DL8000 Preset

The DL8000 Preset is a rugged electronic preset that provides precise custody transfer batches for petroleum, industrial chemicals, and other products. It accepts volumetric and mass inputs from turbine, Coriolis, ultrasonic, or other flow measurement devices using single or linearized meter factors. (Pulse-generating meters are recommended for improved valve closure accuracy.)

The DL8000 also performs density, temperature, and pressure corrections using the latest standards and accurately calculates delivered volumes at standard conditions (60 °F, 15 °C, 20 °C, or user-selectable) using double precision math. The DL8000 can control and blend up to four products sequentially or simultaneously (ratio blending). It can control up to 10 additives through metered injection and can store up to 30 recipes for blending.

Density Correction

The DL8000 accepts density signals as a frequency, 4–20 mA, or through a communications device. It accepts inputs from a flowing density meter (such as a Micro Motion™ frequency densitometer or a Micro Motion Coriolis meter). The DL8000 corrects observed density to standard conditions and calculates the temperature and pressure volume correction factors.

Temperature Compensation

The DL8000 can accept input from an Analog Input or RTD device. It then calculates a temperature volume correction factor in accordance with the following standards:

Hydrocarbon Standards

- API MPMS Chapter 11.1 (1980) / API2540 (1980) / ASTM D1250 / ANSI D1250 / IP200
  Tables: 5A, 5B, 5D, 6A, 6B, 6C, 6D, 23A, 23B, 23D, 24A, 24B, 24C, 24D, 53A, 53B, 53D, 54A, 54B, 54C, 54D
- API MPMS 11.1 (2004) / ASTM D1250-04 / IP200/04
- ISO 91.1 (1992)
- ISO 91.2 (1991) / IP3 (1988)
  Tables: 59A, 59B, 59D, 60A, 60B, 60D
- GPA TP27 (2007) (supersedes TP-25) / API MPMS Chapter 11.2.4
  Tables: 23E, 24E, 53E, 54E, 59E, 60E
- API ASTM-IP 1952
  Tables: 53, 54

Ethanol Standards

- ABNT NBR 15639 (2016)
- OIML R22 (1973)

DL8000 Preset
(Class I, Zone 1 Version)

DL8000 Preset
(Class I, Div. 2 Version)

Energy and Transportation Solutions

EMERSON™

Pressure Compensation

The DL8000 can accept a 4–20 mA signal from a pressure transducer and compensate flow calculations for volumetric due to pressure in accordance with the following standards:

- API MPMS 11.1 (2004) / ASTM D1250-04 / IP200/04
- API MPMS 11.2.1
- API MPMS 11.2.2
- API MPMS 11.2.1(M)
- API MPMS 11.2.2(M)

Pulse Fidelity

The DL8000 monitors dual pulse inputs for integrity in accordance with the following standards:

- ISO 6551-1982 and BS 6439-1983
- API Petroleum Measurement Standard, Chapter 5.5, level B and Institute of Petroleum Standard, IP 252.76, Part XIII, Section 1, Level B.

Meter Factor Linearization

The DL8000 can perform linearization of meter factors and K factors using up to 12 points to ensure accuracy over the entire range of flow.

Reporting

The DL8000 generates reports in compliance with NIST Handbook 44 (2010), with NCWM Publication 14, and with API MPMS Chapter 12.2.2. User-configured reports can be created using ROCLINK 800 Configuration Software.

Other Features

- Archival storage of 200 transactions with up to four batches each and 450 alarms.
- Storage of the last 1000 weights & measures events (in accordance with NIST Handbook 44).
- Integral Weights & Measures switch.
- Independent permissive sensing AC power.
- Digital valve control with automatic high flow rate recovery.
- Independent temperature compensation methods for individual products.
- Automatically sensing or user-entered values for thermal expansion and linear equation.
- User-entered vapor pressure of light hydrocarbons.

Operations

The DL8000's user-friendly multi-language display prompts the operator through the entire loading or unloading sequence, assuring a safe and reliable operation.

Loading

The loading sequence starts after the operator connects the safety circuits, selects a recipe, enters a preset quantity, and presses the Start button. The DL8000 automatically turns on the required product pumps and additive injection equipment and opens the digital flow control valves.

A low-flow start sequence can be initiated to reduce static build-up when delivering petroleum products. To keep loading time to a minimum, the DL8000 automatically maintains the highest possible flow rate the system can deliver. When additives are present, the maximum flow rate is 2700 units/minute. Three different flow profiles for each recipe provide maximum system flexibility regardless of the meter size. When certain recipes require small percentages of one or more components, you can configure the programmable flow profiles to automatically deliver small-percentage component(s) only during the high flow stage of the delivery.

