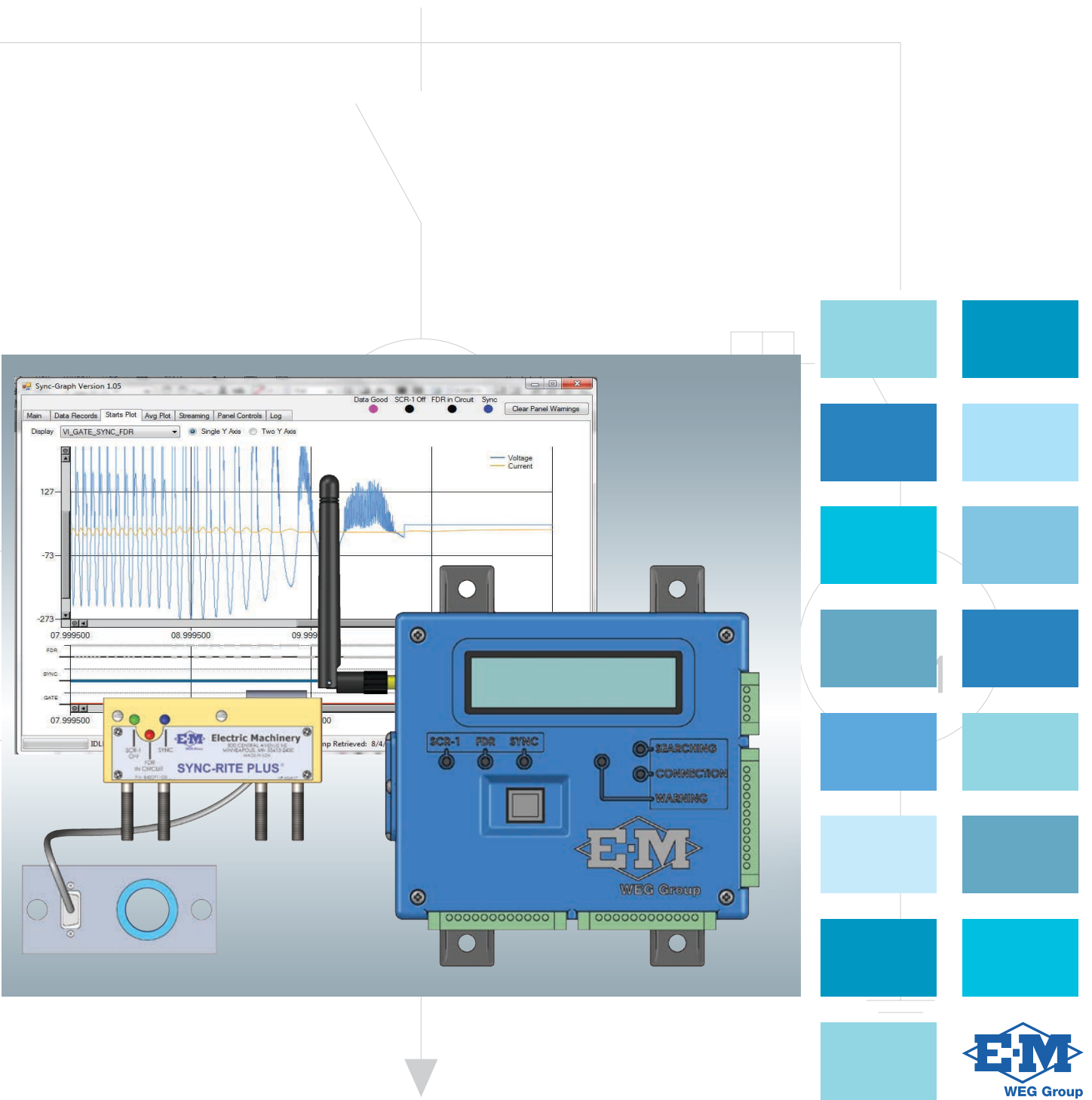# Sync-Rite Plus™ System

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.
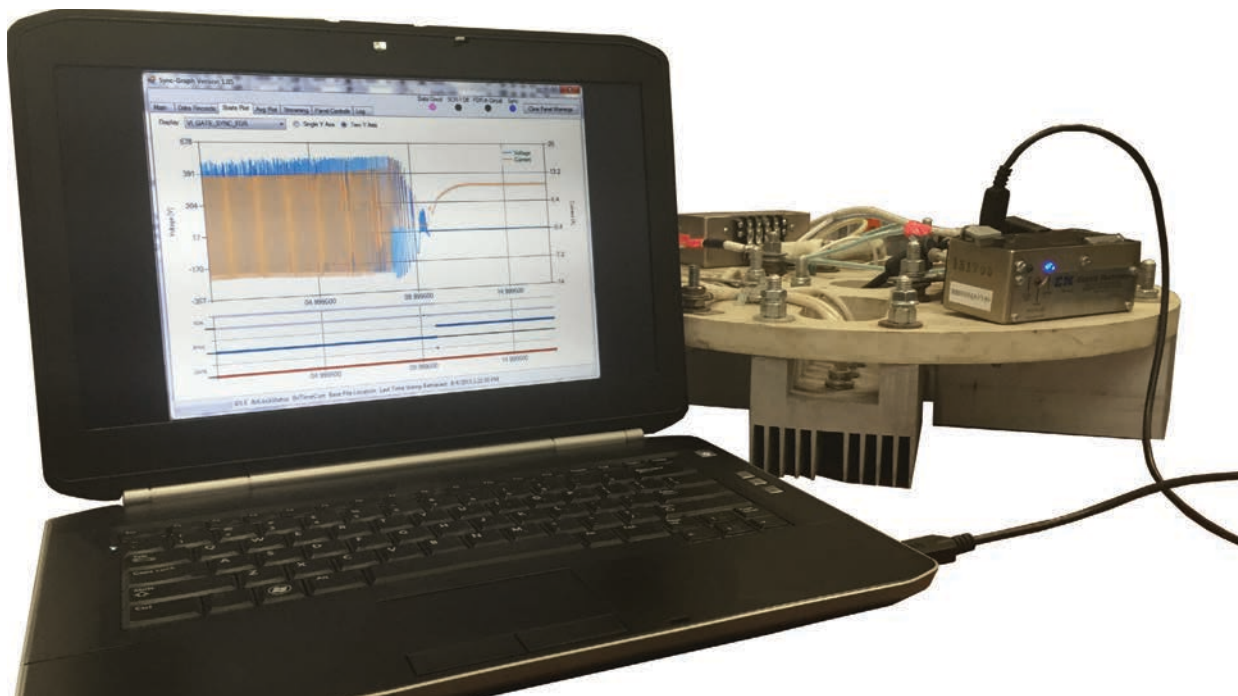- No slip rings, external antennas or wireless receivers needed in close proximity to rotating transmitter.

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.
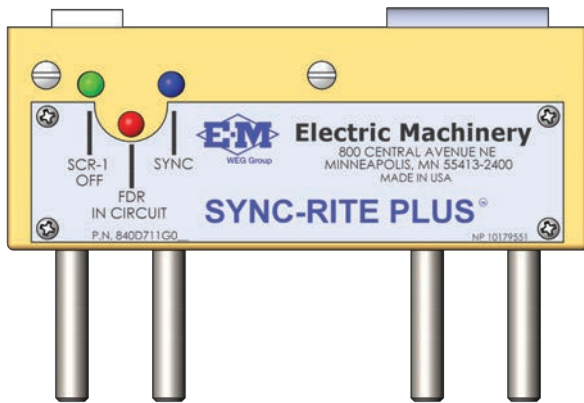- System solutions available including NEMA 4X enclosures for hazardous areas.

