CCMX02

Low Voltage Motor Control Center

Low Voltage Motor Control Center

Table of Contents

Low Voltage Motor Control Center

Table of Contents

Higher reliability on protection systems

Lower risk of accidents

Low Voltage Motor Control Center CCMX02

Designed and manufactured under the recognized UL 845 standard, the new CCMX02 combines innovation, reliability, robustness, durability and, most important for us: total safey for the user, resulting ideal for customers wishing to benefit from WEG's extensive experience in protection and control of electrical motors.

Streamline maintenance with low costs

Easy access to inputs / outputs exit of cable terminals

Modular design, allowing modifications and/or future expansions with low costs

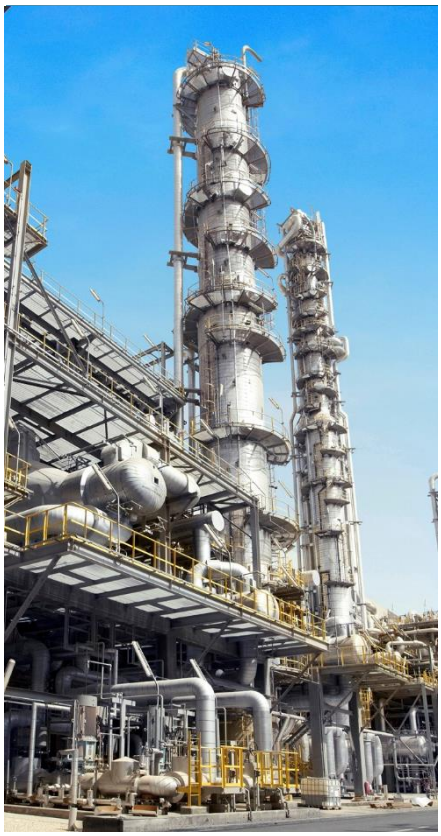
Available in different versions based on your needs

Applications

WEG CCMX02 has a wide range of applications for low voltage systems in different industry sectors:

- Wastewater treatment
- Pulp and Paper manufacture
- Pumping stations
- Offshore applications
- Electrical Feeders
- Low voltage motor starters

