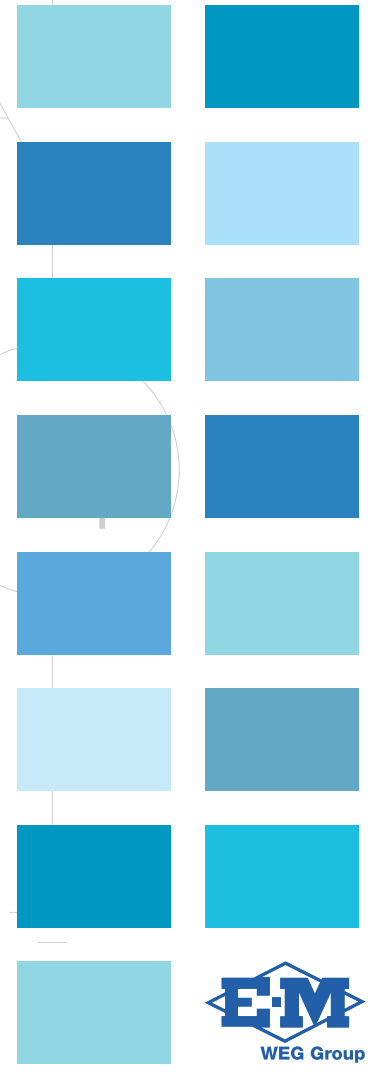
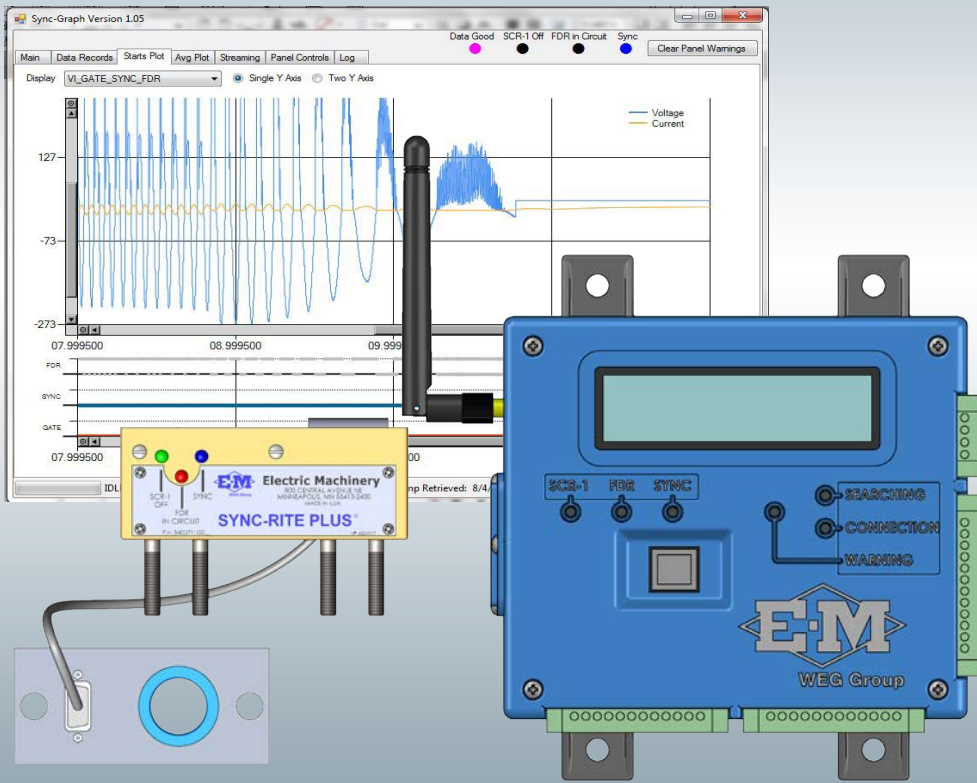