As the end of the batch sequence approaches, the component streams slow to a pre-defined low-flow/stop flow rate. The high-speed digital valve control algorithm, working in conjunction with the linear digital control valve, ensures a smooth, repeatable, low-flow/final stop without line shock.

To assure product quality, you can program an automatic single product line-flush sequence at the end of the delivery to flush the loading arm with a single base product.

Unloading

The unloading process requires that the container (truck or rail car) is completely emptied of its contents. A pump-assisted gravity transfer is often sufficient for the task. However, in unloading applications, custody transfer measurements can be used to check against the expected quantity on the bill of lading.

The unloading sequence starts after the operator connects the safety circuits, selects a recipe, and presses the Start button. The DL8000 displays a series of preparatory messages ("Prebatch Testing" and "Line Pack Delay"). As the unloading begins, the

program updates the Unload screen to indicate the quantity of fluid unloaded.

The unload process continues until one of the following events occurs:

- The unload reaches the maximum preset quantity, or
- The operator presses STOP to pause the unload, or
- The container empties (determined by the activation of a low pressure, low-flow, or no flow alarm).

The Start, Pause, Resume, and Stop controls available at the DL8000's keypad display and are critical to the unloading process. The operator can pause an unload process, allow crude to drain from the sides of the container and collect near the outlet, and resume the unload process with a final Start-Stop cycle.

Blend Recipes

Memory allows up to 30 blend recipes. Each recipe has individual totalizers and is highly configurable, providing maximum flexibility.

Linearization

Multi-point linearization is programmable with up to 12 points. The DL8000 automatically interpolates between the 12-meter factor setpoints to assure system accuracy over the required flow ranges.

Vapor Recovery

Measures the amount of returned or recovered vapor during the loading of light hydrocarbons, and computes the Net delivered for billing purposes. This feature is available for mass delivery only and the delivered quantity will be equal to the preset amount.

In addition, GPA TP-15 allows the DL8000 to calculate and maintain the back pressure above the vapor pressure during loading. This reduces vapor pressure loss and emissions.

Metered Additive Injection

Measures and controls the additive amount injected into the product stream for up to ten additives. The injection site can be selected as either upstream or downstream, and the additive amount can be included in total or in addition to the delivered quantity.

DanLoad 6000 Protocol Support

The DL8000 supports all terminal automation commands necessary for terminal operation and some for terminal automation configuration. This allows you to multi-drop your existing DanLoad 6000s with the DL8000 without changes to the host.

Swing Arm Position Detection

The DL8000 allows swing arm safety circuit operation, and you have the option to select which side (one, two, or both) is applicable per circuit.

Alarms

The DL8000 offers comprehensive alarms for blending systems. You can define each alarm action for no action, display only, close relay contact, stop loading process, or lock the unit. Built-in programmable alarm conditions are also user-selectable. You can also configure the reference base temperature for compensation corrections.

Data Security

Data is secured with a 4-digit user-defined access code. All calibration data is secured with the access code and a wire-sealable mechanical security switch that is integrally mounted in the DL8000 keypad.

Device Security

To secure your valuable process and data, the DL8000 provides multi-level role-based access and user account authentication. With DL8000 firmware version 2.60 or newer the device also provides password encryption. The system administrator can set usernames with a maximum length of 30 characters and a password with a maximum length of 32 characters that accommodates lower case, upper case, numbers, and symbols.

Data Communications

The DL8000 has three built-in communication ports. The unit can support up to three additional ports (via optional communications cards) for a total of six ports. The built-in communication ports are:

- Local Operator Interface (RS-232D) – LOI.
- Ethernet – Comm1.
- EIA-232 (RS-232) – Comm2.

The Local Operator Interface (LOI) port's standard RJ-45 connector provides an EIA-232 (RS-232D) link between the CPU and a PC. Use ROCLINK™ 800

Configuration software to configure the CPU, extract data, and monitor its operation. All DL8000 ports support Modbus slave protocol; master protocol is supported on all but the LOI and Ethernet ports.

Communications Modules

You can install up to three additional communication modules in the DL8000 to provide ports for communicating with a host computer or other devices. The DL8000 accommodates the following module types, in any combination:

- EIA-232 (RS-232).
- EIA-422/EIA-485 (RS-422/RS-485).
- Dial-up modem.