Industry Sectors

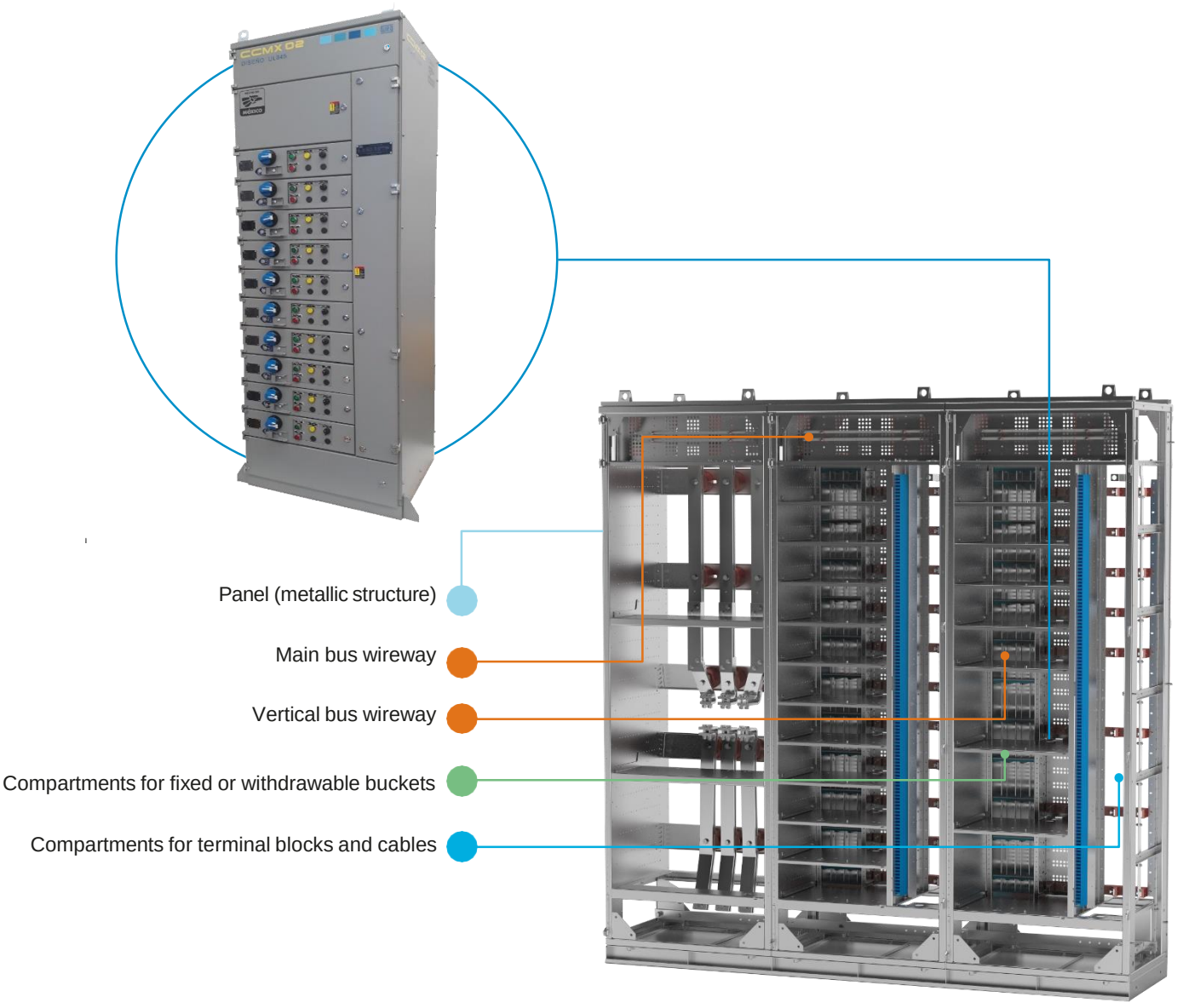


Construction Details
Structure

The CCMX02 consists of: steel structure, busbars, functional unit compartments, protection and control devices and protection covers.

The basic metallic structure of the panel is designed with cold rolled steel sheet with the following gauges:

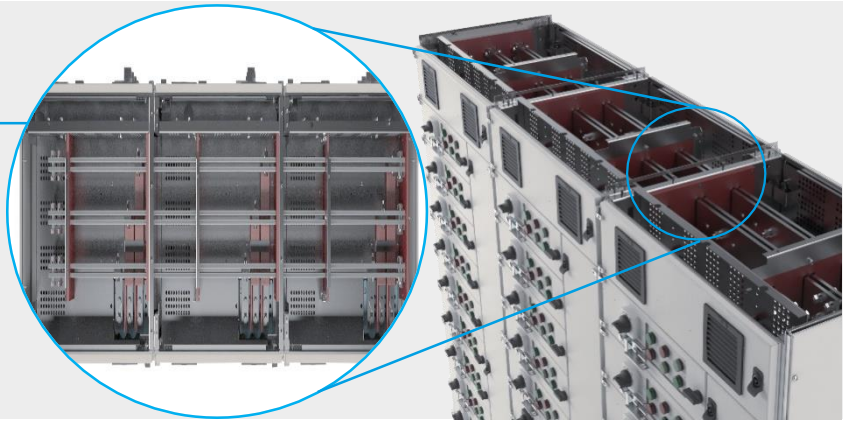
Gauges 12: Structure and covers (lateral, superior and inferior)
Gauges 14: Doors
Gauges 11: MCC baseboard



Construction Details
Bus

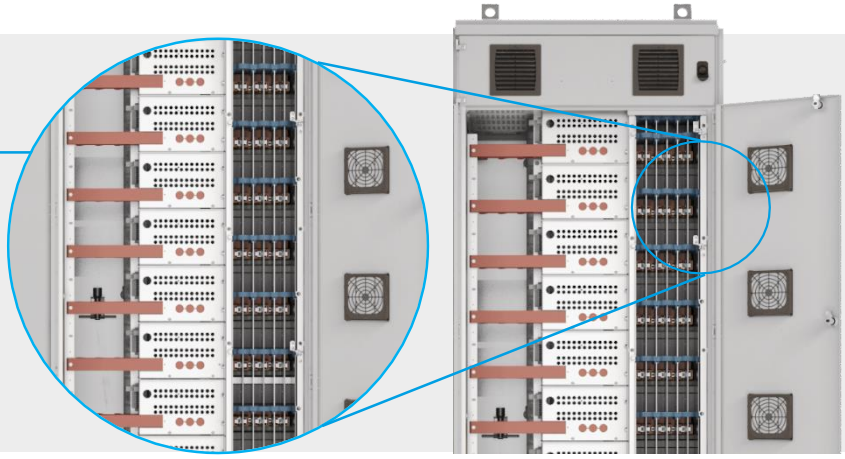
Horizontal Bus

The CCMX02 is supplied with tin-plated main busbars as standard for rated current up to 3200 A. They are located on top of the MCC structure with access from top, frontal o rear covers



