



EasyLogic™ APF

Catalog 2023

Multi-function Active Harmonic Filter

Reliable. Scalable. Simple.



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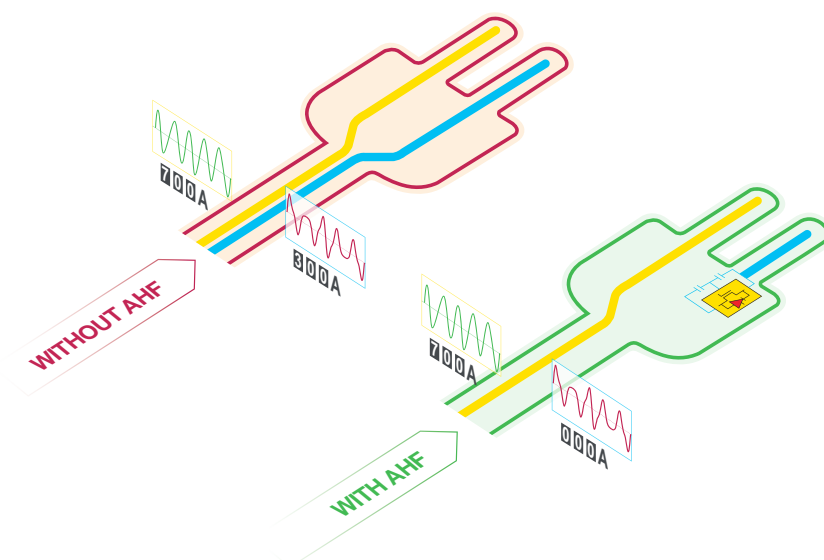
Power is becoming more distributed, complex to manage and integrated into daily lives, making it more susceptible to disruption.

Power Quality issues are a primary cause of device malfunction, equipment failure, and power outages resulting in costly unplanned downtime. It's critical to bring stability and efficiency to power network for different segments & applications. Improved power quality maximizes money saving and business continuity.

| Buildings | Infrastructure | Industry | Healthcare |
|---|--|--|--|
|  <p>LED or CFL lights, computers, office loads, those non-linear loads are the cause of harmonic distortion impacting the stability of power network</p> |  <p>Penalties, frequent system downtime, reduced machine life cycle and increased carbon emission</p> |  <p>Power factor not up to standard, penalties, reduced capacity, and efficiency; increased CO₂ footprint</p> |  <p>Medical equipment like imaging equipment that are non-linear loads generating harmonics, it can disrupt sensitive equipment</p> |

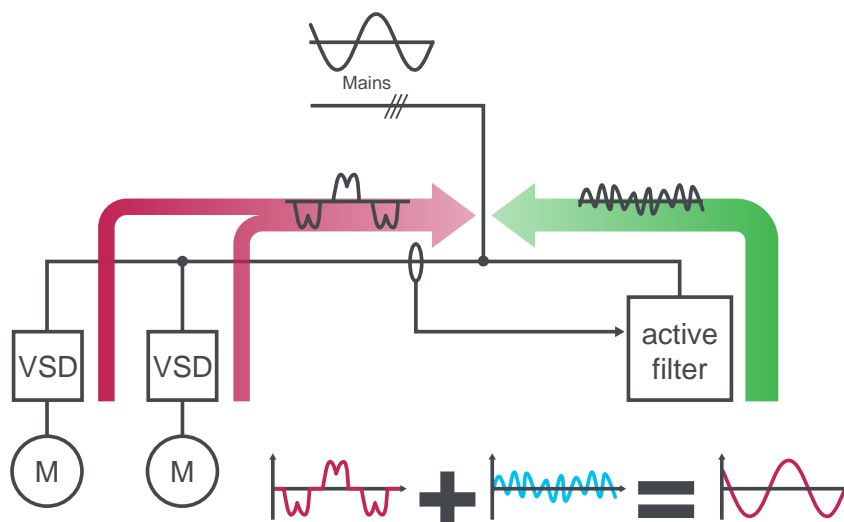


Schneider Electric aims to empower all to make the most of our energy and resources, bridging progress and sustainability for all.



