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Independence, OH 44131-5516,
USA

Customer ID	0006015026	Account	Energia Europa SpA
Contact	Giorgio Bettale	Address	Via Trieste, 222 36010 Zané Vicenza Italy
Project Number	80254533		

USFE Report

Work Order	00039695	Usage Decision	Product labeled
Work Order Line Item Number	00000001	Label Applied	Yes
		Start Date	8/27/2025 12:00 PM
Product	Inductive-Passive Filter with Hybrid characteristics (1 Unit)	Report Generation Date	9/9/2025 7:23 AM
Model	Model EPX0600		
Manufacturer's Name	ENERGIA EUROPA SPA		

Inspection Address

ENERGIA EUROPA SPA
Via Trieste, 222
36010 Zané
Italy - Vicenza

Labels Applied

Material	Label Serial Number	Quantity	Unit Serial Number
1002211	U366263	1.00	25029

Inspection Method QD-1056-WI-INSP

Electrical Ratings

Voltage Values 480Y/277 VAC

Frequency 60 Hz

Power Values 600 A (SAVING - 800 A (BY-PASS)

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No of Wires	4 wire
No of phases	3 phase + Neutral + PE
SCCR:	20 kA RMS SYM. @ 480 VAC
Connection type	Permanently connected in the Field.
Enclosure Type	Accepted as NEMA Type 1.
Environmental Test Conditions	Regular indoor test bench condition (approx. Temperature 24°C - Humidity 75%)

Test Results

Test Type	Duration of Test	Test Value	Pass/Fail	Test Equipment	Cal Due Date	S/N or ID	Number of Units
E- Dielectric Test	72 Sec.	2000 VAC	Pass	Multitester MI2094 Z00003969	11/25/2025	14100166	1 Unit

Test Result Summary

The equipment was subjected to the following tests with acceptable results. Full test data is on file.

Dielectric strength test:
The dielectric tests were executed applied the test voltage between power circuits and the ground; during the test all circuit breakers are setting in close position sensitive components were insulated.

The control panel were tested in accordance with UL1012 Cl. 43.1 and UL508 Cl. 51.1.2 b):
Power Circuits at 480 VAC.
- 2000 VAC was applied for 72 sec. between the power circuits and ground without evidence of breakdown (1960 VAC required @60 Hz, rounded to 2000 VAC and added 12 sec.).

Continuity Test:
Ground continuity applied 25 A, until the millivolt drop measurement stabilized on several point of enclosure.
Measured 0.012 Ohm. Test result acceptable < 0.100 ohm. (average)

The tests were conducted by Regional Technical Lead & Senior Field Evaluations Representative Andrea Bertossi, with his personal Dielectric Tester.

Equipment Used:
- Dielectric Strength Tester – CSA SIR Personal – Manufacturer METREL – CE MultiTester Model MI 2094, S/N 14100166, Calibration Certificate N. 3410CT-24 - Calibration date 2024-11-25 - Due date 2025-11-25 – CSA Asset No. Z00003969.

Test result were accepted (No breakdown).

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Test equipment calibration certificate and result are kept on file at CSA Group database.

#Leakage Current test:
TEST WAIVED due to the equipment is permanently Connected.

#Strain & release test:
TEST WAIVED due to the equipment is permanently Connected.

#Flame Test:
TEST WAIVED due to metallic enclosures (other plastics components are NRTL CSA/UL listed).

NOTE: during the inspection it was also verified the Test Report (attached) N. LBRP 20053/01 Rev. 0, performed by the Mfr. at an accredited laboratory (ACCREDIA LAB N. 0062 L - ABB SPA / ABB SACE Business), regarding Short Circuit Current Test @ 35 kA on a similar equipment/construction.

The results of the tests performed are accepted and are kept on file at CSA.

