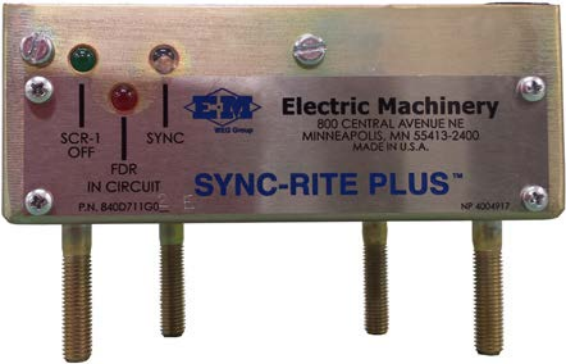
Sync-Rite Plus™ Hardwire Data Retrieval



Sync-Rite Plus™ System - Standard Components

Sync-Rite Plus™

Industry leading synchronous motor starting control, now with the added benefits of data logging and wireless streaming technology.



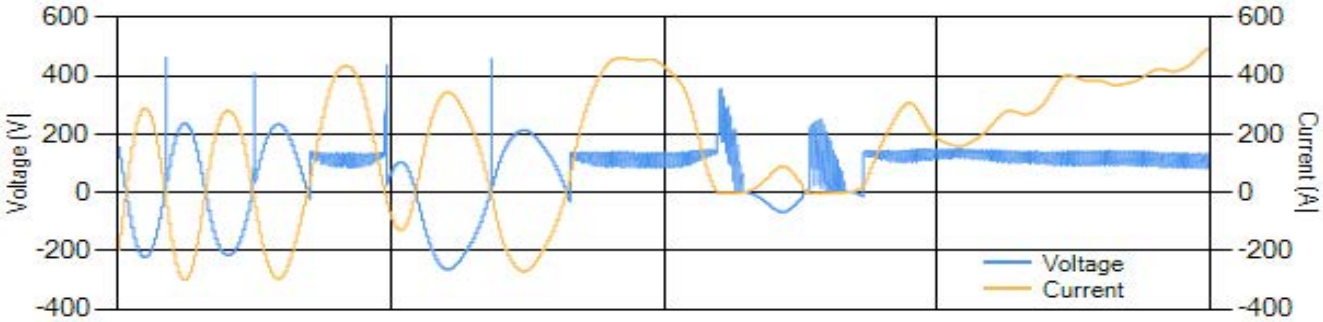
Sync-Rite Plus™



Sync-Rite Plus™ Filter

Sync-Rite Plus™ Benefits

- Reliably synchronizes any brushless synchronous motor.
- Interchangeable with all legacy Sync-Rite™ models.
- Monitors and records the following:
 - Field Voltage
 - Field Current (with Sync-Rite Plus™ Current Sensor)
 - FDR status (in or out of circuit)
 - Firing of SCR-1
- Customizable control settings allow controller to be optimized for various motors and loads.
 - Slip sync speeds from 90% to 99.5%
 - Zero slip sync times from 2 to 5.5 seconds
- Wireless transceiver for streaming data and downloading data records without shutting the machine down.
- USB port allows data to be gathered from the machine during outages when the machine is not running.
- Starting Records provide an invaluable tool for solving synchronization issues should they occur.
- Average Records track changes in the operating conditions of the machine to identify issues early, and allows users to take corrective actions before the issues become serious.
- Original Sync-Rite™ Control's green and red indicators and a new blue indicator that gives positive confirmation that the motor has been synchronized.



Typical Synchronization Waveforms



Sync-Rite Plus™ System - Standard Components

Sync-Rite Plus™ Current Sensor

The Sync-Rite Plus™ Current Sensor works with the Sync-Rite Plus™ to measure and record a synchronous motor's field current.

Sync-Rite Plus™ Current Sensor Benefits

The ability to measure and record a synchronous motor's field current greatly increases the diagnostic capabilities of the Sync-Rite Plus™ System.