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.
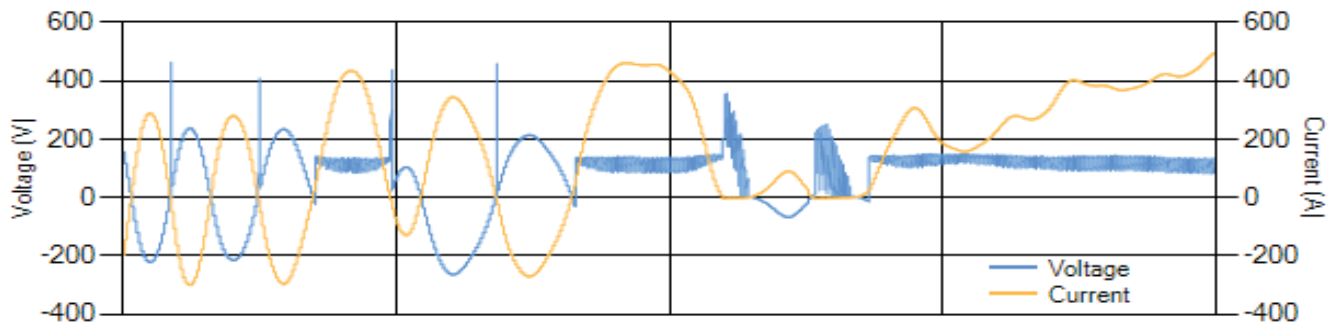

Sync-Rite Plus™

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 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
This ability to measure and record a synchronous motor's field current greatly increases the diagnostic capabilities of the Sync-Rite Plus™ System.
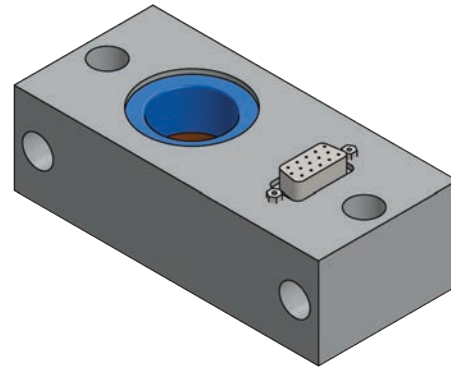
Protect Field Windings
Calculation of rotor winding temperature from the field current and resistance. With this temperature calculation, it's possible to detect problems such as clogged filters or dirty windings. This prevents serious failures such as failed field windings, and helps with planning outages for maintenance.

Detect Failed SCRs and Controller
Recording field current during starting makes it easy to detect failed components.

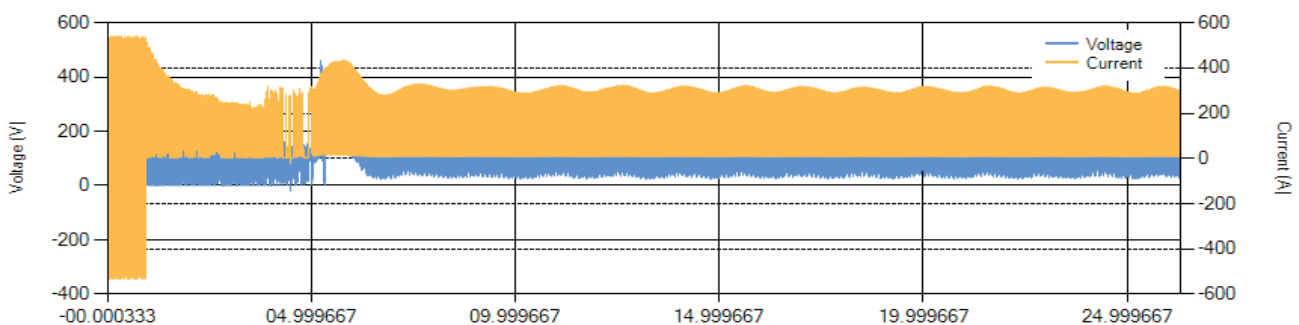### Identify Loading Issues during Starts
Recording field current during starting also allows loading issues during starting to be quickly identified and corrected. This leads to fewer start attempts and reduced downtime.