# Sync-Rite Plus™ System



# 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.

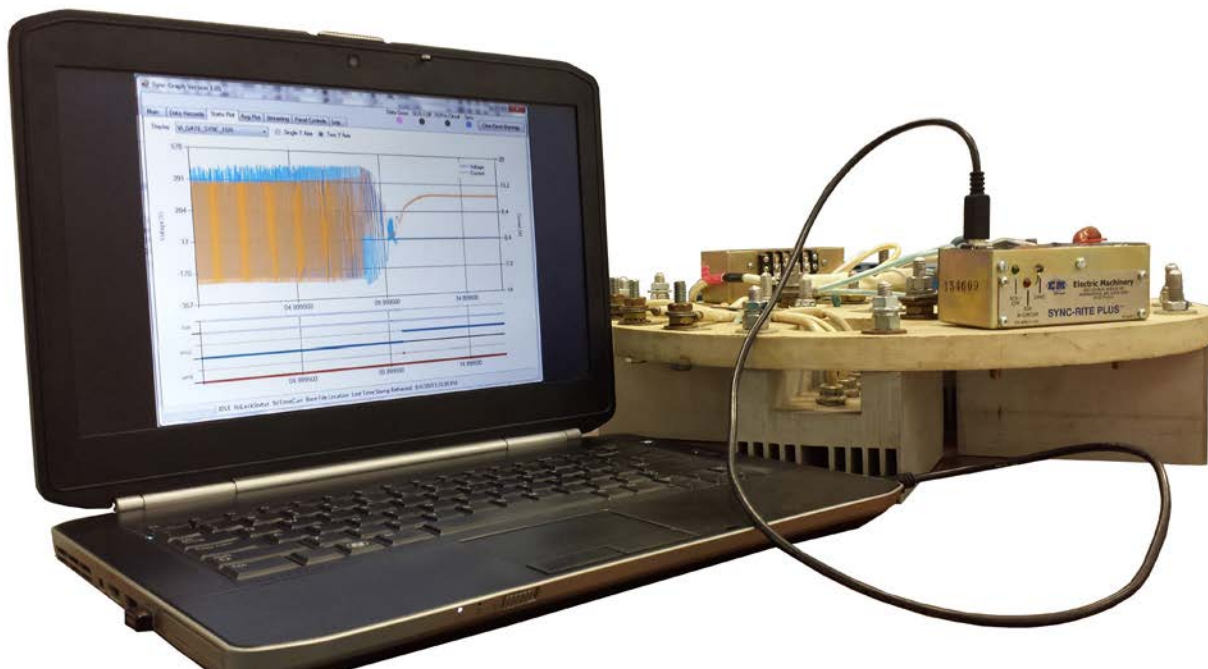
### Integration

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.