Active Harmonic Filter

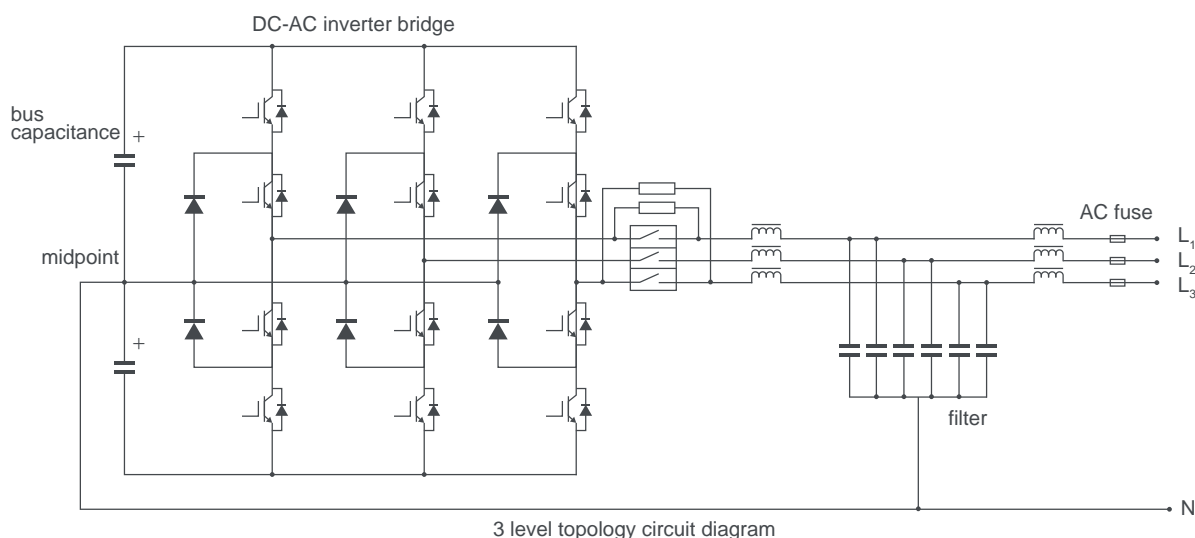
The active filter is based on the principle of measuring the harmonic currents and using this measurement on a real time basis to generate a harmonic current spectrum in phase opposition to the measured spectrum. This has the effect of canceling the original harmonic currents. Usually, an active filter is switched in parallel to the inverter. In other words, the active filter can be seen as a generator of harmonics. It produces the opposite harmonics of the measured distortions to compensate all harmonics in sum.



Optimize your harmonic filtering efficiency: 3-Level Topology Design Approach

The 3-level topology technology can greatly reduce the volume of high frequency filter inductance and implement modularity of APF.

With the 3-level topology technology, the IGBT's switch voltage stress and switching, and efficiency are improved tremendously.



EasyLogic™ APF



Power quality problems are one of the major causes of unscheduled downtime, equipment malfunction, and damage. Reliability and consistency of electricity supply are critical to businesses, from industrial plants, medical facilities, data centers to office buildings. When power quality is imperfect due to disturbances such as interruptions, voltage dips or harmonic pollution, your business suffers. It is an area of growing concern for end users due to the frequency of occurrence and financial impact of issues: 30% to 40% of all unscheduled downtime today is related to power quality problems.

EasyLogic™ APF

High performance, cost-effective solutions for stabilizing electrical networks by providing harmonic mitigation, power factor correction and load balancing.