Applicable Standards

UL 1012 - Power Units Other Than Class 2 - Edition 8 - Published Date: November 09, 2010 - Last Revision: July 30, 2025 - ANSI Approved: July 30, 2025, USED AS REFERENCE GUIDE FOR TESTS AND CONSTRUCTION.
UL 508 - Standard for Industrial Control Equipment - Edition 19 - Published Date: October 28, 2024 - ANSI Approved: October 28, 2024 - DOD Approved: June 05, 1989, USED AS REFERENCE GUIDE FOR TESTS.
UL 508A - Industrial Control Panels - Edition 3 - Published Date: April 24, 2018 - Last Revision: June 26, 2025 - ANSI Approved: June 26, 2025, USED AS REFERENCE GUIDE FOR TESTS AND CONSTRUCTION.

List of Alterations

Missing Warning labels, applied during the inspection.
No other Alterations found.

##

NOTES:
- The equipment is going to be delivered in USA.

Product destination:
- Destination: ABB Senatobia
- Address: 1555 Scott St, Senatobia, MS 38668 - MISSISSIPI - USA

- Before Switchgear installation, AHJ at location of installation site shall be informed.

##

ENGINEERING CONSIDERATIONS-NOTES-TECHNICAL REFERENCES
Abbreviation used:
NRTL = National Recognized Test Laboratory

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MCCB = Molded Case Circuit Breaker
MCB = Miniaturized Circuit Breaker
MPCB = Motor Protection Circuit Breaker
RCCB = Residual Current Circuit Breaker
SCCR = Short Circuit Current Rating
FLA = Full Load Ampere
OCP = Overcurrent Protection
OLP = Overload Protection
VFD = Variable Frequency Drive
PSU = Power Supply Unit
PLC = Programmable Logic Control
SIR = Special Inspector Representative
NEC = National Electrical Code NFPA 70
MFR = Manufacturer
N.A. = Not Applicable
SIR = Special Inspector Representative
MFR = Manufacturer
N.A. = Not Applicable
TBD = To Be Defined
FEB = Field Evaluation Body (CSA Group)
ICP = Industrial Control Panel

DESCRIPTION OF THE PRODUCT:
The equipment under evaluation is an inductive passive filter with hybrid characteristics Model EPX0600, CODE EPX0600G480I0NG00. It makes systems more efficient and optimize the power supply quality.
These characteristics are given by the ability of the equipment to introduce a series of electromagnetic vectors in phase opposition into the flow of energy, using part of the input energy and causing a voltage drop proportional to the selected filtering level.
Inductance is therefore not constant, but dynamically changes its value by adapting to the power absorption in the system, thus maximizing its effectiveness. The presence of reactive components and switches/contactors, allows the losses introduced by installing the EP-X system can be considered to be nil, unlike what happens in active filters with resistors and switching power devices.

The equipment has the following characteristics:
EQUIPMENT: EPX
CODE: EPX0600G480I0NG00
SERIAL NUMBER: 25029
YEAR: 2025
VOLTAGE: 480Y / 277 VAC
PHASE: 3P+N+PE
FREQUENCY: 60 Hz
In (SAVING): 600 A
In (BY-PASS): 800 A
Sn (SAVING): 416 kVA (POWER)
Sn (BY-PASS): 554 kVA (POWER)
Short Circuit Rating: 20 kA at 480 VAC
ENCLOSURE ENV. TYPE: 1
UL STANDARDS: UL 1012 // UL 508A
IEC STANDARDS: IEC/EN61439-1:2022 // IEC/EN61439-2:2021

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Industrial Control Panel for Industrial Machinery.