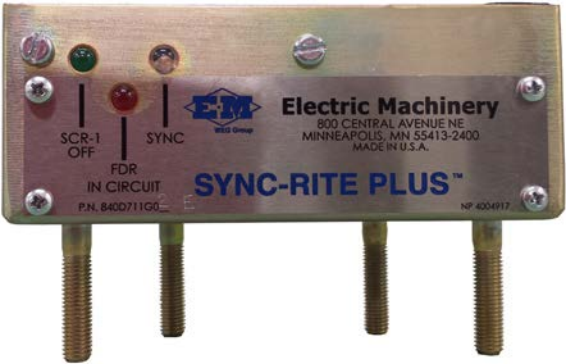
Sync-Rite Plus™ Hardwire Data Retrieval



# 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.



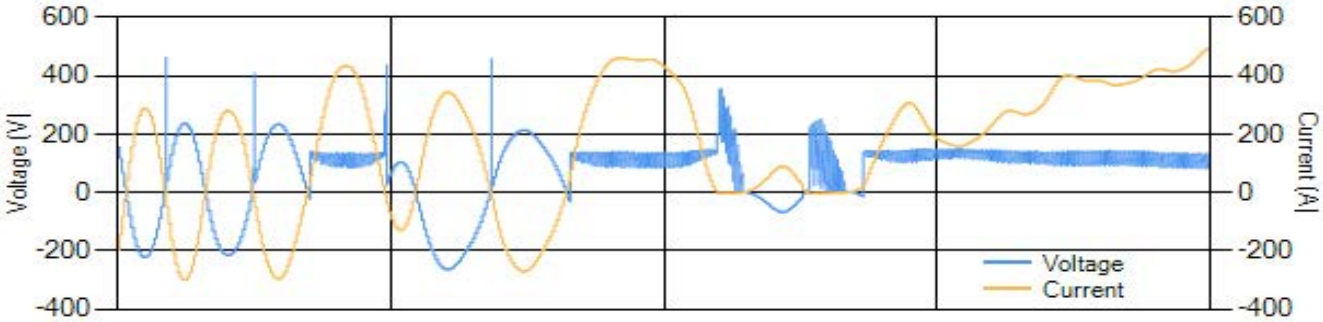
Sync-Rite Plus™



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

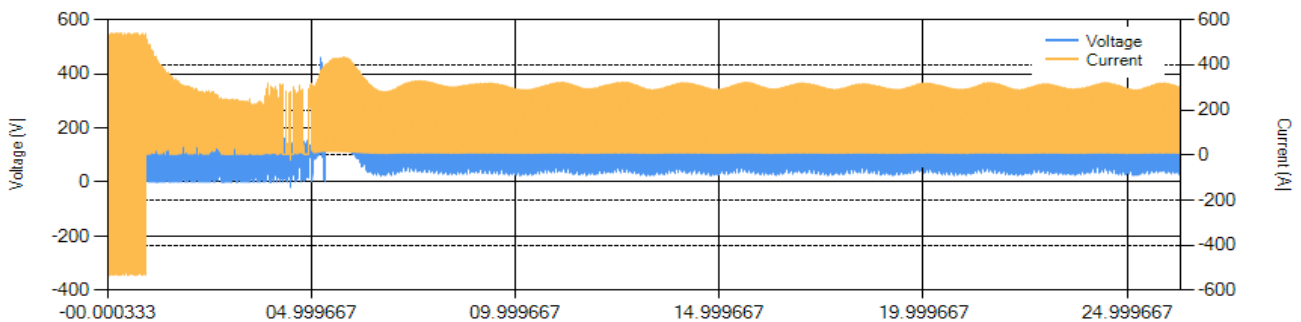
Recording field current during starting also allows loading issues during starting to be quickly identified and corrected. This leads to fewer start attempts and reduced downtime.