Applications



Buildings

Small & Medium Commercial
(non-critical application)

- ✓ Coffee-shop
- ✓ Restaurant
- ✓ Small-Mid Healthcare



Industry

Small & Mid-sized industrial site
(non-critical application)

- ✓ Water & Wastewater Food
- ✓ Food & Beverage
- ✓ Metal, Minerals & Mining



Energy

Low-end
(non-critical application)

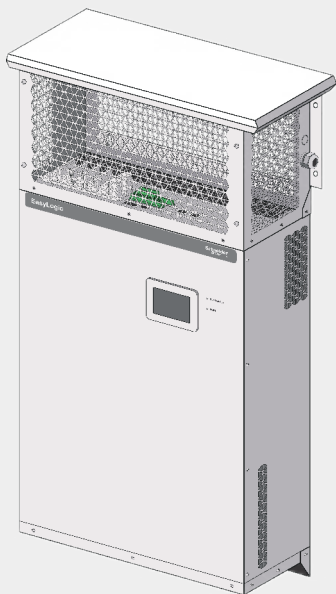
- ✓ Utilities (Low-end DSO)
- ✓ Power Generation(Low-end)



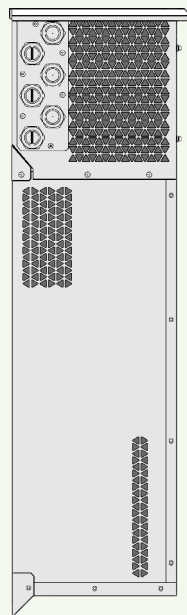
Functions

- ✓ Phase harmonic correction
- ✓ Neutral harmonic correction
- ✓ Power Factor Correction ($\cos \phi$)
- ✓ Mains load balancing

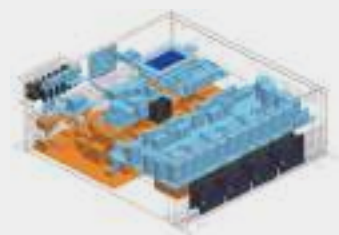
Higher air exhaust ingress protection



Cable glands for ease of installation



Built-In EMC filter for enhanced safety



Active Harmonic Filter Offer

EasyLogic™ APF

Technical Specifications

| | 208 V | 400 V | 480 V |
|--|---|---|--|
| Electrical Characteristics | | | |
| Standard RMS output current ratings | Wall: 50 A, 100 A Rack: 100 A | Wall: 50 A, 100 A, 150 A Rack: 50 A, 100 A, 150 A Cabinet: 300 A, 450 A | Wall: 50 A, 100 A, 150 A Rack: 100 A, 150 A |
| Nominal voltage | 208 Vac, -15%/+25% | 400 Vac, -40%/+15% | 480 Vac, -20%/+10% |
| Nominal frequency | 50/60 Hz, ±3 Hz auto sensing | | |
| Connection type | 3 ph/3wire or 3 ph/4wire within the same product | | 3 ph/3wire |
| Compensation type | 3 ph only or 3 ph + Neutral | | 3 ph only |
| Earthing systems | TT, TN-C, TN-S, TN-C-S | | |
| Network voltage distortion | THDv ≤ 15%, working THDv > 15%, shutdown | | |
| Voltage notch limits | Notch depth: 10%, Notch area (AN): 13,667 Vμs @ 400 V as per IEEE 519-2014, Annex C | | |
| Technical Product Characteristics | | | |
| Power electronics | 3-level IGBT | | |
| Control topology | Digital harmonic FFT | | |
| Efficiency & Losses | ≥ 95% | ≥ 97% | |
| Current transformer | Any ratio with 5 A secondary | | |
| Quantity of CT | 2 or 3 CTS for 3-phase loads 3 CTs are required for 4-wire with neutral connected loads | | |
| CT position | Grid sense or Load sense | | |
| Control basis | Closed or Open loop | | |
| Spectrum cancellation & selection | 2 nd to 31 st harmonic order | | |
| Modes of operation | Multi-modes simultaneously or discrete - Phase harmonic correction - Neutral harmonic correction - Power factor correction (cos ø) - Mains load balancing | | |
| Harmonic attenuation & filtering performance | THDi ≤ 5% in closed loop control with no capacitance downstream (with load harmonic ≥ 50% unit rating) Total harmonic cancellation > 92% | | |
| Power factor correction | Leading (capacitive) or lagging (inductive) | | |
| Load balancing | Negative and zero sequence simultaneously | | |
| Protection | Thermal, over/under voltage, overcurrent, phase loss, internal short circuit, inverter bridge abnormal operation, corresponding alarm | | |
| Paralleling Characteristics | | | |
| Scalability & Expandability | Up to 8 units in parallel per set of CT; any size unit combination is possible | | |
| Parallel operation options | Leader-Follower (previously called master-slave) | | |
| Control & Communications | | | |
| Control response time | 100 μs typical | | |
| Harmonic correction time | ≤ 2 cycles | | |
| Reactive correction time | ≤ 10 ms | | |
| Communications protocol | Modbus RTU | | |