Protect Field Windings

Calculation of rotor winding temperature from the field current and resistance. With this temperature calculation, it's possible to detect problems such as clogged filters or dirty windings. This prevents serious failures such as failed field windings, and helps with planning outages for maintenance.

Detect Failed SCRs and Controller

Recording field current during starting makes it easy to detect failed components.

Identify Loading Issues during Starts

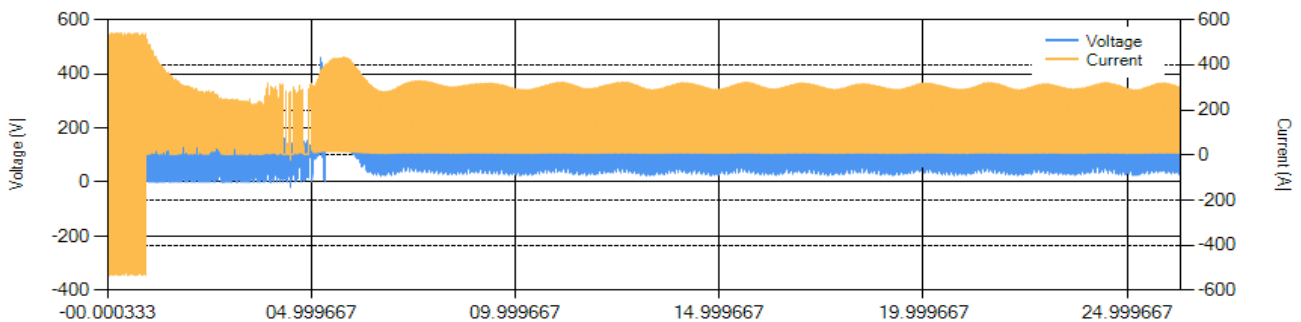
Recording field current during starting also allows loading issues during starting to be quickly identified and corrected. This leads to fewer start attempts and reduced downtime.



Sync-Rite Plus™ Current Sensor



Installed Sync-Rite Plus™ Current Sensor



Example where a Sync-Rite Plus™ & Current Sensor were used to monitor a competitor's controller. The current wave-form above clearly shows the point at which the controller incorrectly stopped gating the SCR, causing major issues.



Sync-Rite Plus™ System - Standard Components

Sync-Rite Plus™ Display Panel

The Sync-Rite Plus™ Display Panel is a convenient device for monitoring and downloading data wirelessly from a Sync-Rite Plus™. Whether used as a stand-alone monitoring device, interfaced to a computer, interfaced to user equipment, or any combination of these, the Sync-Rite Plus™ Display Panel provides the functionality you need.



Sync-Rite Plus™ Display Panel

Sync-Rite Plus™ Display Panel Benefits

Monitoring Capabilities

- Convenient and continuous display of field current, voltage, and temperature
- Displays easy to understand operating mode messages along with warning messages
- Real-time indicators that replicate the LEDs on the Sync-Rite Plus™
- Customizable warning indicator, which can be configured by the user
- Proprietary algorithm for detecting open diodes, shorted diodes, or exciter phase-to-phase shorts

Flexible Data Acquisition Interface

The Panel provides flexible output options for interfacing with user equipment and data acquisition systems.

- Three double throw relays that can be configured to energize based on warnings, synchronization, or wireless connection state
- Digital outputs (5V logic) that correspond to relays
- Three 0 to 5V or 1 to 5V (user selectable range) output voltages corresponding to the motor's field voltage, field current, and estimated field temperature
- Three 0 to 20mA or 4 to 20mA (user selectable range) output currents corresponding to the motor's field voltage, field current, and estimated field temperature

Wireless Repeater

In some applications, locating the panel close to the machine is either impractical or inconvenient.

Wireless Repeater Benefits

By adding WEG EM's Wireless Repeaters, the Sync-Rite Plus™ Display Panel can be located in control room or next to data acquisition equipment. This reduces noise and saves money on interconnections.

