Certificate of Compliance

Certificate: 70011641 **Master Contract:** 261831

Project: 70137814 **Date Issued:** 2017-05-19

Issued to: **Eliwell Controls s.r.l.**
Via dell'Industria 15-Z.I. Paludi
Alpago, Belluno 32016
ITALY

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: *Khaled Feddad*
Khaled Feddad

PRODUCTS

CLASS - C482351 - TEMPERATURE INDICATING AND REGULATING EQUIPMENT-Appliance Type Controls - Temperature Controls
CLASS - C482387 - TEMPERATURE-INDICATING AND REGULATING EQUIP.-Appliance Type-Temperature Controls-Cert to US Stds

Component Type, DIN rail mounting Operating Control:

a. Series Free Evolution, EVD, EVC, EVE, AVC, AVD, followed 0, 1, 2, 3, 4, 5, 6, 7, 8 or 12, followed 0, 1, 2, 3, 4 or 5, followed by two alphanumeric digits, followed by two alphanumeric digit, followed by one alphanumeric digit, followed by B or 5, may be followed by two alphanumeric digits.
b. Series Modicon M171 Performance, TM171PD, TM171PB, may be followed by M, followed by 15 to 27, followed by R,S, may be followed by three alphanumeric digits. TM171EP, followed by 14 to 27, followed by R, S, may be followed by three alphanumeric digits.
c. Series Free Evolution, EVS, followed 0, 1, 2, 3, 4, 5, 6 or 7, followed 0, 1, 2, 3, 4 or 5, followed by two alphanumeric digits, followed by two alphanumeric digit, followed by one alphanumeric digit, followed by 0, may be followed by two alphanumeric digits.
d. Series Free Evolution, EVS, followed 0, 1, 2, 3, 4, 5, 6 or 7, followed LON, followed by two alphanumeric digits, followed by two alphanumeric digit, followed by one alphanumeric digit, followed by 0, may be followed by two alphanumeric digits.

e. Series Modicon M171 Performance, TM171A, followed by RS232, CAN, ETH, PBUS, MB, C485, RS485, ETHRS485, may be followed by three alphanumeric digits.
f. Series TM172 may be followed by PB or PD, may be followed by G, may be followed by 28 to 42 may be followed by R or S, may be followed by three alphanumeric digits.
g. Series TM171ALON, may be followed by three alphanumeric digits, Communication Modules.
h. Series EWCM, EP followed AO, AS, B0, BS, 70, 7S, 40, K0, P7, or P4 followed 0 or 1, followed by three alphanumeric digits, followed by one alphanumeric digit, followed by 0, B or 5, may be followed by two alphanumeric digits, may be followed by one alphanumeric digit.

Component Type, Front Panel Mounting Operating Control:

a. Series Free Evolution, EVK, EVP, followed 1, 2 or 3, followed 0, 1, 2, 3, 4 or 5, followed by two alphanumeric digits, followed by two alphanumeric digit, followed by one alphanumeric digit, followed by B, may be followed by two alphanumeric digits.
b. Series Modicon M171 Performance, TM171DGRP may be followed by three alphanumeric digits, TM171PF, followed by E, followed by 03, may be HR, may be followed by three alphanumeric digits

RATINGS:

Type	Model(s)	Function	Terminal Designation	Rating	ID connector
INPUTS:	EVD, EVC, EVE TM171PD, TM171PB, TM171EP	Power Supply	Supply (L-N)	24Vac, 50/60 Hz, or 24Vdc - 48Vdc. Class 2 or SELV power source.	CN6.1-2 (Base Board)
		Analog Inputs (Analog Board)	G, AI1, AI2,	0-5Vdc, 0-10Vdc, 20mA max. current (80mA max. for common terminals G). Class 2 or SELV circuit, limited energy	CN8.3 CN8.2 CN8.1 (Analog Board)
			AI3, AI4, AI5, AI6, G		CN9.2 CN9.1 CN10.2 CN10.1 CN11.3 (Analog Board)