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

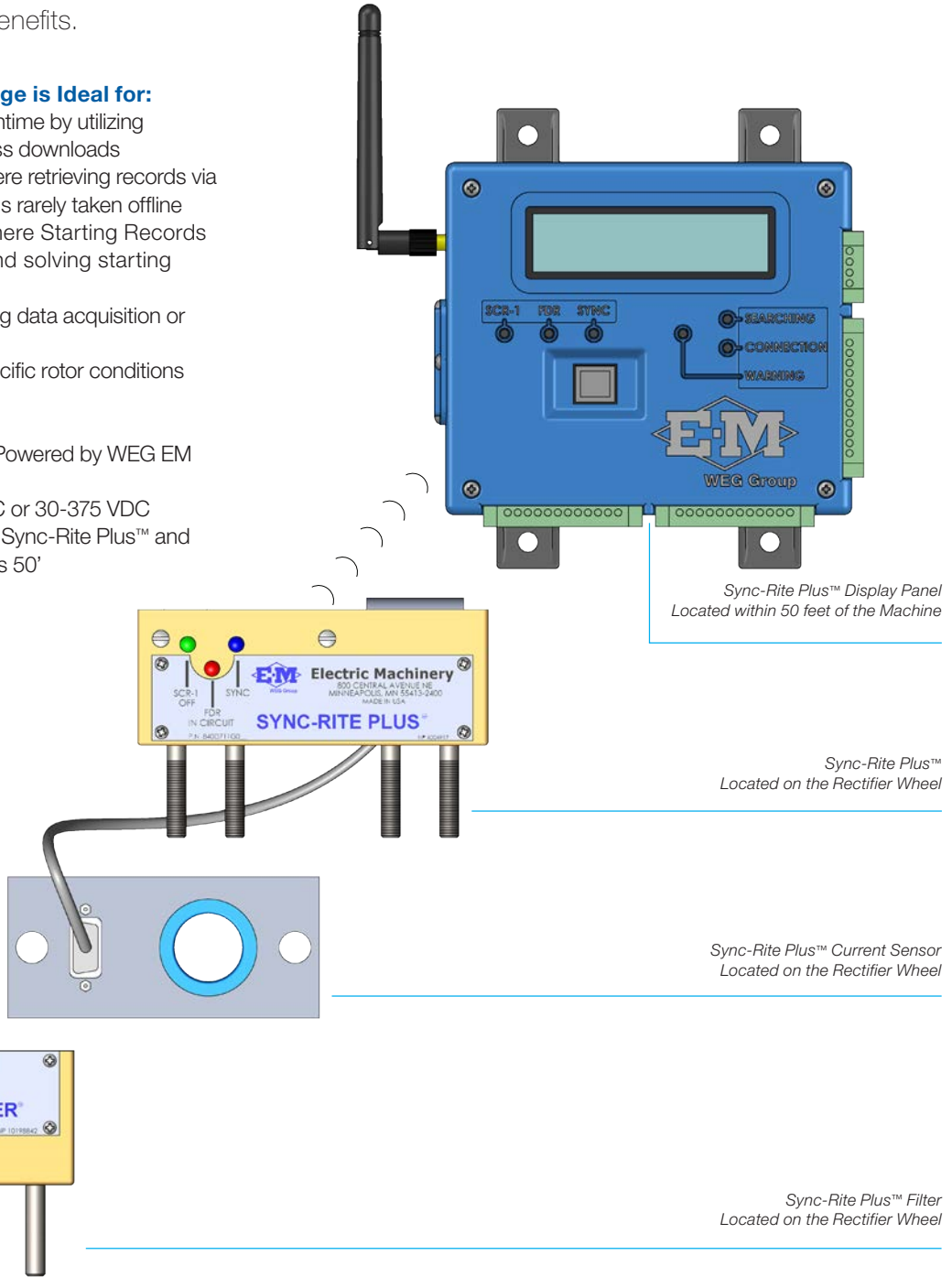
The Online Monitoring Package includes all the components to take full advantage of all the Sync-Rite Plus™ System benefits.