Active Harmonic Filter Offer

EasyLogic™ APF

Technical Specifications (contd.)

| | 208 V | 400 V | 480 V |
|--|--|---|--|
| Environmental Conditions | | | |
| Operating temperature | -10...+40 °C (full performance, continuous operation) 40...50 °C with derating | | |
| Relative humidity | 0...90%, non-condensing | | |
| Operating altitude | ≤1500 m (full performance, continuous operation) Derate 1% per 100 m above Absolute max altitude: 3700 m | | |
| Ambient temperature safety | Automatic temperature roll back based upon IGBT over temperature | | |
| Contaminant Levels - operating (IEC 60721-3-3) | Chemical Class 3C2, Mechanical Class 3S6 No conductive particles permitted | | |
| Shipping & Packaging | Tested in accordance with ISTA-3B requirements | | |
| Standards & Certification | | | |
| Design compliance | IEC 62477-1, EN 61000-6-2, EN 61000-6-4 Class A, ISO 9001, IEEE Std 519-2014 | | |
| EMC compliance | Electromagnetic emission EN/IEC61000-6-4 Class A Electromagnetic immunity EN/IEC61000-6-2 Class B | | |
| Product certification | RoHS, REACH, Green Premium | CE certified, RoHS, REACH, Green Premium | RoHS, REACH, Green Premium |
| Mechanical & Installation Characteristics | | | |
| Mounting configuration | Indoor; Vertical (wall mount)/Horizontal (rack mount)/Floor Standing Cabinet | | |
| Ingress protection | Wall mount: IP20 & IP31 Rack mount: IP20 | Wall mount: IP20 & IP31 Rack mount: IP20 Floor cabinet: IP20 | Wall mount: IP20 & IP31 Rack mount: IP20 |
| PCBA protection | Conformal coating on all PCBAs. Pollution degree 2 | | |
| Incoming circuit protection | none | Wall and Rack module: none Floor standing cabinet: circuit breaker | none |
| Cable entry | Wall mount: left side entry for power cables, right side entry for other cables Rack module: rear | Wall mount: left side entry for power cables, right side entry for other cables Rack module: rear Floor cabinet: top | Wall mount: left side entry for power cables, right side entry for other cables Rack module: rear |
| Cooling configuration | Forced ventilation. Air flow: 540 m³/hr for 50 A, 1195 m³/hr for 100 A/150 A; Wall mount: bottom to top; Rack module: front to back | Forced ventilation. Air flow: 540 m³/hr for 50 A, 1195 m³/hr for 100 A/150 A, 3000 m³/hr for 300 A, 4000 m³/hr for 450 A. Wall mount: bottom to top; Rack module: front to back; Floor Standing Cabinet: front to top | Forced ventilation. Air flow: 540 m³/hr for 50 A, 1195 m³/hr for 100 A/150 A; Wall mount: bottom to top; Rack module: front to back |
| Noise level | ≤ 65 dB(A) typical | module: ≤65 dB(A) typical; cabinet: ≤70 dB(A) typical | ≤ 65 dB(A) typical |
| HMI & Service Provisions | | | |
| Operator interface | Wall mount: 4.3 inch HMI mounted on unit Rack mount: no HMI mounted on unit, order separately | Wall mount: 4.3 inch HMI mounted on unit Rack mount: no HMI mounted on unit Floor standing cabinet: 7 inch HMI mounted on unit | Wall mount: 4.3 inch HMI mounted on unit Rack mount: no HMI mounted on unit, order separately |
| User interface options | Language: English | | |