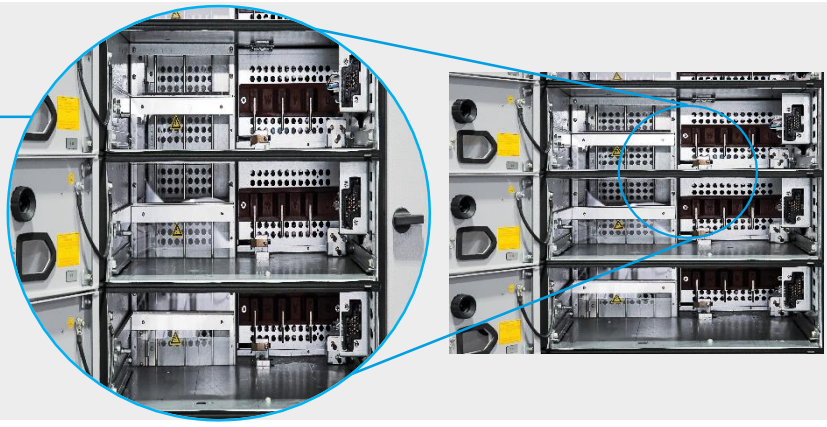
Vertical Bus

Located on the back of each column, vertical busbars have up to twelve outputs for functional units connection and are rated, as standard, for 600 A



Vertical Bus Protection

The vertical busbar for withdrawable buckets has automatic shutters preventing the accidental contact of the user when the units are removed from their compartments



Vertical and Horizontal Ground Bus

Unplated copper with 1'' x ¼''

Construction Details
Functional Units

WEG CCMX02 Motor Control Centers have, as one of their main characteristics, the physical separation between the functional units or buckets. These units are available in two types: fixed (GWFX) and withdrawable (GWEX), allowing numerous bucket combinations per column up to a 72'' height.

Safety Features

- Frontal access for buckets and compartments
- The disconnect operating handle may be padlocked in the OFF position with up to 3 pad-locks
- Vertical block through the rotating handle
- Mechanical interlock for bucket removal
- WEG exclusive extracting device
- Three operating modes: Inserted/Connected (I) / Testing (T) / Extracted/Disconnected (E)
- Automatic shutters
- Protection system to avoid placing a bucket in another compartment that is not its own

Fixed Units (GWFX)

In this type of unit, the components for protection and control are assembled in a fixed mounting plate in each of the compartments and they can be supplied in six different sizes according to the table below:

Sizes

Model	Column height (in)
GWFX-4	24
GWFX-5	30
GWFX-6	36
GWFX-7	60
GWFX-8	72
GWFX-9	72 (Column width 48in)

Construction Details
Functional Units

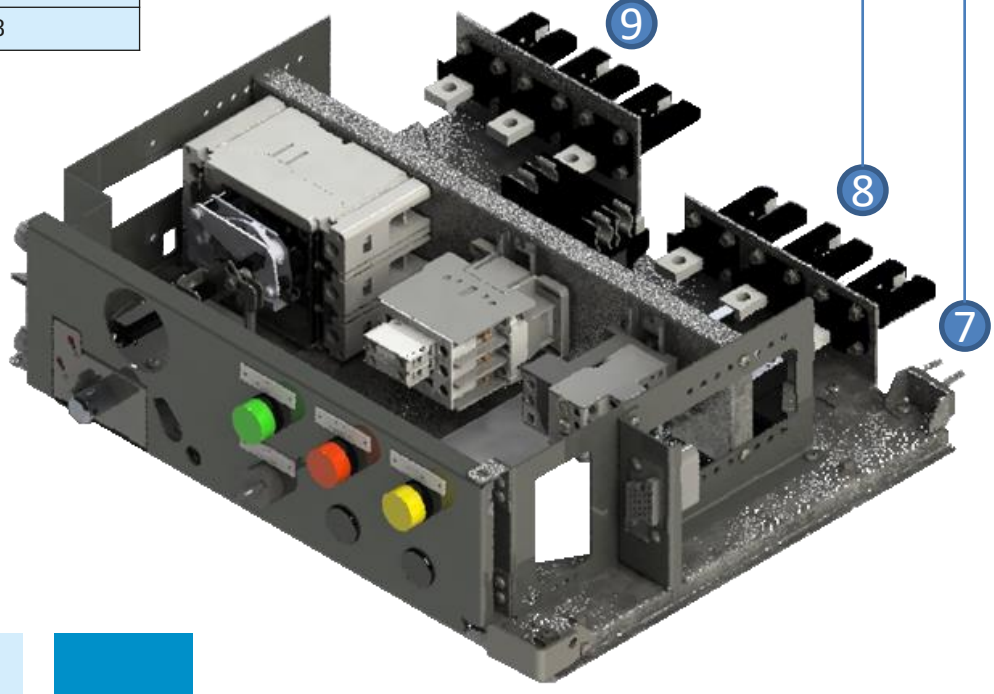
Withdrawable Units (GWEX)

The components for control and protection are assembled in a functional unit that permits the total unit extraction from the Motor Control Center and can be supplied in three sizes:

Function
1. Lever to extract/insert the module from the compartment
2. Plug-in module for control connection
3. Control and signaling components
4. Nameplates
5. WEG exclusive extracting device
6. Mechanical lock: prevents the unit from falling out of the rack
7. Module position lock
8. Control unit stabs
9. Power unit stabs

Sizes

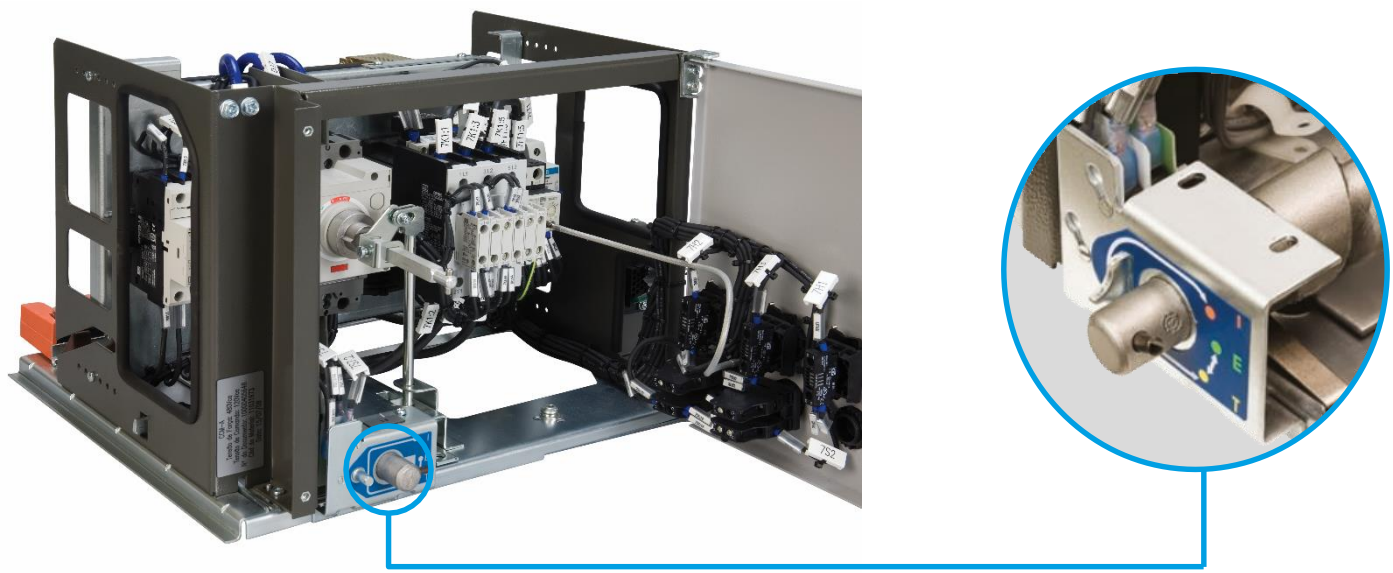
Model	Module height (in)
GWEX-1	6
GWFX-2	12
GWFX-3	18



Construction Details
Functional Units

Extraction System

The extraction / insertion of the power stabs is done through a WEG exclusive mechanism.



INSERTED Position (I): Power and control stabs are connected and the unit is ready for operation.
The change to TESTING position is not permitted without first turning the functional unit off

TESTING Position (T): Power stabs are disconnected from the busbar and control stabs are connected. In this position it is possible to perform tests on the functional units without voltage in the power terminal block

EXTRACTED Position (E): Power and control stabs are totally disconnected.
In this position the total extraction of the functional unit from its compartment is possible and completely safe for the user

Construction Details
CCMX02 Class and Type of Wiring

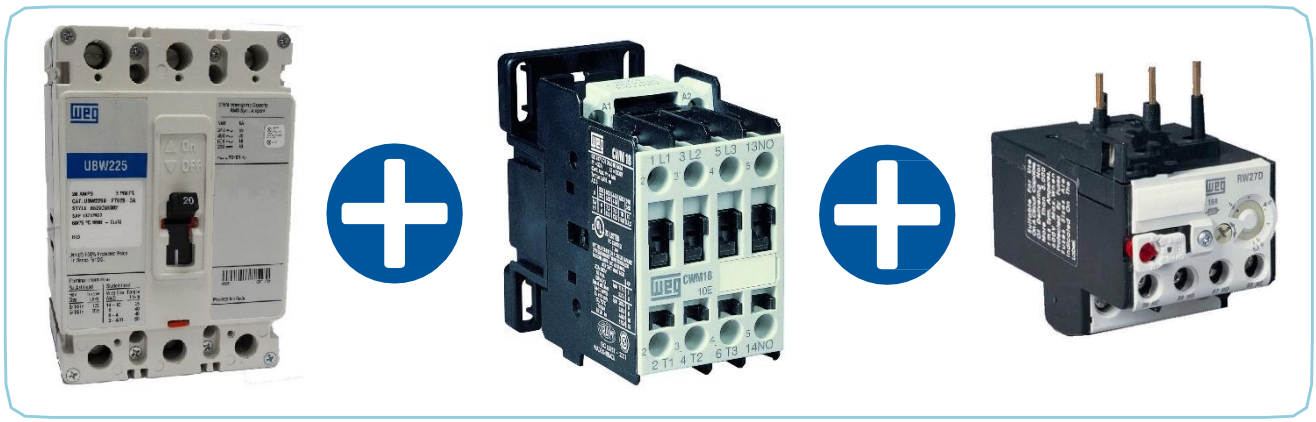
The CCMX02 is a **Class I** Motor Control Center consisting of mechanical assemblies of combined motor control units, power supply units and electrical devices arranged in a convenient assembly. The manufacturer does all the wiring for the components within each unit, making the wiring between units not necesary.