List of Safety Critical Components

Enclosure Components	The enclosures are made with sheet steel painted to prevent the corrosion, they consists of TWO (2) sections mechanically secured to each other making up a single system cabinet. Enclosure Mfr. by the producer, was verified and accepted as TYPE 1 Enclosure. Doors are key-locked, and provided with self-gripping gasket. The enclosure was found to be constructed and assembled to provide the strength and rigidity necessary to resist to the abuses to which it will be subjected in the environment in which the equipment is intended to be used without resulting in a fire or shock hazard. Enclosure was made of suitable material to prevent corrosion; carbon steel painted externally and galvanized steel for the frames and internal segregation panels. Covers were adequately fastened such that live parts were not accessible without the use of tools and/or keys. Openings are protected with adequate grids, for heating exchange with forced ventilation. All primary electrical components are certified or sufficiently Recognized by other NRTL, suitable rated and used within their specifications and conditions. internally touch contact IP20 is warrantee trough the use of a grid made of plastic material certified UL94V-0 (certificate of compliance saved on folder).
Ground/Bonding Components	The equipment was provided with adequately sized bonding terminals and found to be suitable for bonding the equipment to ground in accordance with the requirements of NEC - NFPA 70. All exposed non-current-carrying metal parts that could become energized were properly bonded. There were enough bonding terminals provided for each Incoming / outgoing circuit. All junction boxes were provided of Bonding terminal connected with adequate cable size. All accessible metal parts are verified (visually and/or by test) to be bonded together and to be connected to the line equipment grounding conductor. All exposed non-current-carrying metal parts that could become energized were properly bonded. The main line grounding conductor to the main panel is connected to a suitable grounding terminal strip, marked with grounding symbol. Doors, covers, mounting panels, and conductive parts are suitably bonded via threaded stud, lock washers and nut and in accordance with NEC - NFPA70 requirements.
Disconnect Components	- MAIN CIRCUIT BREAKER (INTEGRATED PROTECTION - Q1), Low Voltage AC Power Circuit Breaker, Mfr. by ABB, SACE Emax 2 Series, model SACE E1.2B-A, rated max 635 VAC, 1200A 3P, SCCR 42 kA @ 480 VAC, UL Listed and CSA approved (UL 1066 - ANSI C37.13), suitable for the application. - MAIN CIRCUIT BREAKER (BY-PASS - QS2), Low Voltage AC Power Switch-Disconnector, Mfr. by ABB, SACE Emax 2 Series, model SACE E1.2B-A/MS, rated max 635 VAC, 1200 A 3P, SCCR 42 kA @ 480 VAC, UL Listed and CSA approved (UL 1066 - ANSI C37.13), suitable for the application. - MAIN CIRCUIT BREAKER (QS3), Molded Case Circuit Breaker, Mfr. by ABB, SACE Tmax Series, model XT2N 160LS/I, rated max 690 VAC, 160 A 3P, SCCR 30 kA @ 480 VAC, UL Listed and CSA approved, suitable for the application.
Main Overcurrent Protection Components	- See Disconnect Components. - See Branch Overcurrent Protection Components.
Branch Overcurrent Protection Components	- See Disconnect Components. - Fuse-Holders, Mfr. by ABB, model E 91(93)/30 CC, rated 30 A, 600 VAC, suitable for Class CC fuses, UL Listed and CSA approved, provided with Class CC fuses, Mfr. by BUSSMANN, model LP-CC xx, various ratings in Ampere, 600

	VAC, 150 VDC, UL Listed and CSA approved, suitable for the application. - Circuit Breaker, Mfr. by ABB, model SU 203M C20A, rated 480Y/277VAC, 20 A, 3P, 50/60 Hz, SCCR 10 kA @ 480 VAC, UL listed for USA and Canada, UL 489 and CSA 5, suitable for the application.
Overload Components	- See Disconnect Components. - See Branch Overcurrent Protection Components. - See Main Overcurrent Protection Components.
Temperature device Components	- VENTILATION FAN, CC Tube Axial Fan, Mfr. by EXO.M ELECTRIC, model EXOM D12BH-24D, size D=200 rated 24VDC, 4.8W 880M3/H, UL R/C for USA and Canada, suitable for the application; ACCEPTED. - Thermostat, Mfr. by SCHNEIDER, type NSYCCOTHO, ClimaSys CC Series, rated 250V-10A, 0 - 60°C, cURus UL File E329398, suitable for the application; ACCEPTED.
Safety Circuit Components	N/A

Installation Requirements

Were the general concepts for safety and how the equipment is to be installed reviewed with the customer and documented on the report?