Sync-Rite Plus™ Current Sensor
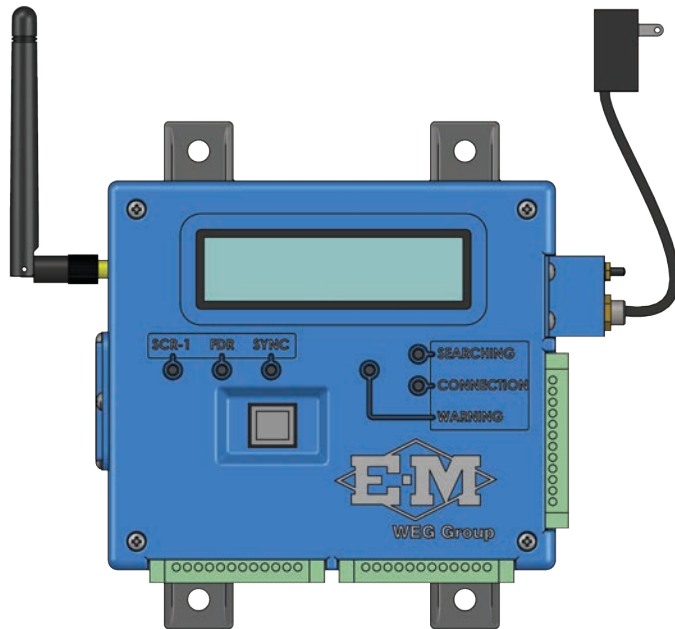

Sync-Rite Plus™ Current Sensor

Example where a Sync-Rite Plus™ & Current Sensor were used to monitor a competitor's controller. The current waveform 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
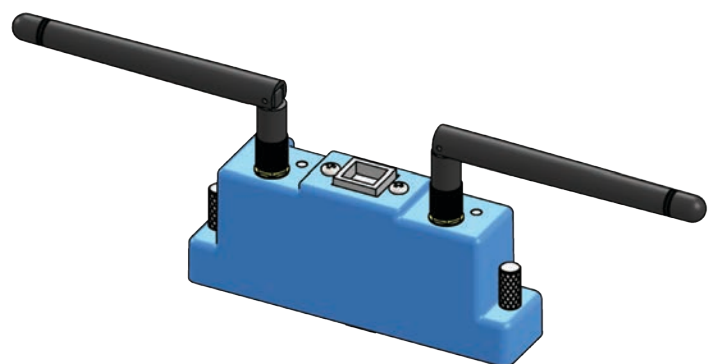
Wireless Repeater

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 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 make setting up the wireless connection easy and hassle free

Wireless Repeater

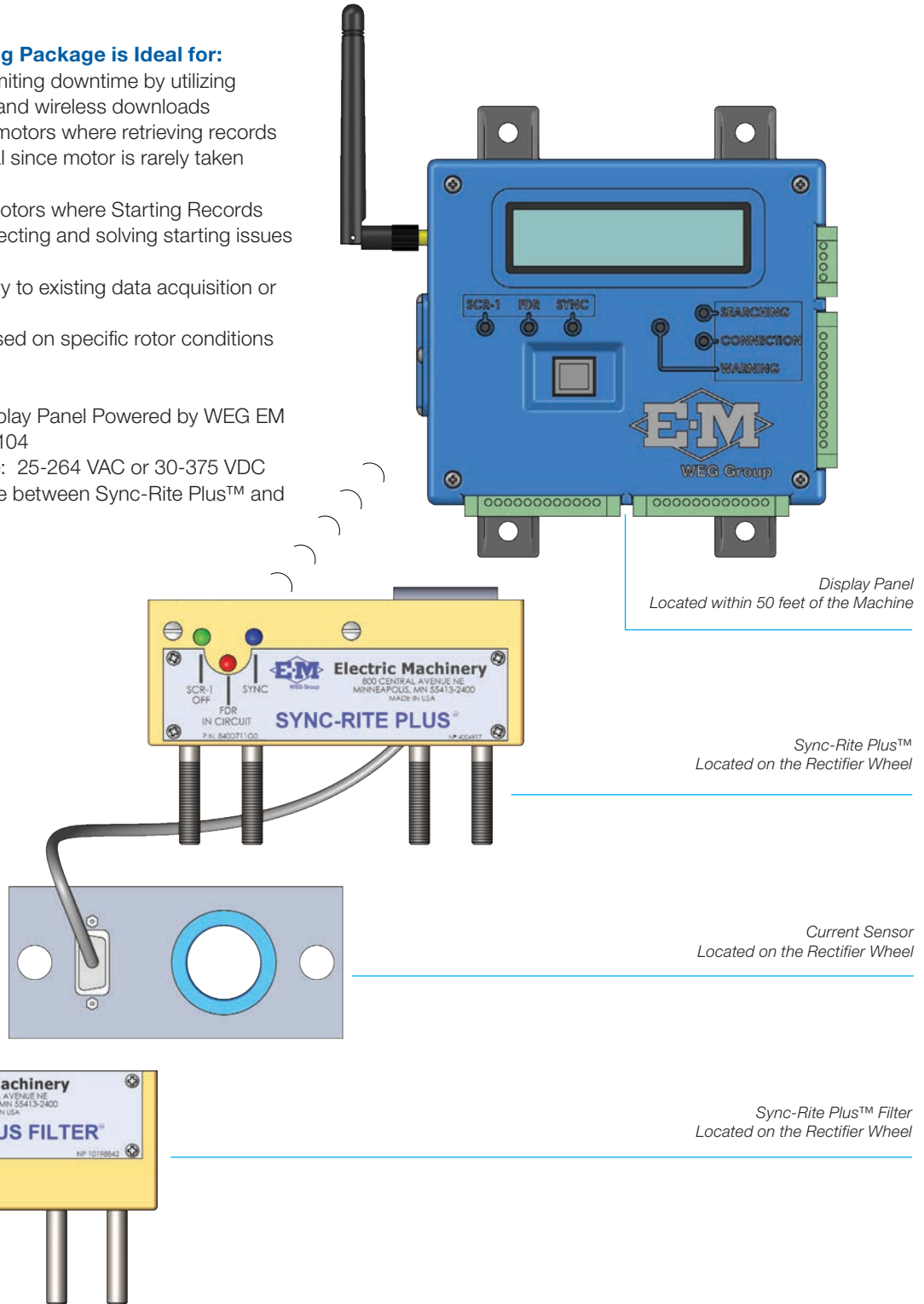# Sync-Rite Plus™ System - Standard Packages