### 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

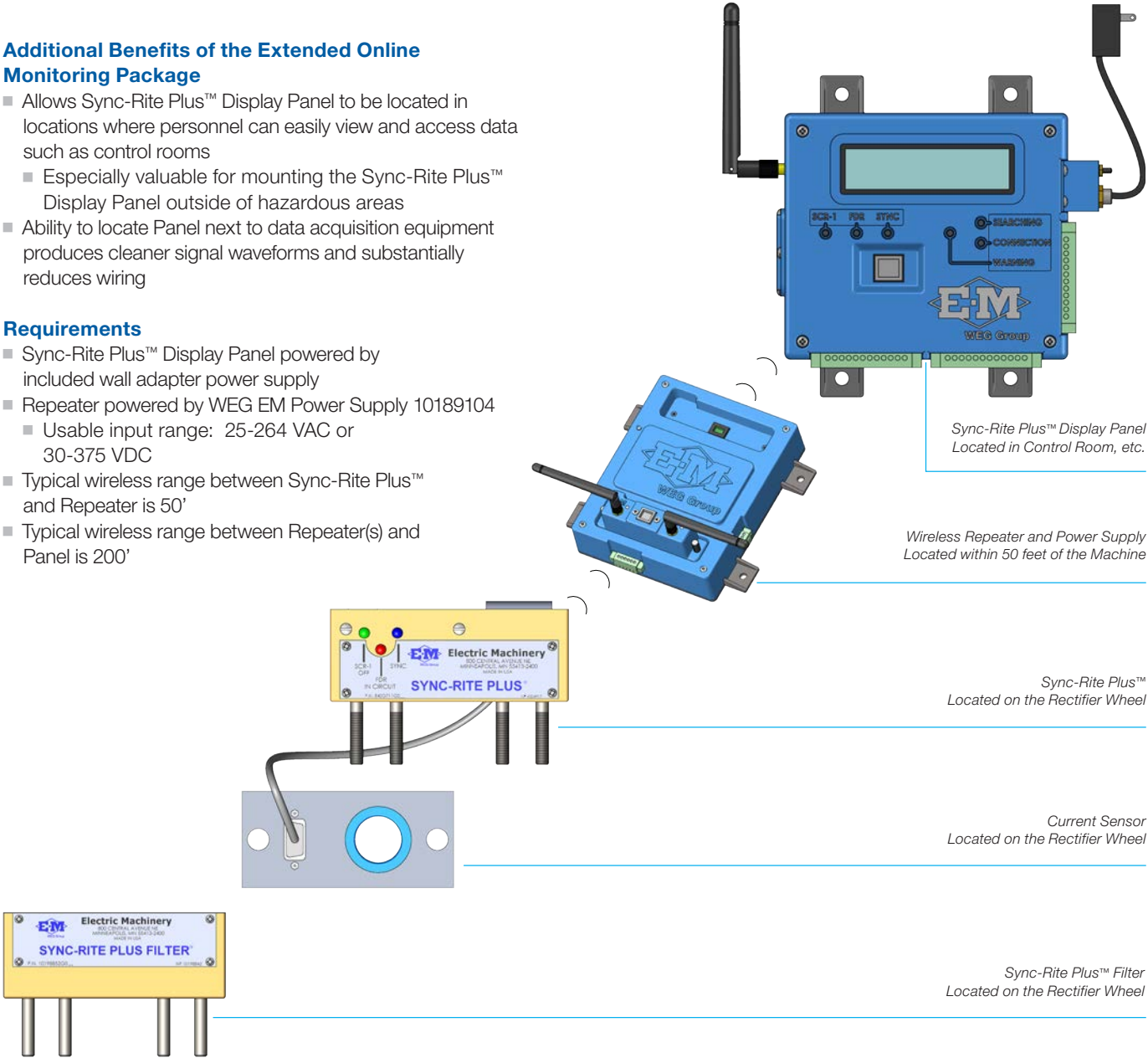
The Extended Online Monitoring Package provides the freedom to mount the Sync-Rite Plus™ Display Panel where it is most convenient. One or more Wireless Repeaters are used in this option to extend the distance between the Sync-Rite Plus™ and Display Panel. This allows the Display Panel to be located 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™ Display Panel  
Located in Control Room, etc.

Wireless Repeater and Power Supply  
Located within 50 feet of the Machine

Sync-Rite Plus™  
Located on the Rectifier Wheel

Current Sensor  
Located on the Rectifier Wheel

Sync-Rite Plus™ Filter  
Located on the Rectifier Wheel

## Sync-Rite Plus™ System - Standard Packages

### Handheld Preventive Maintenance Package

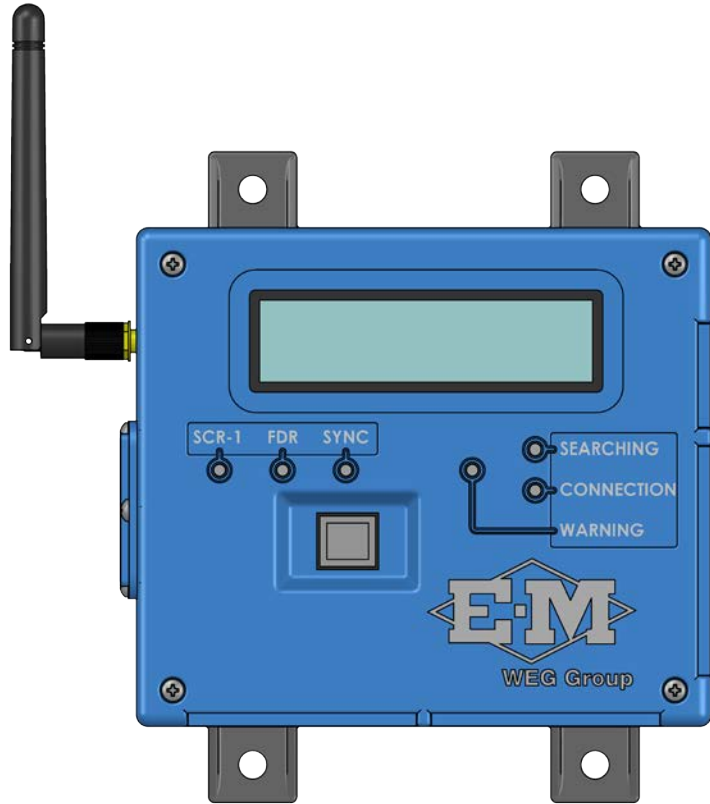
A convenient handheld device for periodic maintenance checks and for troubleshooting motor problems. This is the same package WEG EM Service personnel use in the field.