YES.
Installation requirements were analyzed with the manufacturer: minimum safety requirements are indicated in the installation manual.

Other LV Components:
- Non-certified components have been accepted where they are used in Class 2 or low voltage limited-energy circuits (voltage 30 VAC / 42.4 VDC / peak max. and 100 VA or less).

See Construction Review - Components Section for further details.

Was the appropriate local AHJ contacted and informed of the details of this evaluation?

NO

AHJ Additional Information

- NO AHJ REQUIREMENT - Notification by Buyer / Customer does not require permit for installation of equipment; in accordance with QD-1056-WI-INSP table B.2 the equipment allowed to be labelled at other location and No AHJ requirement.

Equipment Description and Function

The equipment under evaluation is an inductive passive filter with hybrid characteristics Model EPX0600, CODE

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EPX0600G480I0NG00. It makes systems more efficient and optimize the power supply quality.

Construction Review

Components	Components were confirmed to be accurately identified on the drawings and bill of material. Critical components were marked with an acceptable approval mark from an accepted NRTL. The components were installed in accordance with the manufacturer's instructions, used for their intended application, and were used within their electrical ratings. Critical safety components that were not approved are identified in the component list of the report. Other Components: - NET ANALIZER, Mfr. by CARLO GAVAZZI, model WM14-DIN, rated 400/660V 5A 115V COM, UL Listed for USA and CANADA, suitable for the application; ACCEPTED. - PLC, Mfr. by SCHNEIDER, SR3 Series, rated 24 VDC, UL Listed for USA and CANADA, suitable for the application; ACCEPTED. - CONTACTORS, Mfr. by ABB, model AF-12, AF52 and AF65 Series, rated max 600 V, UL Listed for USA and CANADA, suitable for the application; ACCEPTED. - POWER RESISTORS, Mfr. by FAIRFILD, Model RFZ/C 160, UL R/C for USA and CANADA, suitable for the application; ACCEPTED. - THREE-PHASE LINE FILTER, Mfr. by METH, mod. T3TAN Series, rated 600/480 V, 50/60 Hz, 36 kVA, Temp. Class F, Ins. Class H, UL R/C for USA and CANADA, suitable for the application; ACCEPTED. - CURRENT TRANSFORMERS, Mfr. by SOCOMEC, Model TBC 70-100 UL, rated 1.2/6 kV, 90 kA, 50-60 Hz, UL R/C for USA and CANADA, suitable for the application; ACCEPTED. - POWER SUPPLY, Mfr. by ABB, model CPT 24/10.0, rated IN 400/500 VAC - OUT 24 VDC 10.0 A, UL Listed and Recognized for USA and Canada; suitable for the application; ACCEPTED. - THREE-PHASE INDUCTANCE, Mfr. by ITALWEBER/ELETTRA, mod. OF0037 Series, rated 600 V, 2.5 A, 60 Hz, 370 mH, Ins. Class F, UL R/C for USA and CANADA, suitable for the application; ACCEPTED.
Mechanical Assembly	The mechanical assembly was reviewed and found to be smooth and free of shape edges and burrs. The equipment provided with adequate guarding and the structure was mechanically stable and structurally sound. Adequate guarding of dangerous moving parts.
Disconnecting Means	The equipment disconnect was reviewed and found to be adequately rated for the load and intended application. The operator was not exposed to bare live parts when the equipment was disconnected from the supply source. Line side terminals were designed to prevent accidental contact.
Bonding	The equipment was provided with an adequately sized bonding terminal and found to be suitable for bonding the equipment to ground in accordance with the requirements of the Canadian Electrical Code, Part I. All exposed non-current-carrying metal parts that could become energized were properly bonded. There was a sufficient number of bonding terminals provided for each incoming and each outgoing circuit.
Enclosure	The enclosure was found to be constructed and assembled to provide the strength and rigidity necessary to resist the abuses to which it will be subjected in the environment in which the equipment is intended to be used without resulting in a fire or shock hazard. The enclosure was made of suitable material to prevent corrosion. Doors and covers were adequately fastened such that live parts were not accessible without the use of a tool. Openings were reviewed and found sized to prevent the test probe from contacting bare live parts of hazard voltages.