The type of wiring used in the CCMX02 is type **B-T,** where terminal blocks are next to the functional unit. The terminal blocks include the motor's power and control wiring.

Type of Configuration for the Combined Motor Control Units

The CCMX02, in compliance with the UL 845 Standard, incorporates type C combined motor control units, resulting in a greater protection and control of the motor.

Elements	Product
Interruption and protection against short circuit	Molded Case Circuit Breaker UBW - UL 489 Listed
Motor controller	NEMA rated CWM_N magnetic contactor in compliance with UL 508
Overload protection	Thermal Overload Relay - UL 508 Listed



Dimensions of the Control Units

Full Voltage Non-Reversing Starter Unit					
Model	HP Rating 480Vca	Size	Type of Unit	Unit height (in)	Maximum quantity per column
GWEX-1.02-A0.25	0.25	1	Withdrawable	6	12
GWEX-1.02-A0.3	0.3	1	Withdrawable	6	12
GWEX-1.02-A0.5	0.5	1	Withdrawable	6	12
GWEX-1.02-A0.75	0.75	1	Withdrawable	6	12
GWEX-1.02-A1	1	1	Withdrawable	6	12
GWEX-1.02-A1.5	1.5	1	Withdrawable	6	12
GWEX-1.02-A2	2	1	Withdrawable	6	12
GWEX-1.02-A3	3	1	Withdrawable	6	12
GWEX-1.02-A5	5	1	Withdrawable	6	12
GWEX-1.02-A7.5	7.5	1	Withdrawable	6	12
GWEX-1.02-A10	10	1	Withdrawable	6	12
GWEX-2.02-A15	15	2	Withdrawable	12	6
GWEX-2.02-A20	20	2	Withdrawable	12	6
GWEX-2.02-A25	25	2	Withdrawable	12	6
GWEX-2.02-A30	30	2	Withdrawable	12	6
GWEX-2.02-A40	40	2	Withdrawable	12	6
GWEX-2.02-A50	50	2	Withdrawable	12	6
GWEX-3.02-A60	60	3	Withdrawable	18	4
GWEX-3.02-A75	75	3	Withdrawable	18	4
GWEX-3.02-A100	100	3	Withdrawable	18	4

Dimensions of the Control Units

Soft Starter SSW07/SSW06					
Model	HP Rating 480Vca	Size	Type of Unit	Unit height (in)	Maximum quantity per column
GWEX-2.02-E10	10	2	Withdrawable	12	6
GWEX-2.02-E15	15	2	Withdrawable	12	6
GWEX-2.02-E20	20	2	Withdrawable	12	6
GWEX-3.02-E30	30	3	Withdrawable	18	4
GWEX-3.02-E40	40	3	Withdrawable	18	4
GWEX-3.02-E60	60	3	Withdrawable	18	4
GWFX-4.02-E100	100	4	Fixed	24	3
GWFX-4.02-E125	125	4	Fixed	24	3
GWFX-4.02-E150	150	4	Fixed	24	3
GWFX-5.02-E200	200	5	Fixed	30	2
GWFX-5.02-E250	250	5	Fixed	30	2
GWFX-5.02-E300	300	5	Fixed	30	2
GWFX-5.02-E350	350	5	Fixed	30	2
GWFX-8.02-E400	400	8	Column	72	1
GWFX-8.02-E500	500	8	Column	72	1

Notes: Testing position (T) is not available for these units.
Units up to 350 HP are assembled with the Soft Starter SSW07; higher ratings are assembled with the Soft Starter SSW06.