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 Panel is 50'

Display Panel
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
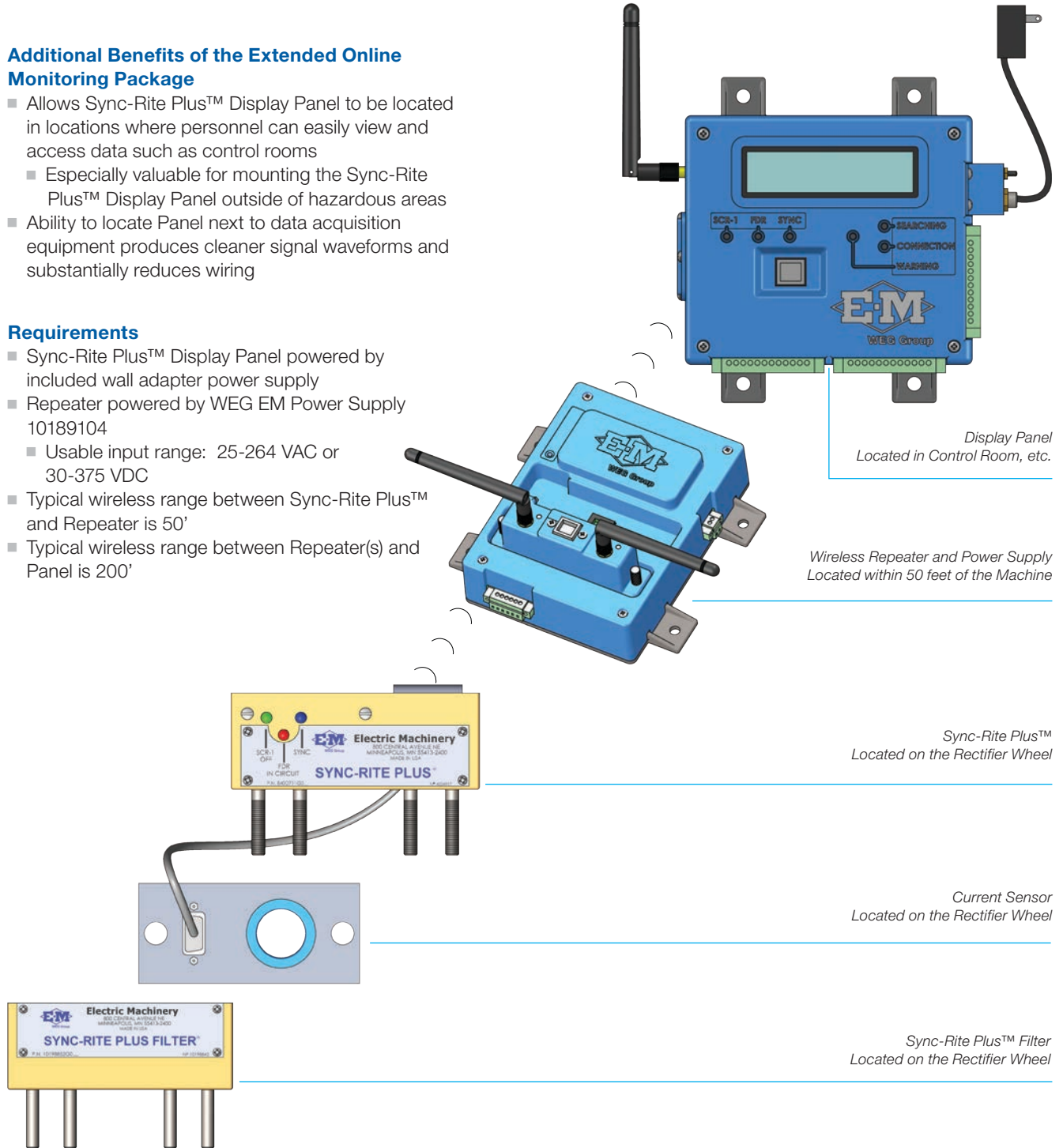
Extended Online Monitoring Package