		Digital inputs	DI1, DI2, DI3, DI4, C1-4 (Com), DI5, DI6, DI7, DI8, C5-8 (Com),	24Vac, 50/60 Hz, or 24Vdc - 48Vdc. Class 2 or SELV power source.	CN15.2 CN15.1 CN16.2 CN16.1 CN17.2 CN17.1 CN18.2 CN18.1 CN19.2 CN19.1 (Base Board)
		Fast Digital input	FDI, G	24Vac, 50/60 Hz, or 24Vdc - 48Vdc. Class 2 or SELV power source.	CN6.1 CN6.2 (Analog Board)
	EVP keyboard	Analog Inputs	G, AI2, AI3,	0-5Vdc, 0-10Vdc, 20mA max. current Class 2 or SELV circuit, limited energy.	J7.3 J7.2 J7.1 (LCD board)
	EVS plug-in modules. TM171A plug-in modules (All versions)	5Vdc power supply from EVD,EVC, EVE models	--	5Vdc, Class 2 or SELV circuit, limited energy.	CN3/6.11 CN3/6.9 (Main board)
	EVS RS232/R TM171A RS232/R	9Vdc power supply from EVD,EVC, EVE models	--	9Vdc, Class 2 or SELV circuit, limited energy.	CN3/6.13 CN3/6.19 (Main board)
	EVS plug-in modules. TM171A plug-in modules. (All versions)	12Vdc power supply from EVD,EVC, EVE models	--	12Vdc, Class 2 or SELV circuit, limited energy.	CN3/6.15 CN3/6.19 (Main board)
	EVS plug-in modules. TM171A plug-in modules. (All versions)	3.3Vdc power supply from EVD,EVC, EVE models	--	3.3Vdc, Class 2 or SELV circuit, limited energy.	CN3/6.17 CN3/6.19 (Main board)
	EVP keyboard TM171PF keyboard	Power Supply	Supply (L-N)	24Vac, 50/60 Hz, or 24Vdc - 48Vdc. Class 2 or SELV power source.	J9.1 J9.2 (LCD board)

	EVK keyboard TM171DGRP keyboard	Power Supply	Supply (L-N)	24Vac, 50/60 Hz, or 24Vdc - 48Vdc. Class 2 or SELV power source.	J9.1 J9.2 (LCD board)
	EVE TM171EP	Power Supply	Supply (L-N)	24Vac, 50/60 Hz, or 24Vdc. Class 2 or SELV power source.	CNJ1 1-2 (Base Board)
		Analog Inputs	G, AI1, AI2, AI3, AI4	0-5Vdc, 0-10Vdc, 20mA max. current (80mA max. for common terminals G). Class 2 or SELV circuit, limited energy	CNJ1.3 CNJ1.4 CNJ1.5 CNJ1.6 CNJ1.7 (Analog Borad)
		Digital inputs	DI1, DI2, DI3, DI4, DI (Common)	24Vac, 50/60 Hz, or 24Vdc. Class 2 or SELV power source.	CN J1.13 CN J1.14 CN J1.15 CN J1.16 CN J17.(Common) (Base Board)
	TM 172PD TM 172PB	Power Supply	Supply (L-N)	24Vac, 50/60 Hz, or 24Vdc, Class 2 or SELV power source. (100W or VA).	CN10 1-2 (Base Board)
		Analog Inputs (Base board)	AI1 AI2 AI3 AI4 AI5 AI6 AI7 AI8 GND 5Vdc 24Vdc	+5Vdc and +24Vdc, 50mA and 150mA max. current. 0…20mA or 0…10V Class 2 or SELV circuit, limited energy	CN5.1 CN5.2 CN5.3 CN5.4 CN5.5 CN5.6 CN5.7 CN5.8 CN5.GND CN5.5Vdc CN5.24Vdc
		Analog Inputs (Expansion board)	AI9 AI10 AI11 AI12 GND		CN13.9 CN13.10 CN13.11 CN13.12 CN13.GND