- Each Wireless Repeater extends the wireless range typically by 200 feet
- Multiple Wireless Repeaters can be wirelessly linked together to further extend the wireless range
- USB port and free, easy to use software makes setting up the wireless connection easy and hassle free



Wireless Repeater and Power Supply

Sync-Rite Plus™ System - Standard Packages

Online Monitoring Package

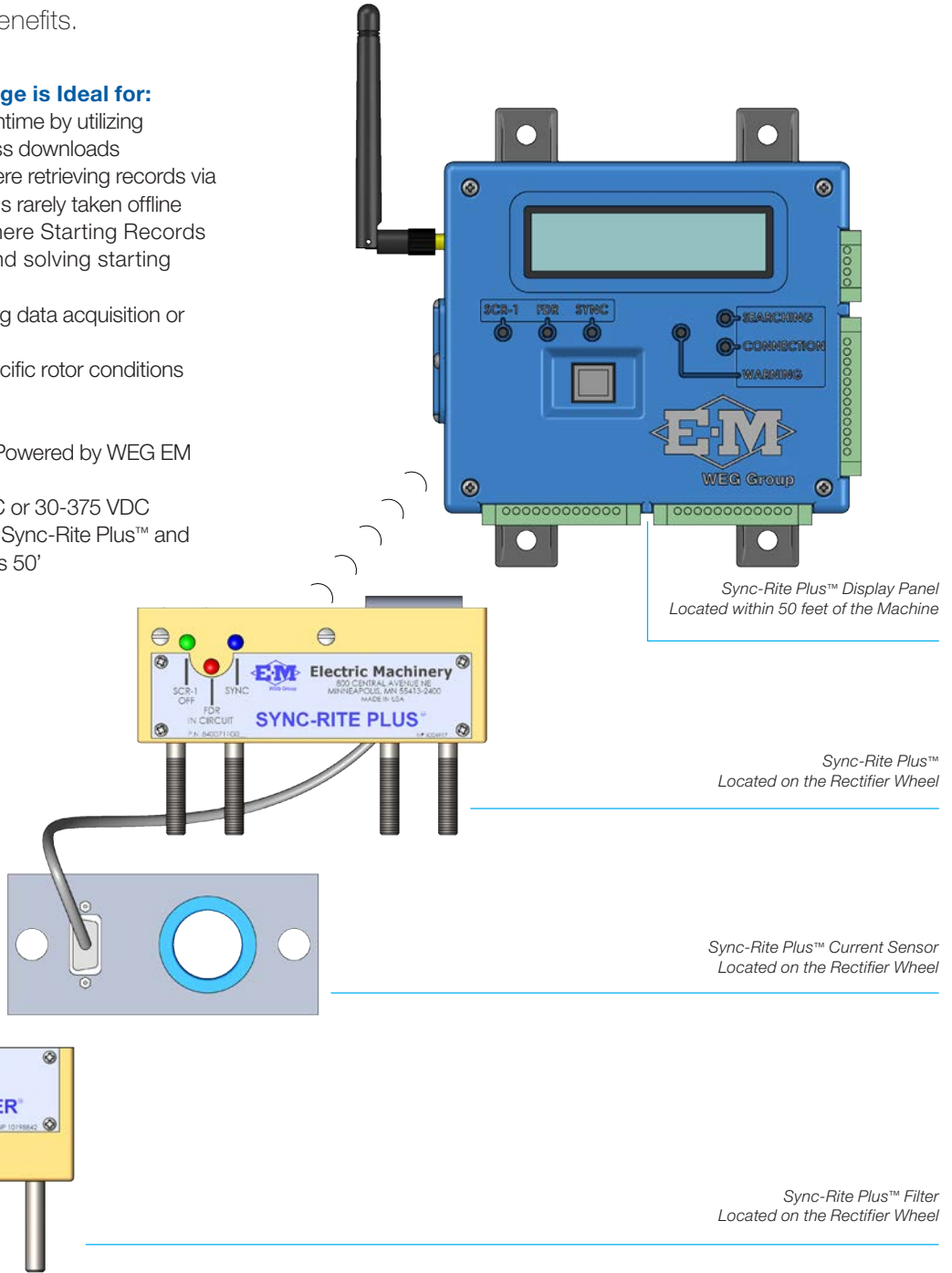
The Online Monitoring Package includes all the components to take full advantage of all the Sync-Rite Plus™ System benefits.