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'

*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
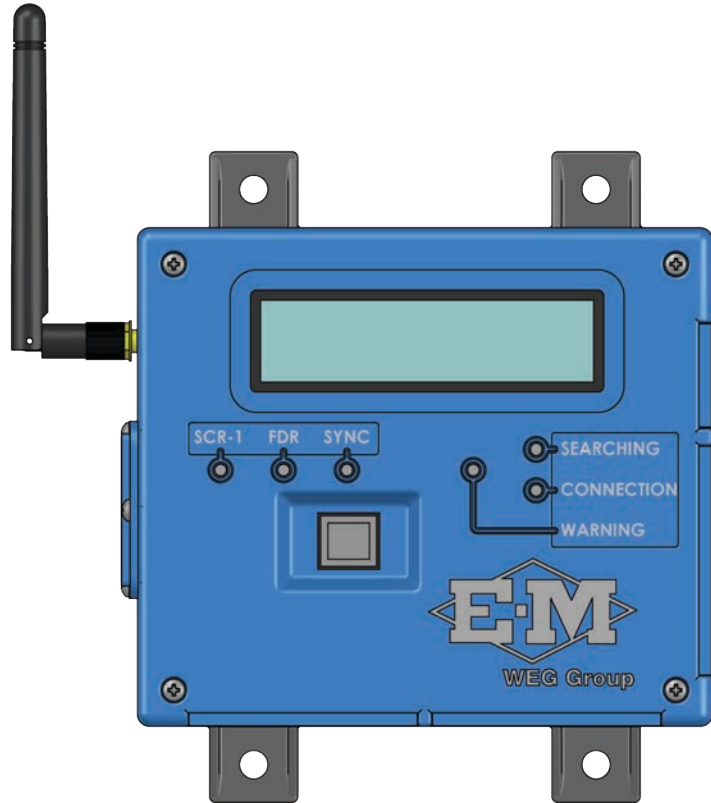
Handheld Preventive Maintenance Package

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
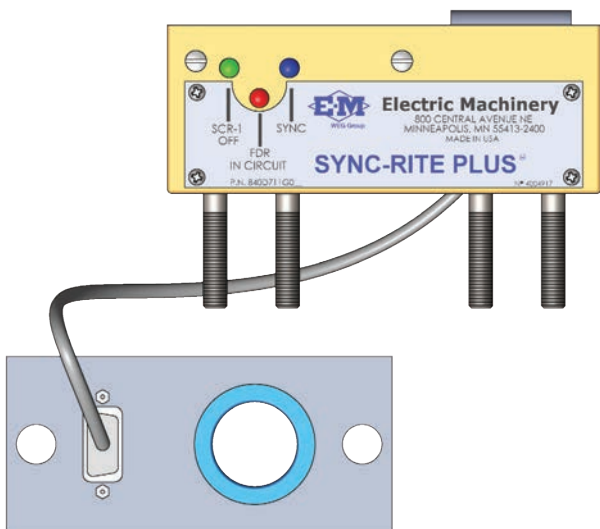- Users without data acquisition equipment