I/O Modules

The DL8000 supports a variety of I/O modules. You can add up to nine optically isolated I/O modules as needed to satisfy a wide variety of field I/O requirements. Available modules include:

- Alternating Current Input/Output (AC I/O)
- Advance Pulse Module (APM) with densitometer processing
- Analog Inputs (AI)
- Analog Outputs (AO)
- Discrete Inputs (DI)
- Discrete Outputs (DO)
- Discrete Output Relay (DOR)
- HART Input/Output (a maximum of 5 modules)
- Pulse Inputs (PI) – High or Low speed
- RTD Inputs (RTD)

Note: CE approved I/O configurations are shown in the Approvals section of the specifications table.

Product Options

The DL8000 product options consist of a Class I, Zone 1 flameproof version and a Class I, Division 2 Type 4 version. Both versions contain the same keypad and display.

The Class I, Zone 1 version includes a cast aluminum casing with sixteen stainless steel front cover bolts (M10 – 1.5 metric) that secure the lid to the housing. With the front cover bolts removed, the lid hinges down to reveal the electronic compartment. It is flame-proof (in accordance with Class I, Zone 1, Groups IIB) and weatherproof (rated IP66). The viewing window in the enclosure lid is made from non-glare glass.

The Class I, Division 2 version includes a 14-gauge stainless steel box with 12-gauge stainless steel mounting flanges. The door is made of .090-inch-thick aluminum and is secured to the box via a stainless-steel piano hinge and two stainless steel spring latches. The latches include features for padlocking or installing wire seals. The assembly includes a door stop that locks the door in position at approximately 120 degrees from the closed position. The viewing window in the enclosure door is made from scratch / UV resistant polycarbonate/acrylic blend (PC/PMMA). The keypad bezel is mounted to the front of the door and is made from UV resistant polycarbonate. The assembly is rated by CSA as a Type 4 enclosure.

The operator keypad is the same for both versions and provides 18 rugged, Hall-effect push keys which are impervious to chemicals commonly associated with petroleum applications. A sealable Weights and Measures switch provides security to flow measurement parameters. The keypad accepts alphanumeric characters.

The liquid crystal display (LCD) is the same for both versions and provides an 8-line by 40-column message area for operator interface. The display uses a photo sensor and temperature sensor which can be set to automatically adjust contrast and backlighting for optimal viewing.

Light-emitting diodes (LEDs) display the status of alarms, operating mode, and permissive powers. LEDs are located to the right of the display on both versions.

Measurement Canada

Measurement Canada is available for the DL8000. The Measurement Canada version of the DL8000 consists of a CPU loaded with a Measurement Canada-approved firmware, a power module, and 9 communications and/or I/O modules housed in either cast aluminum casing or stainless-steel box with keypad and LCD display.

Measurement Canada approves the following firmware and user program versions:

- DL8000 firmware version 2.52
- Liquid Calcs version 2.32
- Transaction History version 2.36
- Printer version 2.33
- Additives version 2.30
- Batching version 2.36
- Keypad Display Version 2.36

Note: This approval does not include API 1952 – Tables 53 and 54.

DL8000 Common Specifications

Processor			
Type	32-bit microprocessor based on the Motorola MPC862 Quad Integrated Communications Controller (PowerQUICC™) PowerPC processor running at 65 MHz		

Memory			
Boot Flash	256 KB for system initialization and diagnostics		
Flash	16 MB for firmware image		
SRAM	2 MB for historical data logs and configuration		
	Battery Holder	Keystone 3007	
	Reverse Polarity/Battery Protection	Schottky Diode (30 V, 100 mA, 100 mAFC, 300 mA PEAK F.C. In series w/ Coin Cell Battery)	
	Current Limiting Resistor	KOA/MPN - RK73H2ETTD1001F KOA RES,1 kΩ,1%,1210 PKG	
	Battery Backup	User-replaceable	
		Type	Energizer® or Varta® 3 V CR2430 lithium
		Normal use life	10 years while power is applied to unit
		Backup life	1 year minimum while maintaining SRAM and RTC data and no power is applied to unit
		Shelf life	10 years (jumper disengaged)
Synchronous DRAM	32 MB for firmware execution and execution memory		

Time Functions			
Clock Type	32 KHz crystal oscillator with regulated supply, battery-backed, Year/Month/Day and Hour/Minute/Second		
Clock Accuracy	0.01%		
Watchdog Timer	Hardware monitor expires after 3 seconds and resets the processor		

Communications			
On Board	EIA-232 (RS-232) Port	Type	Single
		Maximum Data Rate	115.2 kbps
	Ethernet Port	10BASE-T twisted pair. IEEE multi-segment 10 MB/second baseband Ethernet.	
		Maximum Segment	100 m (330 ft)
	LOI Port	Type	EIA-232D (RS-232D) Standard
		Maximum Data Rate	115.2 kbps

Modules (optional)	EIA-232 (RS-232) Module	Type	Single
		Maximum Data Rate	115.2 kbps
	EIA-422/485 (RS-422/485) Module	Type	Single
		Maximum Data Rate	115.2 kbps
	Dial-Up Modem Module	Type	Single
		Maximum Data Rate	14.4 kbps

Note: For more information about optional communications modules, refer to *Product Data Sheet ROC800: COM*.