The Online Monitoring Package is Ideal for:

- Users interested in limiting downtime by utilizing real-time monitoring and wireless downloads
- Infrequently starting motors where retrieving records via USB is impractical since motor is rarely taken offline
- Frequently starting motors where Starting Records are invaluable for detecting and solving starting issues quickly
- Adding rotor telemetry to existing data acquisition or monitoring systems
- Generating alarm based on specific rotor conditions

Requirements

- Sync-Rite Plus™ Display Panel Powered by WEG EM Power Supply 10189104
- Usable input range: 25-264 VAC or 30-375 VDC
- Typical wireless range between Sync-Rite Plus™ and Sync-Rite Plus™ Display Panel is 50'



Sync-Rite Plus™ System - Standard Packages

Extended Online Monitoring Package

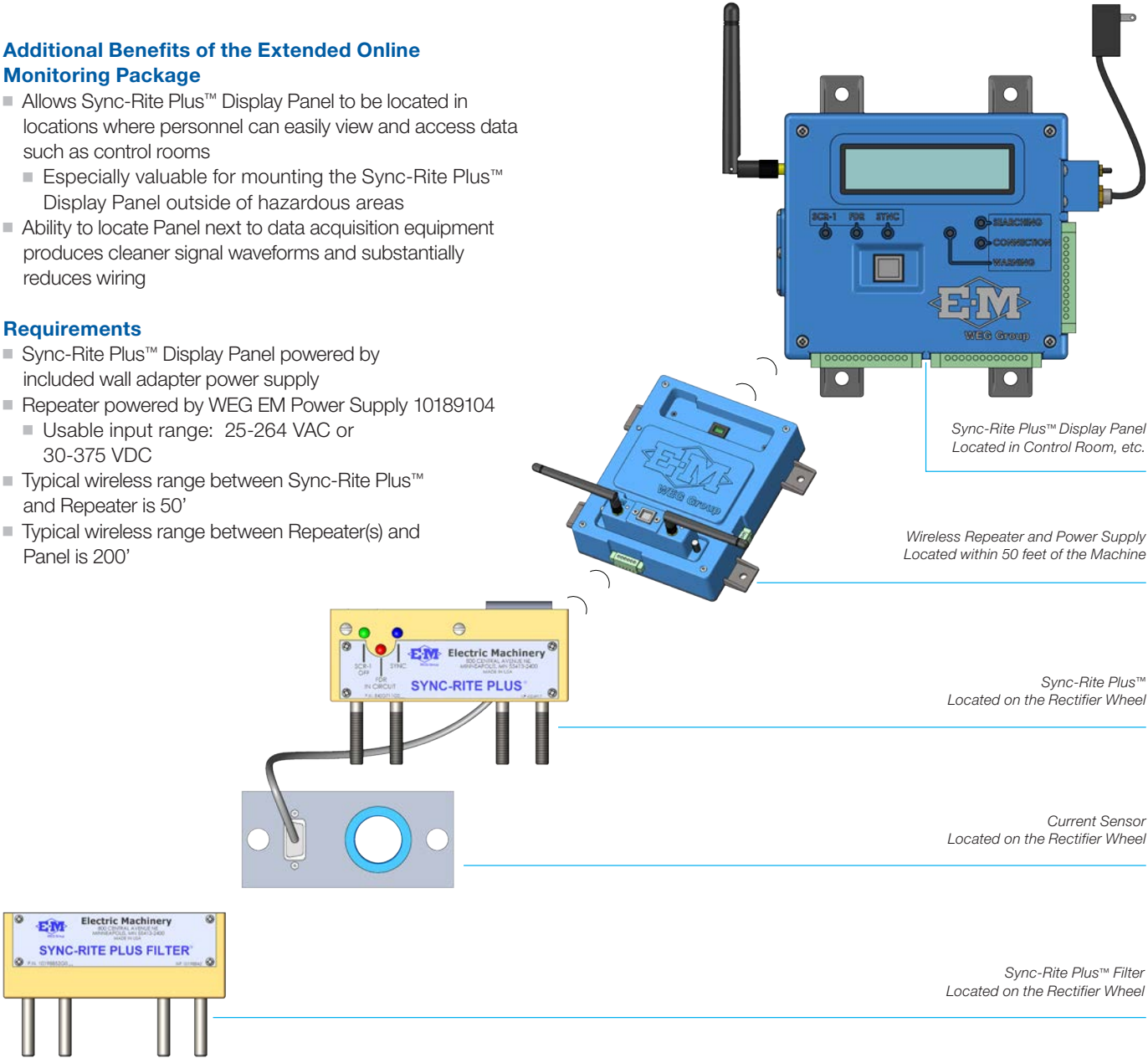
The Extended Online Monitoring Package provides the freedom to mount the Sync-Rite Plus™ Display Panel where it is most convenient. One or more Wireless Repeaters are used in this option to extend the distance between the Sync-Rite Plus™ and Display Panel. This allows the Display Panel to be located in a control room, next to data acquisition equipment, or in any other practical location.