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Terminals	Conductors were found to be secured in a manner as to obtain good permanent contact. Conductors were firmly gripped in a manner that stray strands cannot cause short-circuits or grounds. Terminals were adequately sized with an ampacity not less than required for application in the device.
Wiring	Internal conductors were found to be suitable for the service intended with respect to voltage, temperature and grouping. The conductors were supported so that there was no undue mechanical strain on the conductors or their terminals. There were no apparent rough edges, burrs or sharp edges that would likely damage the insulation. The conductors were evaluated for the load ampacity. - WIRING INSIDE PANELS: certified wires, AWM UL Style 1015 / CSA Type TEW 105°C, used in suitable ampacities, voltage, and temperature ratings, routed in suitable self-extinguishing ventilated thermoplastic raceways, or as open-air wiring within the enclosure. Suitable thermoplastic flexible hoses enclose wires to doors. Wiring for signal and control circuits operating at 30 V max and 100 VA were accepted for the circuit; ACCEPTED. - BUS-BAR SYSTEM, flexible bus-bars, Mfr. by TEKNOMEGA, model series CFX, used in suitable ampacities, voltage, and temperature ratings, UL R/C for USA and Canada (UL File E300607), suitable for the application; ACCEPTED.
Overcurrent Protection	Overcurrent and overload devices were found to be suitable for the application, approved for the intended use, and adequately sized for the circuit they are protecting.
Supplementary Protectors	Supplementary Protectors were suitably rated, used for the purpose intended, and not used where branch circuit protection is required by the Canadian Electrical Code Part 1.
Motors	N/A
Motor Controllers	N/A
Receptacles	N/A
Lighting	N/A
Drives	N/A
Safety Circuits	Wiring and components in safety circuits were reviewed for approval marks, application, and electrical ratings.

Conditions of Acceptability

- NO AHJ REQUIREMENTS: notification received from the buyer / Customer that does not require permit for installation of equipment, in accordance with QD-1056 (ex DQD209WI002), table B.2: the equipment allowed to be labelled at other location and NO AHJ requirement.

- The equipment has be evaluated for electrical safety (fire and electric shock hazards) only according to NFPA 791 R2024, for installation and use in ordinary (non-hazardous) locations in accordance with National and Local Code - NFPA 70 (NEC); other requirements may be mandated by local, provincial or federal authorities for aspects other than electrical

fire and shock hazards, are excluded from the scope of this investigation. and are responsibility of the submitter. The product was not evaluated for installation in any hazardous classified location and/or for installation in an environment subject to rainfall, water spray, steam, or exposure to any corrosive chemicals that deteriorate the enclosure or components.

- The area surrounding the equipment or system will be kept free and clear from combustible material. Adequate clearances will be maintained for proper safety, operation, and servicing.

- A maintenance and servicing schedule will be followed to keep the equipment or system operating as designed. The final responsibility for establishing a maintenance program will rest with the end user.

- As parts deteriorate or cease to function properly, they will be replaced or repaired, or the equipment shall be removed from service. No changes to the design, construction or use shall be made without the written acknowledgment and approval of this agency. Additional testing may be required to determine acceptability of any changes made.

- This Field Evaluation does not include investigation of the faction/suitability/adequacy of the controlled equipment, nor does it cover connecting wiring systems or equipment and accessories field installed on or within the industrial control panel(s).

- The installation of the complete panel can be only evaluated at the installation and/or production Site, by local authorities. The inspections on the equipment had been evaluated about the electrical panels on the risk of electric shock, fire and mechanical hazards as identified in US Field Evaluation Service.

- ENERGIA EUROPA S.p.A. has been notified and informed regarding the need of preliminary contacting the local Authority Having Jurisdiction prior to installing the equipment as required by NFPA 791.