			5Vdc 24Vdc		CN13.5Vdc CN13.24Vdc
		Digital inputs (Base board)	COM_DI DI3 DI4 DI5 DI6 DI7 DI8	24Vac or 24Vdc, Class 2 or SELV circuit, limited energy	CN4.COM_ DI CN4.DI3 CN4.DI4 CN4.DI5 CN4.DI6 CN4.DI7 CN4.DI8
	TM 172PDxxR TM 172PBxxR	Digital inputs (Expansion board)	COM-DI D19 D10 DI11 DI12	24Vac or 24Vdc, Class 2 or SELV circuit, limited energy	CN12.1 CN12.2 CN12.3 CN12.4 CN12.5
		Fast Digital Input (base board)	COM-DI D1 D2	24Vac, 50/60 Hz, or 24Vd. Class 2 or SELV limited energy.	CN3.1 CN3.2 CN3.3
	TM 171ALON	Plug-in connector from primary models TM172PDxxS TM172PBxxS	Plug-in connector	Class 2 or SELV power source, limited energy less than 15W.	CN1 (Base Board)
					CN8 (FT-B, FT-A, LON GND (Base Board)
COMMUNICATIONS:	EVD, EVC, EVE, TM171PD, TM171PB, TM171EP	RS-485 Serial	RS-485	Class 2 or SELV circuit, limited energy.	CN21 (Base Board)
		CAN Bus (Located on Base Board)	CAN		CN22.3-5 (Base Board)
		Terminal Resistance for CAN	R term		CN23 CN24 (Jumpers) (Base Board)
		Plug-in connector for EVS module.	Plug-in connector	Class 2 or SELV circuit, limited energy.	CN9.1-8, CN9.10, CN9.12, CN9.14, CN9.16, CN9.18, CN9.21-26

					(Base Board)
		4 digits Dip-switch terminal	4 Dip Switch	--	SW1 (Analog Board)
	EVC, EVE, M171PB, TM171EP	10 digits Dip-switch terminal	10 Dip Switch	--	SW1 (Analog Board)
		6 digits Dip-switch terminal	6 Dip Switch	--	SW2 (Analog Board)
	EVS TM171A (All version)	Plug-in connector from primary models EVD,EVC,EVE.	Plug-in connector	Class 2 or SELV circuit, limited energy.	CN3/6.1-8, CN3/6.10, CN3/6.12, CN3/6.14, CN3/6.16, CN3/6.18, CN3/6.21-26 (CN6 for EVS CAN and RS485 versions) (Main board)
	EVS CAN, TM171ACAN	CAN Bus interface	CAN	Class 2 or SELV circuit, limited energy.	CN1, CN2, CN4, CN5. (Main board)
	EVS RS232/R, TM171ARS232/R	RS232 Interface	RS232	Class 2 or SELV circuit, limited energy.	CN1 (Main board)
	EVS ETH, TM171AETH	Ethernet Interface	ETH	Class 2 or SELV circuit, limited energy.	CN1 (Main board)
	EVS RS485, TM171AMB	RS485 Interface	RS485	Class 2 or SELV circuit, limited energy.	CN1, CN2, CN4, CN5. (Main board)
	EVS Profibus, TM171APBUS	RS232 Interface	RS232	Class 2 or SELV circuit, limited energy.	JP1 (Main board)
	EVS 485	RS485 Interface	RS485	Class 2 or SELV circuit, limited energy.	CN3, CN4 (Main board)

	EVS ETH 485	Ethernet Interface	ETH	Class 2 or SELV circuit, limited energy.	CNI, CN3, CN4 (Main board)
	EVK, EVP, TM171DGRP TM171PF	CAN Bus interface	CAN	Class 2 or SELV circuit, limited energy.	J9.3, J9.4, J9.5, JP2, JP1 (LCD board)
	EVP, TM171PF	RS485 Interface	RS485	Class 2 or SELV circuit, limited energy.	J8 (LCD board)
		Ethernet Interface	ETH	Class 2 or SELV circuit, limited energy.	J6 (LCD board)
	EVE, TM171EP	CAN Bus (Located on Base Board)	CAN	Class 2 or SELV circuit, limited energy.	CN J2.1-2-3 (Base Board)
	TM 172PD TM 172PB (Base board)	CAN Expansion bus	CAN	Class 2 or SELV circuit, limited energy.	CN18
		RS485–Modbus SL or BACnet MS/TP	RS-485		CN19
					CN1
	TM 172PD TM 172PB (CPU Board)	USB	USB Connection		CN17
		USB Mini-B			CN16
	TM 172PD TM 172PB (Base board)	Ethernet Modbus TCP and BACnet IP and Web Server	ETH		CN20
OUTPUTS:	EVD, EVC, EVE TM171PD, TM171PB, TM171EP	Add. 5Vdc power supply output	5Vout	5Vdc, Class 2 or SELV circuit, limited energy.	CN11.2 (Analog Board)
		Add. 12Vdc power supply output	12Vout	12Vdc, Class 2 or SELV circuit, limited energy.	CN11.1 (Analog Board)
		5Vdc power supply for plug in module EVS	--	5Vdc, Class 2 or SELV circuit, limited energy.	CN9.11 CN9.9 (Base Board)
		9Vdc power	--	9Vdc,	CN9.13