Dimensions of the Control Units

Variable Speed Drives CFW500/CFW11					
Model	HP Rating 480Vca	Size	Type of Unit	Unit height (in)	Maximum quantity per column
GWEX-2.02-F5	5	2	Withdrawable	12	6
GWEX-3.02-F7.5	7.5	3	Withdrawable	18	4
GWEX-3.02-F10	10	3	Withdrawable	18	4
GWFX-4.02-F15	15	4	Fixed	24	3
GWFX-5.02-F20	20	5	Fixed	30	2
GWFX-5.02-F25	25	5	Fixed	30	2
GWFX-5.02-F30	30	5	Fixed	30	2
GWFX-6.02-F40	40	6	Fixed	36	2
GWFX-6.02-F50	50	6	Fixed	36	2
GWFX-6.02-F60	60	6	Fixed	36	2
GWFX-7.02-F75	75	7	Fixed	60	1
GWFX-7.02-F100	100	7	Fixed	60	1
GWFX-7.02-F125	125	7	Fixed	60	1
GWFX-7.02-F150	150	7	Fixed	60	1
GWFX-9.02-F200	200	9	Column	72 x 48	1
GWFX-9.02-F250	250	9	Column	72 x 48	1
GWFX-9.02-F300	300	9	Column	72 x 48	1
GWFX-9.02-F400	400	9	Column	72 x 48	1
GWFX-9.02-F450	450	9	Column	72 x 48	1
GWFX-9.02-F500	500	9	Column	72 x 48	1

Notes: Testing position (T) is not available for thess units.
Units up to 30 HP are assembled with the Variable Speed Drive CFW500; higher ratings are assembled with the Variable Speed Drive CFW11.
For units from 200 HP up to 500 HP, the column width is 48”

Technical Data

Electrical Characteristics		
Rated Voltage		600 V ac
Nominal supply voltage		480 V ac
Control voltage		120 V ac
Frequency		60 Hz
Horizontal power busbar		800 up to 3200 A
Vertical power busbar		600 A
Bus material		Tin-plated copper
Ground bus		Unplated copper 1" x ¼"
Short circuit current (1s - symmetrical)		65 kA
Class		I
Cable entry/exit		Top / Bottom
Functional Units Characteristics		
Standard type of starters[1]		FVNR, Soft Starter, Variable Speed Drive[4]
Configuration type		C
Wiring type		B-T
Standard pushbuttons and pilot lights[2]		Remote start/stop, fault, start confirmation
Standard pushbutton type		Illuminated
Maximum number of buttons on door		6
Nameplate material		ABS (Acrylonitrile butadiene styrene)
Blocking devices		4
Available positions[3]		Inserted - Testing - Disconnected
Mechanical Characteristics		
Height		93"
Width		30", 48"
Depth		25"
Available space per column		72"
Degree of protection		NEMA 1[5]
Installation		Indoor
Painting		Gray ANSI 61
Type of electrical supply		From the top through cable lugs
		From the top through main circuit breaker
Steel sheet thickness	Structure/Covers	Gauge 12
	Doors	Gauge 14
	Bottom	Gauge 11
Ambient Characteristics		
Ambient storage temperature		-25° (-13°F) to 55°C (131°F)
Ambient operating temperature		0°C (32°F) to 40°C (104°F)
Relative humidity		90%
Altitude		2250 m.a.s.l.[6]

Notes:

1. *Other type under request*
2. *Start-stop commands with two or three wires*
3. *Testing position (T) is not available for Soft Starters and Variable Speed Drives*
4. *The Variable Speed Drives have DIx/DOx and AIx/AOx available for the user*
5. *Other degrees of protection under request*
6. *Other altitudes under request*

Dimensions
Standard Column

Standard Column Dimensions	
Height (H)	93”
Width (W)	30”
Depth (D)	25”

Standard Column Dimensions	
Superior Wireway (A)	7”
Inferior Wireway (B)	9”
Lateral Wireway (C)	6”