Selection Table

| EasyLogic™ APF 208 V 50/60 Hz | | | | | | |
|-------------------------------|-----------------------------|------|----------------|-------------|--------------------------|-----------|
| Current Rating (A) | Commercial Reference Number | IP | Mounting Type | Cable Entry | Dimension H x W x D (mm) | Mass (kg) |
| 50 | EZAPF05024W20 | IP20 | wall mount | Top | 750 x 507 x 205 | 41 |
| 100 | EZAPF10024W20 | | | | 750 x 507 x 205 | 41 |
| 50 | EZAPF05024W31 | IP31 | wall mount | Side | 960 x 600 x 230 | 45 |
| 100 | EZAPF10024W31 | | | | | 45 |
| 100 | EZAPF10024R20 | IP20 | rack mount | Rear | 200 x 530 x 733 | 41 |
| EasyLogic™ APF 400 V 50/60 Hz | | | | | | |
| Current Rating (A) | Commercial Reference Number | IP | Mounting Type | Cable Entry | Dimension H x W x D (mm) | Mass (kg) |
| 50 | EZAPF05044W20 | IP20 | wall mount | Top | 620 x 507 x 185 | 28 |
| 100 | EZAPF10044W20 | | | | 750 x 507 x 205 | 41 |
| 150 | EZAPF15044W20 | | | | 805 x 507 x 275 | 55 |
| 50 | EZAPF05044W31 | IP31 | wall mount | Side | 835 x 600 x 210 | 32 |
| 100 | EZAPF10044W31 | | | | 960 x 600 x 230 | 45 |
| 150 | EZAPF15044W31 | | | | 1015 x 600 x 300 | 60 |
| 50 | EZAPF05044R20 | IP20 | rack mount | Rear | 180 x 530 x 603 | 28 |
| 100 | EZAPF10044R20 | | | | 200 x 530 x 733 | 41 |
| 150 | EZAPF15044R20 | | | | 270 x 530 x 788 | 55 |
| 300 | EZAPF30044F20 | IP20 | floor standing | Top | 2000 x 1000 x 600 | 342 |
| 450 | EZAPF45044F20 | | | | | 405 |



Selection Table (contd.)

| EasyLogic™ APF 480 V 50/60 Hz | | | | | | |
|-------------------------------|-----------------------------|------|---------------|-------------|--------------------------|-----------|
| Current Rating (A) | Commercial Reference Number | IP | Mounting Type | Cable Entry | Dimension H x W x D (mm) | Mass (kg) |
| 50 | EZAPF05053W20 | IP20 | Wall mount | Top | 750 x 507 x 205 | 41 |
| 100 | EZAPF10053W20 | | | | 750 x 507 x 205 | 41 |
| 150 | EZAPF15053W20 | | | | 805 x 507 x 275 | 55 |
| 50 | EZAPF05053W31 | IP31 | Wall mount | Side | 960 x 600 x 230 | 45 |
| 100 | EZAPF10053W31 | | | | 960 x 600 x 230 | 45 |
| 150 | EZAPF15053W31 | | | | 1015 x 600 x 300 | 60 |
| 100 | EZAPF10053R20 | IP20 | Rack mount | Rear | 200 x 530 x 733 | 41 |
| 150 | EZAPF15053R20 | | | | 270 x 530 x 788 | 55 |