		supply for plug in module EVS		Class 2 or SELV circuit, limited energy.	CN9.19 (Base Board)
		12Vdc power supply for plug in module EVS	--	12Vdc, Class 2 or SELV circuit, limited energy.	CN9.15 CN9.19 (Base Board)
		3.3Vdc power supply for plug in module EVS	--	3.3Vdc, Class 2 or SELV circuit, limited energy.	CN9.17 CN9.19 (Base Board)
		Relay Output RL8	C1 (COM) DO1 (NC) DO1 (NO)	Resistive 10A, 240Vac, 30k cycles (NO contact)	CN1.1, CN1.2, CN1.3 (Base Board)
				Motor 1/2hp@240Vac, 30k cycles (NO contact)	
				Resistive 10A, 240Vac, 30k cycles (NC contact)	
	EVD, EVC, EVE TM171PD, TM171PB, TM171EP	Relay Output RL9	C2 (COM) DO2 (NO) DO2 (NC)	Resistive 10A, 240Vac, 30k cycles (NO contact)	CN1.4 CN1.5 CN1.6 (Base Board)
				Motor 1/2hp@240Vac, 30k cycles (NO contact)	
				Resistive 10A, 240Vac, 30k cycles (NC contact)	
		Relay Output RL1 (not mounted on SSR version)	DO3 (NO) C34 (COM)	Resistive 3A, 240Vac 100k cycles.	CN3.1 CN3.3 (Base Board)
				Resistive 5A, 240Vac 6k cycles.	
		Relay Output RL2 (not mounted on	DO4 (NO) C34 (COM)	Resistive 3A, 240Vac 100k cycles.	CN3.2 CN3.3 (Base Board)

		SSR version)		Resistive 5A, 240Vac 6k cycles.	
		Relay Output RL3	DO5 (NO) C567 (COM)	Resistive 3A, 240Vac 100k cycles.	CN4.1 CN5.2(^) (Base Board)
				Resistive 5A, 240Vac 6k cycles.	
		Relay Output RL4	DO6 (NO) C567 (COM)	Resistive 3A, 240Vac 100k cycles.	CN4.2 CN5.2(^) (Base Board)
				Resistive 5A, 240Vac 6k cycles.	
		Relay Output RL5	DO7 (NO) C567 (COM)	Resistive 3A, 240Vac 100k cycles.	CN5.1 CN5.2(^) (Base Board)
				Resistive 5A, 240Vac 6k cycles.	
	EVDxxSS, EVCxxSS, EVExxSS. TM171PxxS TM171EPxxS (only SSR version)	SSR Output RL6 (mounted on RL1 location)	DO3 (NO) C34 (COM)	Resistive 0.75A, 240Vac, 6k cycles	CN3.1 CN3.3 (Base Board)
	EVS RS232/R TM171ARS232	SSR Output RL7 (mounted on RL2 location)	DO4 (NO) C34 (COM)	Resistive 0.75A, 240Vac, 6k cycles	CN3.2 CN3.3 (Base Board)
		Relay Output RY1	3 (NC) 2 (NO) 1 (COM)	Resistive, 5A, 240Vac, 100k cycles	CN2.3 CN2.2 CN2.1
	EVD, EVC, EVE TM171PD, TM171PB, TM171EP	Analogue Outputs	AO1 G	Class 2 or SELV circuit, limited energy.	CN1.1 CN1.2 (Analog Board)
			AO2 G	Class 2 or SELV circuit, limited energy.	CN2.1 CN2.2 (Analog Board)