**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

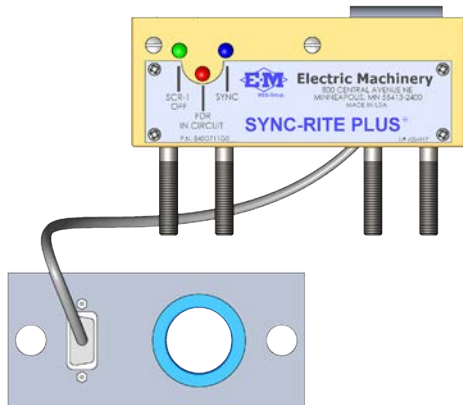
**Requirements**

- 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.



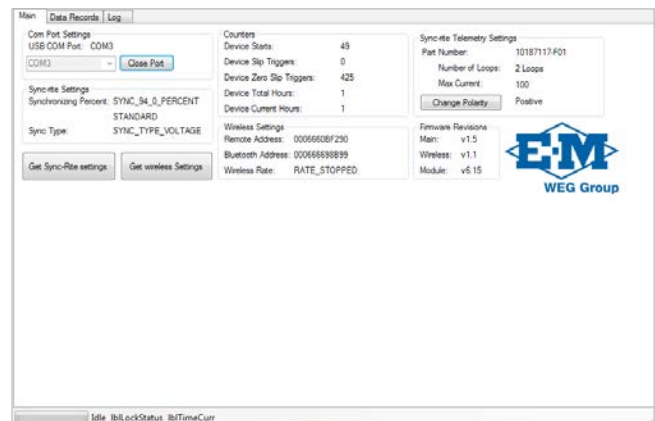
Example Plot of Sync-Graph Starting Record

### 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
<b>Size</b>	4-1/2" x 2 x 1-3/4"	
<b>Weight</b>	24 ounces	
<b>Mounting</b>	4 HHCS bolts	
<b>Voltage</b>	19-75V	45-250V
<b>Connection Type</b>	Winchester- style screw connector USB	

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

Sync-Rite Plus™ Display Panel			
	G01	G02	G03
<b>Size</b>	6.02" x 5.65" x 1.57"		
<b>Weight</b>	14 OUNCES		12 OUNCES
<b>Mounting</b>	4 mounting holes for 1/4" bolts		
<b>Power Supply</b>	10189104G01	Included Wall Adapter	USB 2.0
<b>Additional Electrical Connections</b>	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



# WEG Worldwide Operations

## ARGENTINA

WEG EQUIPAMIENTOS  
ELECTRICOS  
San Francisco - Cordoba  
Phone: +54 3564 421 484  
[info-ar@weg.net](mailto:info-ar@weg.net)  
[www.weg.net/ar](http://www.weg.net/ar)

WEG PINTURAS - Pulverlux  
Buenos Aires  
Phone: +54 11 4299 8000  
[tintas@weg.net](mailto:tintas@weg.net)

## AUSTRALIA

WEG AUSTRALIA  
Victoria  
Phone: +61 3 9765 4600  
[info-au@weg.net](mailto:info-au@weg.net)  
[www.weg.net/au](http://www.weg.net/au)

## AUSTRIA

WATT DRIVE - WEG Group  
Markt Piesting  
Phone: +43 2633 404 0  
[watt@wattdrive.com](mailto:watt@wattdrive.com)  
[www.wattdrive.com](http://www.wattdrive.com)