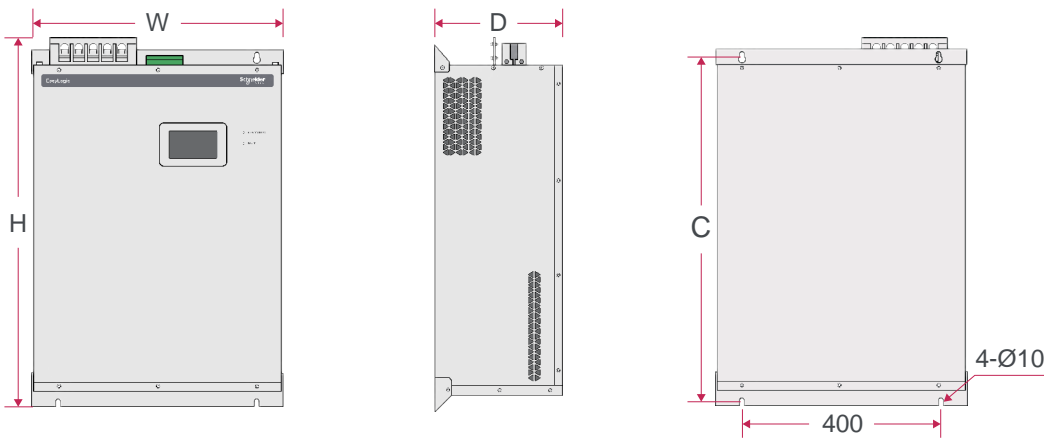
Accessories

| EasyLogic™ APF Accessories | | | | |
|-----------------------------|---------------------------|--|--------------------------|-----------|
| Commercial Reference Number | Description | Mounting unit | Dimension H x W x D (mm) | Mass (kg) |
| EZAPF070HMI | EasyLogic™ APF 7 inch HMI | For rack-mounted modules or wall-mounted modules connected in parallel | 135 x 192 x 71 | 1.5 |

Unit Dimensions

IP20 wall mount module

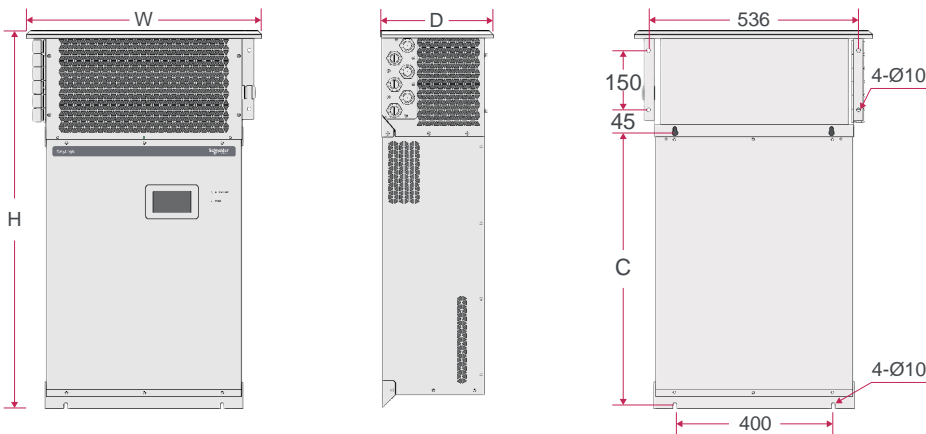
Equipped with a 4.3 inch HMI



| Commercial Reference Number | Exterior Dimensions (mm) | | | |
|-----------------------------|--------------------------|-----|-----|-----|
| | H | W | D | C |
| EZAPF05044W20 | 620 | 507 | 185 | 574 |
| EZAPF10044W20 | 750 | 507 | 205 | 699 |
| EZAPF15044W20 | 805 | 507 | 275 | 754 |
| EZAPF05024W20 | 750 | 507 | 205 | 699 |
| EZAPF10024W20 | 750 | 507 | 205 | 699 |
| EZAPF05053W20 | 750 | 507 | 205 | 699 |
| EZAPF10053W20 | 750 | 507 | 205 | 699 |
| EZAPF15053W20 | 805 | 507 | 275 | 754 |

IP31 wall mount module

Equipped with a 4.3 inch HMI



Unit Dimensions (contd.)