Additional Benefits of the Extended Online Monitoring Package

- Allows Sync-Rite Plus™ Display Panel to be located in locations where personnel can easily view and access data such as control rooms
 - Especially valuable for mounting the Sync-Rite Plus™ Display Panel outside of hazardous areas
- Ability to locate Panel next to data acquisition equipment produces cleaner signal waveforms and substantially reduces wiring

Requirements

- Sync-Rite Plus™ Display Panel powered by included wall adapter power supply
- Repeater powered by WEG EM Power Supply 10189104
 - Usable input range: 25-264 VAC or 30-375 VDC
- Typical wireless range between Sync-Rite Plus™ and Repeater is 50'
- Typical wireless range between Repeater(s) and Panel is 200'



Sync-Rite Plus™ System - Standard Packages

Handheld Preventive Maintenance Package

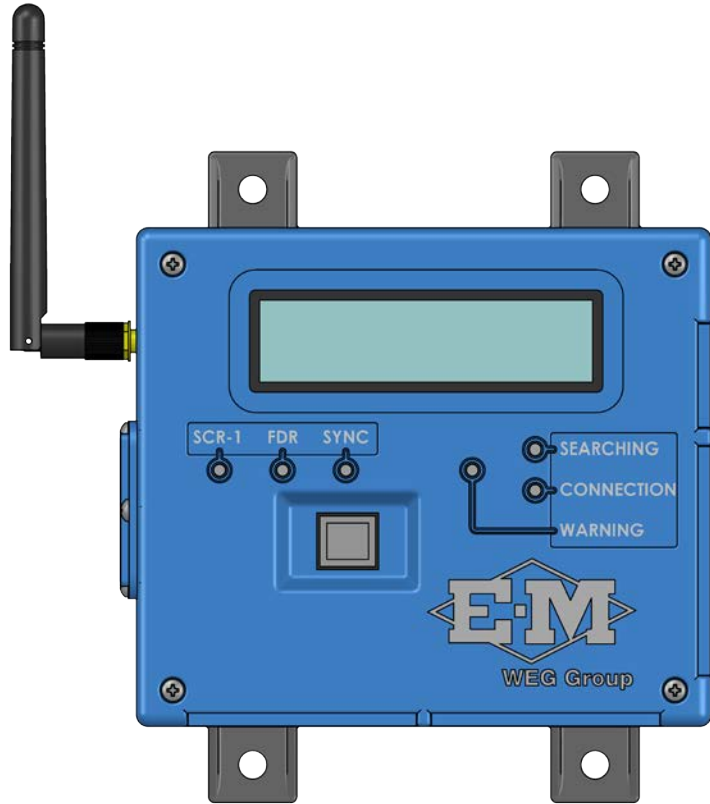
A convenient handheld device for periodic maintenance checks and for troubleshooting motor problems. This is the same package WEG EM Service personnel use in the field.