## BELGIUM

WEG BENELUX  
Nivelles - Belgium  
Phone: +32 67 88 84 20  
[info-be@weg.net](mailto:info-be@weg.net)  
[www.weg.net/be](http://www.weg.net/be)

## BRAZIL

WEG EQUIPAMENTOS ELÉTRICOS  
Jaraguá do Sul - Santa Catarina  
Phone: +55 47 3276-4002  
[info-br@weg.net](mailto:info-br@weg.net)  
[www.weg.net/br](http://www.weg.net/br)

## CHILE

WEG CHILE  
Santiago  
Phone: +56 2 784 8900  
[info-cl@weg.net](mailto:info-cl@weg.net)  
[www.weg.net/cl](http://www.weg.net/cl)

## CHINA

WEG NANTONG  
Nantong - Jiangsu  
Phone: +86 0513 8598 9333  
[info-cn@weg.net](mailto:info-cn@weg.net)  
[www.weg.net/cn](http://www.weg.net/cn)

## COLOMBIA

WEG COLOMBIA  
Bogotá  
Phone: +57 1 416 0166  
[info-co@weg.net](mailto:info-co@weg.net)  
[www.weg.net/co](http://www.weg.net/co)

## ECUADOR

WEG ECUADOR  
Quito  
Phone: 5144 339/342/317  
[wegecuador@weg.net](mailto:wegecuador@weg.net)  
[www.weg.net/ec](http://www.weg.net/ec)

## FRANCE

WEG FRANCE  
Saint Quentin Fallavier - Lyon  
Phone: +33 4 74 99 11 35  
[info-fr@weg.net](mailto:info-fr@weg.net)  
[www.weg.net/fr](http://www.weg.net/fr)

## GERMANY

WEG GERMANY  
Kerpen  
Phone: +49 2237 9291 0  
[info-de@weg.net](mailto:info-de@weg.net)  
[www.weg.net/de](http://www.weg.net/de)

## WEG BALINGEN

Balingen  
Phone: +49 7433 9041 0  
[info@weg-antriebe.de](mailto:info@weg-antriebe.de)  
[www.weg-antriebe.de](http://www.weg-antriebe.de)

## GHANA

ZEST ELECTRIC GHANA -  
WEG Group  
Accra  
Phone: +233 30 27 664 90  
[info@zestghana.com.gh](mailto:info@zestghana.com.gh)  
[www.zestghana.com.gh](http://www.zestghana.com.gh)

## INDIA

WEG ELECTRIC INDIA  
Bangalore - Karnataka  
Phone: +91 80 4128 2007  
[info-in@weg.net](mailto:info-in@weg.net)  
[www.weg.net/in](http://www.weg.net/in)

## WEG INDUSTRIES INDIA

Hosur - Tamil Nadu  
Phone: +91 4344 301 577  
[info-in@weg.net](mailto:info-in@weg.net)  
[www.weg.net/in](http://www.weg.net/in)

## ITALY

WEG ITALIA  
Cinisello Balsamo - Milano  
Phone: +39 02 6129 3535  
[info-it@weg.net](mailto:info-it@weg.net)  
[www.weg.net/it](http://www.weg.net/it)

## JAPAN

WEG ELECTRIC MOTORS  
JAPAN  
Yokohama City - Kanagawa  
Phone: +81 45 550 3030  
[info-jp@weg.net](mailto:info-jp@weg.net)  
[www.weg.net/jp](http://www.weg.net/jp)

## MALAYSIA

WATT EURO-DRIVE - WEG Group  
Shah Alam - Selangor  
Phone: 603 78591626  
[info@wattdrive.com.my](mailto:info@wattdrive.com.my)  
[www.wattdrive.com](http://www.wattdrive.com)

## MEXICO

WEG MEXICO  
Huehuetoca  
Phone: +52 55 5321 4231  
[info-mx@weg.net](mailto:info-mx@weg.net)  
[www.weg.net/mx](http://www.weg.net/mx)