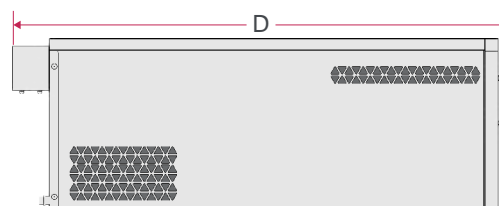
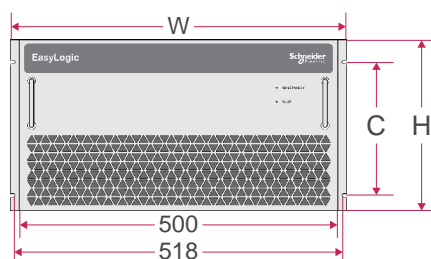
IP31 wall mount module

Equipped with a 4.3 inch HMI

| Commercial Reference Number | Exterior Dimensions (mm) | | | |
|-----------------------------|--------------------------|-----|-----|-----|
| | H | W | D | C |
| EZAPF05044W31 | 835 | 507 | 600 | 210 |
| EZAPF10044W31 | 960 | 507 | 600 | 230 |
| EZAPF15044W31 | 1015 | 507 | 600 | 300 |
| EZAPF05024W31 | 960 | 507 | 600 | 230 |
| EZAPF10024W31 | 960 | 507 | 600 | 230 |
| EZAPF05053W31 | 960 | 507 | 600 | 230 |
| EZAPF10053W31 | 960 | 507 | 600 | 230 |
| EZAPF15053W31 | 1015 | 507 | 600 | 300 |

IP20 rack mount module

HMI is not included and must be ordered separately.



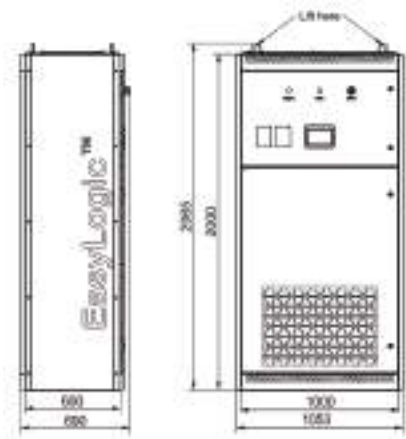
| Commercial Reference Number | Exterior Dimensions (mm) | | | |
|-----------------------------|--------------------------|-----|-----|-----|
| | H | W | D | C |
| EZAPF05044R20 | 180 | 530 | 603 | 140 |
| EZAPF10044R20 | 200 | 530 | 733 | 140 |
| EZAPF15044R20 | 270 | 530 | 788 | 219 |
| EZAPF10024R20 | 200 | 530 | 733 | 140 |
| EZAPF10053R20 | 200 | 530 | 733 | 140 |
| EZAPF15053R20 | 270 | 530 | 788 | 219 |

Note: See accessories in section Selection Table.

Unit Dimensions (contd.)

IP20 floor standing cabinet

Equipped with a 7 inch HMI



| Commercial Reference Number | Exterior Dimensions (mm) | | |
|-----------------------------|--------------------------|------|-----|
| | H | W | D |
| EZAPF30044F20 | 2000 | 1000 | 600 |
| EZAPF45044F20 | 2000 | 1000 | 600 |



Green Premium™

An industry leading portfolio of offers delivering sustainable value



More than 75% of our product sales offer superior transparency on the material content, regulatory information and environmental impact of our products:

- RoHS compliance
- REACH substance information
- Industry leading # of PEP's*
- Circularity instructions



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The Green Premium program stands for our commitment to deliver customer valued sustainable performance. It has been upgraded with recognized environmental claims and extended to cover all offers including Products, Services and Solutions.

CO₂ and P&L impact through... Resource Performance

Green Premium brings improved resource efficiency throughout an asset's lifecycle. This includes efficient use of energy and natural resources, along with the minimization of CO₂ emissions.

Cost of ownership optimization through... Circular Performance

We're helping our customers optimize the total cost of ownership of their assets. To do this, we provide IoT-enabled solutions, as well as upgrade, repair, retrofit, and remanufacture services.

Peace of mind through... Well-being Performance

Green Premium products are RoHS and REACH compliant. We're going beyond regulatory compliance with step-by-step substitution of certain materials and substances from our products.

Improved sales through... Differentiation

Green Premium delivers strong value propositions through third-party labels and services. By collaborating with third-party organizations we can support our customers in meeting their sustainability goals such as green building certifications.

*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)



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Over 75 % of Schneider Electric products
have been awarded the Green Premium ecolabel.