Handheld Preventive Maintenance Package is Ideal for:

- Periodically checking motor conditions
- Troubleshooting
- Users who want the convenience of a mobile handheld device
- Users without data acquisition equipment

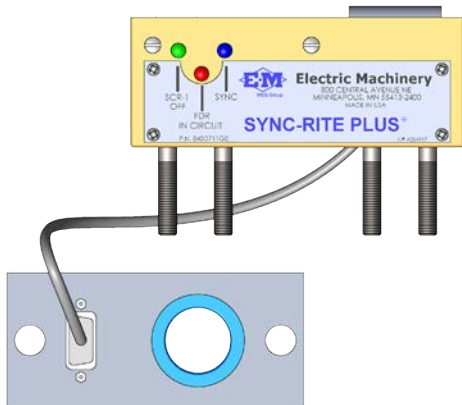
Requirements

- Sync-Rite Plus™ Display Panel Powered by USB
- Typical wireless range between Sync-Rite Plus™ and Sync-Rite Plus™ Display Panel is 50'
 - Wireless range can be extended by 200' with addition of Wireless Repeater



Data Logging Option

For customers who don't want to install an entire Sync-Rite Plus™ System. WEG EM offers the option of only installing the Sync-Rite Plus™ and Sync-Rite Plus™ Current Sensor



Data Logging Package Allows:

- Data downloads of Starting and Average Records that can be sent to WEG EM for analysis
- A lower cost solution that still enables WEG EM to use logged data for assisting with motor problems
- Customizable control settings and positive visual confirmation of synchronization

Requirements

- Direct USB connection to Sync-Rite Plus™ for data downloads



Sync-Rite Plus™ System - Standard Software

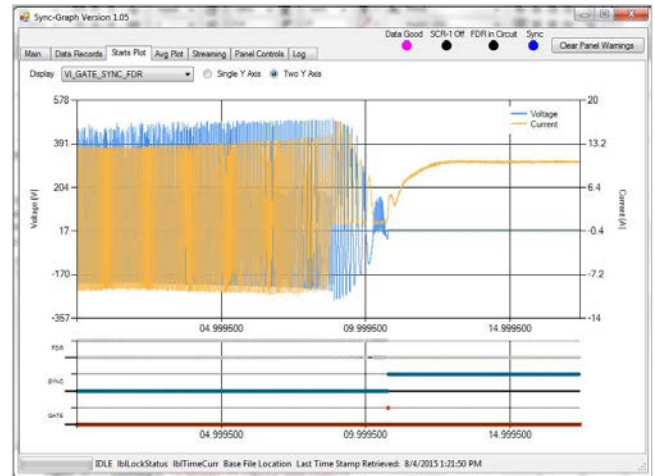
Sync-Graph Software

The Sync-Graph program is a powerful software tool that interfaces with the Sync-Rite Plus™ Display Panel for monitoring and downloading data from the Sync-Rite Plus™.

Sync-Graph Features

- Sync-Graph makes it easy to visualize Starting and Average Records via graphs
 - Track changes in load conditions
 - View conditions that may be preventing synchronization
 - View changes in field voltage and current over time
 - Track changes in the estimated field temperature
- The streaming and graphing capabilities of Sync-Graph can eliminate the need for additional data acquisition equipment
- Monitor a motor's field voltage, current, and estimated temperature along with displaying the Sync-Rite Plus™ control settings

*Sync-Graph requires the purchase of a Sync-Rite Plus™ Display Panel.