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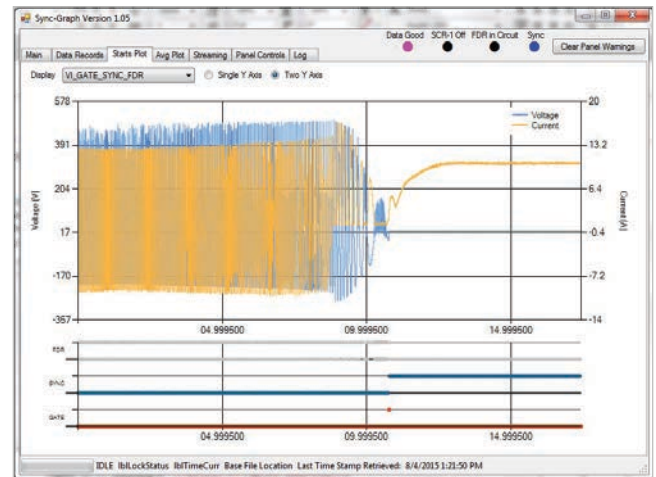- Direct USB connection to Sync-Rite Plus™ for data downloads

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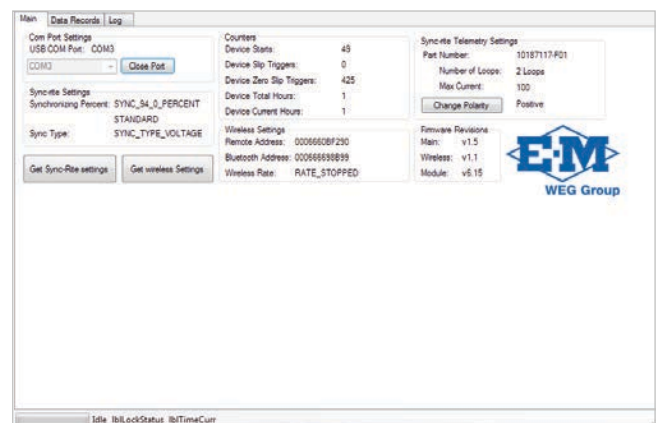
*Sync-Graph requires the purchase of a Sync-Rite Plus™ Display Panel.

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	840C711G02	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 Analysis Report	Optional	Optional	Optional	Optional

Contact WEG Electric Machinery for more information.

Sync-Rite Plus™ System - Technical Specifications

Sync-Rite Plus™		
	840C711G01	840C711G02
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 Connection									

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

WEG Worldwide Operations

ARGENTINA
WEG EQUIPAMIENTOS
ELECTRICOS
San Francisco - Cordoba
Phone: +54 3564 421 484
info-ar@weg.net
www.weg.net/ar

WEG PINTURAS - Pulverlux
Buenos Aires
Phone: +54 11 4299 8000
tintas@weg.net

AUSTRALIA
WEG AUSTRALIA
Victoria
Phone: +61 3 9765 4600
info-au@weg.net
www.weg.net/au

AUSTRIA
WATT DRIVE - WEG Group
Markt Piesting
Phone: +43 2633 404 0
watt@wattdrive.com
www.wattdrive.com

BELGIUM
WEG BENELUX
Nivelles - Belgium
Phone: +32 67 88 84 20
info-be@weg.net
www.weg.net/be

BRAZIL
WEG EQUIPAMENTOS ELÉTRICOS
Jaraguá do Sul - Santa Catarina
Phone: +55 47 3276-4002
info-br@weg.net
www.weg.net/br

CHILE
WEG CHILE
Santiago
Phone: +56 2 784 8900
info-cl@weg.net
www.weg.net/cl

CHINA
WEG NANTONG
Nantong - Jiangsu
Phone: +86 0513 8598 9333
info-cn@weg.net
www.weg.net/cn