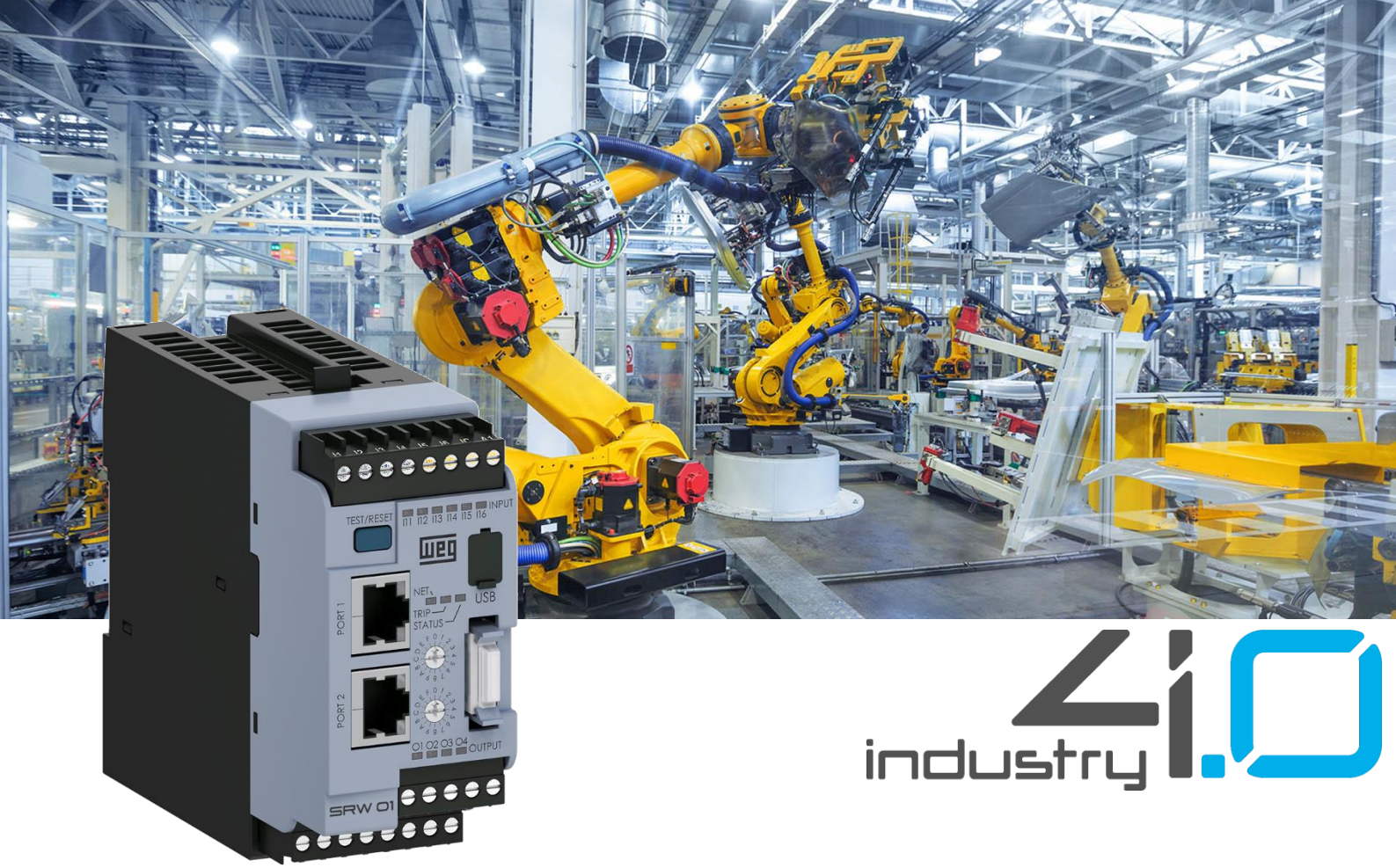
Intelligent CCMX02

The intelligent CCMX02 consists of starters (Soft Starters, Variable Speed Drives or Full Voltage Non-Reversing Starters with WEG smart relays SRW01) installed within the functional unit, configurated as slaves and with a Programmable Logic Controller (PLC) as master installed in an appropriate compartment of the MCC.

In this configuration, the PLC controls and monitors all the units designated as slaves and the obtained information is available for local or remote control through an HMI interface or a monitoring system via computer (PC).

Advantages of using an intelligent MCC

- Remote control and monitoring via Human-Machine Interface (HMI), PLC or PC
- Reliability for the continuity of the process
- Installation in centralized locations for easy of operation and maintenance
- Versatility for command and protection of a large number of motors
- More reliable protection system
- Reductions of devices like overload thermal relays, current transformer, etc.
- Smart Relay SRW01 mounted on DIN rail or mounting plate
- Quick fault identification
- Automatic fault record and statistics per unit
- Communication with other PLC's using an open source protocol
- Use of the most important communication protocols: Profibus, Modbus, DeviceNet, Ethernet, etc.



industry 4.0

Smart Relay
SRW01

The SRW01 is a low voltage, electric motor management system with state-of-the-art technology and network communication capabilities.

Additionally, its modular concept allows the expansion of its functionalities with more digital inputs and outputs, increasing its usability.

Its protection, control, diagnosis and data acquisition capabilities guarantee safety and flexibility in the protection of electric motors.

Protection and control:

- Overload (trip class adjustable from 5 to 45)
- Motor thermal protection via PTC
- Phase loss (current & voltage)
- Current unbalance
- Overcurrent and locked rotor
- Under current
- Internal ground fault
- Out of range frequency
- Earth leakage
- External fault
- Phase sequence
- Voltage unbalance
- Overcurrent and overvoltage
- High and low power factor
- Electrical energy consumption management (kWh / kVARh)
- Digital inputs and outputs activation

Diagnosis and data acquisition:

- RMS and average current of each phase in amperes or % of the set current In
- Line and average voltage
- Motor frequency
- Total number of trips
- Number of trips per type of fault
- Number of starts
- Motor operating time
- Relay operating time
- Phase current unbalance measuring
- Voltage unbalance measuring
- Internal ground fault current
- Earth leakage current
- Power factor
- Active / reactive / apparent power
- PTC value
- Ground fault measuring

Its immediate diagnostic capability assists in preventive maintenance, avoiding undesirable machine shutdown events, as well as meeting the needs of the IIoT (Industrial Internet of Things) which is one of the pillars of industry 4.0

Know More

High performance and reliable products to improve your production process

Excellence is to provide a whole solution in industrial automation that improves our customers productivity.