## VOLTRAN - WEG Group

Tizayuca - Hidalgo  
Phone: +52 77 5350 9354  
[www.voltran.com.mx](http://www.voltran.com.mx)

## NETHERLANDS

WEG NETHERLANDS -  
Oldenzaal - Overijssel  
Phone: +31 541 571 080  
[info-nl@weg.net](mailto:info-nl@weg.net)  
[www.weg.net/nl](http://www.weg.net/nl)

## PERU

WEG PERU  
Lima  
Phone: +51 1 209 7600  
[info-pe@weg.net](mailto:info-pe@weg.net)  
[www.weg.net/pe](http://www.weg.net/pe)

## PORTUGAL

WEG EURO  
Maia - Porto  
Phone: +351 22 9477705  
[info-pt@weg.net](mailto:info-pt@weg.net)  
[www.weg.net/pt](http://www.weg.net/pt)

## RUSSIA and CIS

WEG ELECTRIC CIS  
Saint Petersburg  
Phone: +7 812 363 2172  
[info-ru@weg.net](mailto:info-ru@weg.net)  
[www.weg.net/ru](http://www.weg.net/ru)

## SOUTH AFRICA

ZEST ELECTRIC MOTORS  
WEG Group  
Johannesburg  
Phone: +27 11 723 6000  
[info@zest.co.za](mailto:info@zest.co.za)  
[www.zest.co.za](http://www.zest.co.za)

## SPAIN

WEG IBERIA  
Madrid  
Phone: +34 91 655 30 08  
[info-es@weg.net](mailto:info-es@weg.net)  
[www.weg.net/es](http://www.weg.net/es)

## SINGAPORE

WATT EURO-DRIVE - WEG Group  
Singapore  
Phone: +65 6 862 2220  
[watteuro@watteuro.com.sg](mailto:watteuro@watteuro.com.sg)  
[www.wattdrive.com](http://www.wattdrive.com)

## WEG SINGAPORE

Singapore  
Phone: +65 68589081  
[info-sg@weg.net](mailto:info-sg@weg.net)  
[www.weg.net/sg](http://www.weg.net/sg)

## SCANDINAVIA

WEG SCANDINAVIA  
Kungsbacka - Sweden  
Phone: +46 300 73 400  
[info-se@weg.net](mailto:info-se@weg.net)  
[www.weg.net/se](http://www.weg.net/se)

## UK

WEG ELECTRIC MOTORS U.K.  
Redditch - Worcestershire  
Phone: +44 1527 513 800  
[info-uk@weg.net](mailto:info-uk@weg.net)  
[www.weg.net/uk](http://www.weg.net/uk)

## UNITED ARAB EMIRATES

WEG MIDDLE EAST  
Dubai  
Phone: +971 4 813 0800  
[info-ae@weg.net](mailto:info-ae@weg.net)  
[www.weg.net/ae](http://www.weg.net/ae)

## USA

WEG ELECTRIC  
Duluth - Georgia  
Phone: +1 678 249 2000  
[info-us@weg.net](mailto:info-us@weg.net)  
[www.weg.net/us](http://www.weg.net/us)

## ELECTRIC MACHINERY -

WEG Group  
Minneapolis - Minnesota  
Phone: +1 612 378 8000  
[www.electricmachinery.com](http://www.electricmachinery.com)

## VENEZUELA

WEG INDUSTRIAS VENEZUELA  
Valencia - Carabobo  
Phone: +58 241 821 0582  
[info-ve@weg.net](mailto:info-ve@weg.net)  
[www.weg.net/ve](http://www.weg.net/ve)

For those countries where there is not a WEG own operation, find our local distributor at [www.weg.net](http://www.weg.net).  
For more information, please contact [service-em@weg.net](mailto:service-em@weg.net) or 24 Hour Customer Support +1 (612) 247 9232



ELECTRIC MACHINERY COMPANY  
800 Central Avenue NE - Minneapolis, MN 55413 USA  
Phone: +1 (612) 378 8000, Fax: +1 (612) 378 8050  
[www.electricmachinery.com](http://www.electricmachinery.com)  
[www.weg.net](http://www.weg.net)