COLOMBIA
WEG COLOMBIA
Bogotá
Phone: +57 1 416 0166
info-co@weg.net
www.weg.net/co

ECUADOR
WEG ECUADOR
Quito
Phone: 5144 339/342/317
wegecuador@weg.net
www.weg.net/ec

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

GERMANY
WEG GERMANY
Kerpen
Phone: +49 2237 9291 0
info-de@weg.net
www.weg.net/de

WEG BALINGEN
Balingen
Phone: +49 7433 9041 0
info@weg-antriebe.de
www.weg-antriebe.de

GHANA
ZEST ELECTRIC GHANA -
WEG Group
Accra
Phone: +233 30 27 664 90
info@zestghana.com.gh
www.zestghana.com.gh

INDIA
WEG ELECTRIC INDIA
Bangalore - Karnataka
Phone: +91 80 4128 2007
info-in@weg.net
www.weg.net/in

WEG INDUSTRIES INDIA
Hosur - Tamil Nadu
Phone: +91 4344 301 577
info-in@weg.net
www.weg.net/in

ITALY
WEG ITALIA
Cinisello Balsamo - Milano
Phone: +39 02 6129 3535
info-it@weg.net
www.weg.net/it

JAPAN
WEG ELECTRIC MOTORS
JAPAN
Yokohama City - Kanagawa
Phone: +81 45 550 3030
info-jp@weg.net
www.weg.net/jp

MALAYSIA
WATT EURO-DRIVE - WEG Group
Shah Alam - Selangor
Phone: 603 78591626
info@wattdrive.com.my
www.wattdrive.com

MEXICO
WEG MEXICO
Huehuetoca
Phone: +52 55 5321 4231
info-mx@weg.net
www.weg.net/mx

VOLTRAN - WEG Group
Tizayuca - Hidalgo
Phone: +52 77 5350 9354
www.voltran.com.mx

NETHERLANDS
WEG NETHERLANDS -
Oldenzaal - Overijssel
Phone: +31 541 571 080
info-nl@weg.net
www.weg.net/nl

PERU
WEG PERU
Lima
Phone: +51 1 209 7600
info-pe@weg.net
www.weg.net/pe

PORTUGAL
WEG EURO
Maia - Porto
Phone: +351 22 9477705
info-pt@weg.net
www.weg.net/pt

RUSSIA and CIS
WEG ELECTRIC CIS
Saint Petersburg
Phone: +7 812 363 2172
info-ru@weg.net
www.weg.net/ru

SOUTH AFRICA
ZEST ELECTRIC MOTORS
WEG Group
Johannesburg
Phone: +27 11 723 6000
info@zest.co.za
www.zest.co.za

SPAIN
WEG IBERIA
Madrid
Phone: +34 91 655 30 08
info-es@weg.net
www.weg.net/es

SINGAPORE
WATT EURO-DRIVE - WEG Group
Singapore
Phone: +65 6 862 2220
watteuro@watteuro.com.sg
www.wattdrive.com

WEG SINGAPORE
Singapore
Phone: +65 68589081
info-sg@weg.net
www.weg.net/sg

SCANDINAVIA
WEG SCANDINAVIA
Kungsbacka - Sweden
Phone: +46 300 73 400
info-se@weg.net
www.weg.net/se

UK
WEG ELECTRIC MOTORS U.K.
Redditch - Worcestershire
Phone: +44 1527 513 800
info-uk@weg.net
www.weg.net/uk

UNITED ARAB EMIRATES
WEG MIDDLE EAST
Dubai
Phone: +971 4 813 0800
info-ae@weg.net
www.weg.net/ae

USA
WEG ELECTRIC
Duluth - Georgia
Phone: +1 678 249 2000
info-us@weg.net
www.weg.net/us

ELECTRIC MACHINERY -
WEG Group
Minneapolis - Minnesota
Phone: +1 612 378 8000
www.electricmachinery.com

VENEZUELA
WEG INDUSTRIAS VENEZUELA
Valencia - Carabobo
Phone: +58 241 821 0582
info-ve@weg.net
www.weg.net/ve

For those countries where there is not a WEG own operation, find our local distributor at www.weg.net.

For more information, please contact 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
www.weg.net