- Notification by buyer/Customer does not require permit for installation of equipment, in accordance with QD-1056 (ex DQD209WI002), table B.2 the equipment allowed to be labelled at other location and NO AHJ requirement.

- Incoming supply wiring to main control panel is excluded from the scope of this evaluation; also, field-wiring connections / interconnections to/from external equipment are excluded - field wiring is subject to inspection and approval by the local Authority Having Jurisdiction. Interconnecting wiring/wiring methods between control panel and machine electrical have been accepted as they are installed as/form integral part of the machine (in dedicated wire ways, not intercepting the building structure / installation), suitably routed and supported, and protected as to avoid physical damage and undue external influences (such as temperature, contaminants, and the like).

- Field connections may be subject to further inspection by the local Authority Having Jurisdiction.

- The equipment covered under this US Field Evaluation were inspected on 27/08/2025 as described in this report; the equipment was assembled as intended and was inspected in ENERGIA EUROPA SpA facility in Zané - Italy at the below address:
Via Trieste, 222
36010 Zané
VICENZA - Italy
Since the end-use location may need to comply with specific local requirements, the final installation and field wiring connections / interconnections are subject to inspection and approval by the local Authority Having Jurisdiction– AHJ.

- Main overcurrent protections to be provided externally by the installer in accordance with NEC requirements. This evaluation is limited to the equipment listed above and below, and it does not include / cover evaluation of the adequacy of

the controls and protective devices installed in the Field to protect the equipment.

- The equipment or system shall be used in a manner consistent with the manufacturer's design and instructions. Instructions shall be provided in an accessible location for maintenance and reference.

- Inspection Method: QD-1056 (ex DQD 209WI002).

- The USFE label shall not be considered as equivalent to the Listing Mark for products. The CSA US Field Evaluation Label indicates compliance with the applicable parts of the Standards referenced above, at the time the Label was applied, and considering only the location of final examination site. The applicable parts included in the evaluation are the construction review, marking, and those testing protocols that non-destructive.

- Electrical schematics, layout, component list, construction drawings, material specification, photos and additional technical information are kept on file at CSA database.

Product destination:
- Destination: ABB Senatobia
- Address: 1555 Scott St, Senatobia, MS 38668 - MISSISSIPI - USA

- Final installation was discussed with Mr. Giorgio BETTALE, ENERGIA EUROPA SPA.

Markings

Cautions/Warning Markings	# CAUTION - Hazardous Voltage - Disconnect power before servicing or cleaning. # WARNING - HAZARDOUS VOLTAGE - All doors must be closed before energizing the panel. # WARNING - Read and understand operator's manual before using this machine. Failure to follow operating instructions could result in death or serious injury. # WARNING: To maintain overcurrent, short-circuit and ground-fault protection, the manufacturer's instruction for selection of overload and short-circuit protection must be followed to reduce the risk of fire or electric shock. If an overload or a fault current interruption occurs, circuits must be checked to determine the cause of the interruption. If a fault condition exists, the current-carrying components should be examined and replaced if damaged, and the integral current sensors must be replaced to reduce the risk of fire or electric shock. # DANGER - ARC FLASH AND SHOCK HAZARD - APPROPRIATE PPE REQUIRED - Do not operate controls or open covers without appropriate personal protection equipment. Failure to comply may result in injury or death. Refer to NFPA 70E for Minimum PPE Requirements. Fuses tables are provided in the internal panel doors.

Customer Signature

Signature	
Signed By	Giorgio Bettale
Date	09/09/2025
Type	Facility Representative

Prepared By	Andrea Bertossi

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The Client acknowledges that the equipment described in the related report has not been rejected due to unacceptable results of a previous evaluation conducted by a certification organization through any other existing certification service.

NOTE: EVALUATION BY SPECIAL INSPECTION SERVICE SHALL NOT BE CONSIDERED EQUIVALENT OF CSA CERTIFICATION.

The Client agrees to the Conditions of the signed/accepted Quote on file, and Alteration(s) listed on the related report. This report addresses only the product described in the report, as the product existed at the time of the inspection.