			AO3 G	Class 2 or SELV circuit, limited energy.	CN3.1 CN3.2 (Analog Board)
			AO4 G	Class 2 or SELV circuit, limited energy.	CN4.1 CN4.2 (Analog Board)
			AO5 G	Class 2 or SELV circuit, limited energy.	CN5.1 CN5.2 (Analog Board)
	EVE TM171EP	Power Outputs (Base Board)	5Vout	5Vdc, 20mA SELV Energy Limited.	CN J1.8
		Analog Outputs (Base Board)	12Vout	12Vdc, 50mA SELV Energy Limited.	CN J1.9
			G AO1 AO2	Class 2 or SELV circuit, limited energy.	CN J1.10 CN J1.11 CN J1 12
		Relay Output K1 (Base Board)	DO1 (Common) DO1 (NC) DO1 (NO)	5A, 240Vac, Resistive Load 30k cycles	CN J3.2, CN J3.3, CN J3.1
		Relay Output K2 (Base Board)	DO2 (NO) (Common DO2)	5A, 240Vac, Resistive Load 30k cycles	CN J4.4 CN J4.7
		Relay Output K3 (Base Board)	DO3 (NO) (Common DO3)		CN J4.5 CN J4.7
		Relay Output K4 (Base Board)	DO4 (NO) (Common DO4)		CN J4.6 CN J4.7
	TM172PD TM172PB (Base board)	Analogue Outputs	GND AO1 AO2 AO3 AO4	Class 2 or SELV circuit, limited energy.	CN2.1 CN2.2 CN2.3 CN2.4 CN2.5
	TM172PD TM172PB (Expansion board)		GND AO5 AO6		CN11.1 CN11.2 CN11.3
	TM172PD	Digital Outputs	C8 (COM)	3A, 240Vac, Resistive	CN6.1

	TM172PB (Base board)	(Relay K10)	DO8 (NC)	100k cycles at -20T55°C or 1A, 240Vac, Resistive 100k cycles at -20T60°C Or Not used at -20T65°C	CN6.2
			DO8 (NO)		CN6.3
		Digital Outputs (Relays K7 ÷ K9)	DO7 (NO)	3A, 250Vac, Resistive, 2FLA/12LRA, 250Vac, 100K cycles.	CN7.1
			DO6 (NO)		CN7.2
			DO5 (NO)		CN7.3
			C5,6,7(COM)		CN7.4
		Digital Outputs (Relays K5, K6)	DO4 (NO)		CN8.1
			DO3 (NO)		CN8.2
			C3,4(COM)		CN8.3
	TM172PD TM172PB (Expansion board)	Digital Outputs (Relay K4)	C12 (COM)	3A, 240Vac, Resistive 100k cycles at -20T55°C 1A, 240Vac, Resistive 100k cycles at -20T60°C 1A, 240Vac, Resistive 100k cycles at -20T65°C	CN14.1
			DO12 (NC)		CN14.2
			DO12 (NO)		CN14.3
		Digital Outputs (Relays K1 ÷ K3)	DO11	3A, 250Vac, Resistive, 2FLA/12LRA, 250Vac, 100K cycles.	CN15.1
			DO12		CN15.2
			DO13		CN15.3
			C9,10,11 (COM)		CN15.4
	TM172PDxxS TM172PBxxS (Base board)	SSR Output K3 (provided instead of Relay K4	C2 – DO2	0.5A -75÷240Vac, General Use or Resistive load, D150 AC Pilot Duty, 1.2LRA/0.2FLA-240Vac	CN9.1
					CN9.2
		SSR Output K1 (provided instead of Relay K2)	C1 – DO1		CN9.3
					CN9.4
	TM172PDxxR TM172PBxxR (Base board)	Digital Outputs (Relay K4, K2)	C2 – DO2	3A, 250Vac, Resistive, 2FLA/12LRA, 250Vac, 100K cycles	CN9.1
					CN9.2
			C1 – DO1		CN9.3
					CN9.4

Thermal Operating Temperature range: -10°C to +55°C, -10°C to +60°C for model EVE4200000B00(NPI)/TM171EP14R - Base Board - 111774D and -20°C to +60°C or +65°C for TM172 and TM171ALON
Pollution degree – 2.
Power supply circuit Overvoltage Category – III.
Relay outputs Overvoltage Category – II.
Software Class - A.