Visit: www.weg.net

youtube.com/wegvideos

WEG Worldwide Operations

ARGENTINA
San Francisco - Cordoba
Phone: +54 3564 421484
info-ar@weg.net

Cordoba - Cordoba
Phone:+54 351 4641366
weg-morbe@weg.com.ar

Buenos Aires
Phone: +54 11 42998000
ventas@pulverlux.com.ar

AUSTRALIA
Scoresby - Victoria
Phone: +61 3 97654600
info-au@weg.net

AUSTRIA
Markt Piesting - Wiener Neustadt-Land
Phone: +43 2633 4040
watt@wattdrive.com

BELGIUM
Nivelles - Belgium
Phone: +32 67 888420
info-be@weg.net

BRAZIL
Jaraguá do Sul - Santa Catarina
Phone: +55 47 32764000
info-br@weg.net

CHILE
La Reina - Santiago
Phone: +56 2 27848900
info-cl@weg.net

CHINA
Nantong - Jiangsu
Phone: +86 513 85989333
info-cn@weg.net

Changzhou – Jiangsu
Phone: +86 519 88067692
info-cn@weg.net

COLOMBIA
San Cayetano - Bogotá
Phone: +57 1 4160166
info-co@weg.net

ECUADOR
El Batan - Quito
Phone: +593 2 5144339
ceccato@weg.net

FRANCE
Saint-Quentin-Fallavier - Isère
Phone: +33 4 74991135 **info-fr@weg.net**

GERMANY
Türnich - Kerpen
Phone: +49 2237 92910
info-de@weg.net

Balingen - Baden-Württemberg
Phone: +49 7433 90410
info@weg-antriebe.de

GHANA
Accra
Phone: +233 30 2766490
info@zestghana.com.gh

INDIA
Bangalore - Karnataka
Phone: +91 80 41282007
info-in@weg.net

Hosur - Tamil Nadu
Phone: +91 4344 301577
info-in@weg.net

ITALY
Cinisello Balsamo - Milano
Phone: +39 2 61293535
info-it@weg.net

JAPAN
Yokohama - Kanagawa
Phone: +81 45 5503030
info-jp@weg.net

MALAYSIA
Shah Alam - Selangor
Phone: +60 3 78591626
info@wattdrive.com.my

MEXICO
Huehuetoca - Mexico
Phone: +52 55 53214275
info-mx@weg.net

Tizayuca - Hidalgo
Phone: +52 77 97963790

NETHERLANDS
Oldenzaal - Overijssel
Phone: +31 541 571080
info-nl@weg.net

PERU
La Victoria - Lima
Phone: +51 1 2097600
info-pe@weg.net

SPAIN
Coslada - Madrid
Phone: +34 91 6553008
wegiberia@wegiberia.es

PORTUGAL
Maia - Porto
Phone: +351 22 9477700
info-pt@weg.net

RUSSIA and CIS
Saint Petersburg
Phone: +7 812 363 2172
sales-wes@weg.net

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

Singapore
Phone: +65 68622220
watteuro@watteuro.com.sg

SOUTH AFRICA
Johannesburg
Phone: +27 11 7236000
info@zest.co.za

SCANDINAVIA
Mölnlycke - Sweden
Phone: +46 31 888000
info-se@weg.net

UK
Redditch - Worcestershire
Phone: +44 1527 513800
info-uk@weg.net

UNITED ARAB EMIRATES
Jebel Ali - Dubai
Phone: +971 4 8130800
info-ae@weg.net

USA
Duluth - Georgia
Phone: +1 678 2492000
info-us@weg.net

Minneapolis - Minnesota
Phone: +1 612 3788000

VENEZUELA
Valencia - Carabobo
Phone: +58 241 8210582
info-ve@weg.net

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

WEG MÉXICO S.A. DE C.V.

Carretera Jorobas-Tula km 3.5 Manzana 5, Lote 1.
Municipio Huehuetoca, Edo. de México. C.P. 54680.

Ciudad de México y Área Metropolitana:
Ventas: +52 (55) 5321 4233 / 5321 4273
Asistencia Técnica: +52 (55) 5321 4203

Cod:20072016 | Rev: 01 | Date (mm/yyyy): 05/2019