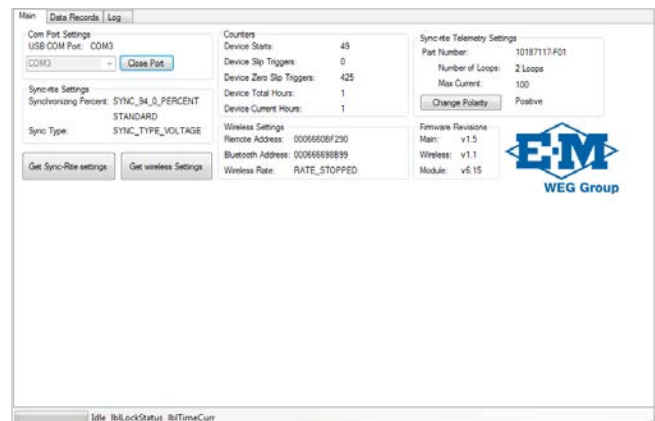
Example Plot of Sync-Graph Starting Record

Sync-Fetch Software

Sync-Fetch is designed to allow users to download data to their computer. This data can then be sent to WEG EM Service for analysis, carried out according to the current rates.

Sync-Fetch Features

- Ability to view Sync-Rite Plus™ history
- View the Sync-Rite Plus™ control settings
- Allows you to send WEG EM Service both Starting Records and Average Records if you encounter a problem
- All records are time stamped to help correlate information
- Records include information about field voltage, current, FDR's state (in or out of the circuit), and SCR gate state (being fired or not)



Sync-Fetch Main Information Display

Sync-Rite Plus™ System - Part Ordering Information

Item No.	Part No.	Description	Online Monitoring Package	Extended Online Monitoring Package	Handheld Preventive Maintenance Package	Data Logging Option
1	840D711G02	Sync-Rite Plus™	X	X	X	X
2	10198852	Sync-Rite Plus™ Filter	X	X	X	X
3	10187117	Sync-Rite Plus™ Current Sensor	X	X	X	X
4	10189104G01	Sync-Rite Plus™ Display Panel (External Power Supply, AC or DC)	X			
5	10189104G02	Sync-Rite Plus™ Display Panel (Wall Mounted Power Supply)		X		
6	10189104G03	Sync-Rite Plus™ Display Panel (USB Powered)			X	
7	10189352G01	Wireless Repeater		X	Optional	
8	-	Sync-Graph	X	X	X	
9	-	Sync-Fetch				X
10	10189351G01	Power Supply	X	X		
11	10189460G01	Universal Tester	Optional	Optional	Optional	Optional
12	10199579	NEMA 4x Enclosure for Sync-Rite Plus™ Display Panel	Optional	Optional		
13	10199577	NEMA 4x Enclosure for Wireless Repeater	Optional	Optional		
14	-	Data AnalysisReport	Optional	Optional	Optional	Optional

Contact WEG Electric Machinery for more information.



Sync-Rite Plus™ System - Technical Specifications

Sync-Rite Plus™		
	G01	G02
Size	4-1/2" x 2 x 1-3/4"	
Weight	24 ounces	
Mounting	4 HHCS bolts	
Voltage	19-75V	45-250V
Connection Type	Winchester- style screw connector USB	

Sync-Rite Plus™ Current Sensor									
	G01	G02	G03	G04	G05	G06	G07	G08	G09
Size	4" x 1.2" x 1.825"								
Weight	10 ounces								
Mounting	2 SHCS bolts and 2 spring lock washers								
Maximum Sensing Current	200*	250	300*	400	500	600	800	1000	1200
*Standard Sensor									

Sync-Rite Plus™ Display Panel			
	G01	G02	G03
Size	6.02" x 5.65" x 1.57"		
Weight	14 OUNCES		12 OUNCES
Mounting	4 mounting holes for 1/4" bolts		
Power Supply	10189104G01	Included Wall Adapter	USB 2.0
Additional Electrical Connections	3 DPDT Relays (250 VAC 10 AMP) 3 Analog Voltage Outputs (0-5V or 1-5V) 3 Analog Current Outputs (0-20 mA or 4-20 mA) 4 Digital Outputs (0/5V)		None



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