Notes:

1. These devices are certified as component type operating control for use in CSA Certified equipment where the suitability of the combination is to be determined by the CSA Group, Certification and Testing Division.
2. These devices are microprocessor based programmable controllers intended primarily for monitor and control of air conditioning and refrigeration units. These devices are intended for indoor application only.
3. Models EVD, EVC, EVE and EVS are intended for DIN rail mounting and were declared as Open Type devices. Based on the model code, the electronic controls EVD, EVC and EVE, may be optionally provided with user interface along with LCD display or Dip-switch buttons to set up the parameters for operations, models EVS are designed as Plug-in modules to be connected to EVD or EVC primary control models.
4. Models EVD, EVC, EVE are provided with main terminal block necessary to connect the board to input supply and to the power outputs, to external controlled devices such as display and NTC or PTC probes dedicated to monitor the temperature, and I/O serial interface in extra low voltage.
5. Models EVK, EVP are intended to be front panel-mounted or installed in the end-use equipment. It basically consist of front display panel/keyboard accessible to the user intended to be used in conjunction with DIN rail models, Electronic Controllers for centralized air-conditioning units Series Free Evolution. Front panel mounting feature has been investigated as Type 1 Enclosure.
6. These devices are provided with main terminal block necessary to connect the board to input supply and to the power outputs, to external controlled devices such as display and NTC or PTC probes dedicated to monitor the temperature, and I/O serial interface in extra low voltage.
7. Models EVD, EVC, EVE, EVP and EVK of series Free Evolution are intended to be supplied by external SELV or Class 2 power sources. Plug-in modules EVS are intended to be supplied by primary models EVC or EVE through direct connection.
8. The line voltage outputs in models EVD, EVC and EVE are controlled by up to 7 mechanically relay mounted on the board intended to control external loads like as compressors, fans, defrost, etc. for ventilation and/or heating functions. Plug-in models EVS are not provided by Line voltage digital output except EVS RS232/R provided with only one Line voltage relay output.
9. These devices were investigated as a Type 1 action OPERATING CONTROL and to be INCORPORATED in the end use equipment and have not been evaluated for safety or limiting applications.
10. Models provided with Part Numbers: TM172PDG42R, TM172PBG28R and TM171EP14R for commercial reason, can be identified with different cross reference: HRCPDG42R, HRCPBG28R, HRCEP14R.

APPLICABLE REQUIREMENTS

CAN/CSA-E60730-1:13 - Automatic Electrical Controls for Household and Similar Use - Part 1: General Requirements - Third Edition

CAN/CSA-E60730-2-9:01 (R2011) - Automatic Electrical Controls for Household and Similar Use - Part 2-9: Particular Requirements for Temperature Sensing Controls - Second Edition

UL 60730-1: 2009 - Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements - Fourth Edition

UL 60730-2-9: 2010 - Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls - First Edition

Supplement to Certificate of Compliance

Certificate: 70011641 **Master Contract:** 261831 (261831)

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
70137814	2017-05-19	Update to the report for addition of optional three (3) alphanumerical digits to the product series M171, TM171 and TM172 nomenclature.
70069812	2016-04-26	Addition of all colors for material Makrolon, type 6265 at 1.5mm thickness, update of family EWCM nomenclature, addition of alternate revision of model TM172PD CPU Board revision 111787E in alternative to 11787F and alternative cross reference for 3 p/n.
70051562	2015-12-11	Addition of new series M172, Free Evolution AVC and AVD, Free Evolution, EVS followed by LON, TM172 may be followed by PB or PD, TM171 ALON, EWCM, EP. And alternate material "Makrolon", type 6265, manufactured by Bayer Materialscience AG and “FR1514” manufactured by Bayer Materialscience AG.
70011641	2015-04-06	cCSAus Certifiation of air conditioning and refrigeration controllers Series Free Evolution, EVD, EVC, EVE, EVS, EVK and EVP. Conversion of UL file E233482 V1S13.