Inputs/Outputs

On Board	Board Temperature Accuracy	1% typical, 2% maximum
	Voltage Monitor Accuracy	0.75% typical, 1% maximum
Modules (optional)	Analog Input-12	4 channels, 12 bits of resolution. For more information, refer to *Product Data Sheet ROC800: AI*.
	Analog Input-16	4 channels, 16 bits of resolution. For more information, refer to *Product Data Sheet ROC800: AI*.
	Alternating Current I/O	6 channels. For more information, refer to *Product Data Sheet ROC800: ACIO*.
	Advance Pulse Module	4 channels, 4 single or 2 dual (one configurable as a densitometer input and one as a pulse output). For more information, refer to *Product Data Sheet ROC800: APM*.
	Analog Output	4 channels. For more information, refer to *Product Data Sheet ROC800:AO*.
	Discrete Input	8 channels. For more information, refer to *Product Data Sheet ROC800: DI*.
	Discrete Output	5 channels. For more information, refer to *Product Data Sheet ROC800:DO*.
	Discrete Output Relay	5 channels. For more information, refer to *Product Data Sheet ROC800: DOR*.
	HART Input/Output	4 channels, each capable of communications with up to 5 HART devices (when in input multi-drop mode). Supports up to 5 HART modules in slots 1-5. For more information, refer to *Product Data Sheet ROC800: HART2*.

	Pulse Input	2 channels, user-selectable high speed or low speed per channel. For more information, refer to *Product Data Sheet ROC800: PI.*
	RTD Input	2 channels. For more information, refer to *Product Data Sheet ROC800: RTD.*

Power		
Requirements	115 to 240 V ac (+ 10%/– 15%), 50 to 60 Hz, 1-phase 30-watt nominal	

Physical		
Keypad	18 rugged, Hall-effect push keys which are impervious to chemicals commonly associated with petroleum applications. A sealable Weights & Measures switch is incorporated into the front panel to provide security to flow measurement parameters.	
Display	A single, 8-line by 40-column super-twist LCD display. Status LEDs identifying alarm, permission power, and operational mode (Auto or Manual).	
Wiring	Size 12 to 22 AWG for terminal blocks	

Environmental		
Temperature	Operating	−20 °C to +65 °C (−4 °F to +149 °F)
	Certified by NMI	−25 °C to +55 °C (−13 °F to +131 °F) **Note:** Class I, Zone 1 version only
	Storage (non-operating)	−30 °C to +80 °C (−22 °F to +176 °F)
Relative Humidity	5 to 95 %, non-condensing	
Radiated/Conducted Immunity	Meets requirements of IEC 61326 Electrical Equipment for use in industrial locations	

Class I, Zone 1 Version Specifications

Physical		
Construction	Cast aluminum enclosure with sixteen stainless steel front cover bolts	
Dimensions	Height	330 mm (13 inches)
	Width	355 mm (14 inches)
	Depth	366 mm (14.4 inches)
Weight	34 kg (75 pounds)	
Wiring Access	Center	50 mm (2 in.) female NPSM; normally used for all DC signal (meter pulse, RTD, analog, communication, or status/control) cabling
	Left	25 mm (1 in.) female NPSM; normally used for AC power input and AC status/control signals
	Right	25 mm (1 in.) female NPSM; normally used for meter pulse, RTD, communication, or analog signals when separate signal routing is required

Approvals			
Product Markings for Hazardous Locations	CSA CUS	Certified by CSA as Models W40161 per CSA certification number 1859870	
		Product Markings: Ex db IIB T6 Gb (Ta= −40°C to +65°C) IP66 Class I, Zone 1, AEx db IIB T6 Gb	
		Evaluated per Approval Standards	ANSI/IEC 60529:2004 ANSI/UL 60079-0-2013 ANSI/UL 60079-1-2005-2015 CAN/CSA-C22.2 No 0-M91 CAN/CSA-C22.2 No 94-M91 CAN/CSA-C22.2 No. 60079-0-15 CAN/CSA-C22.2 No. 60079-1-16 CAN/CSA-60529:05 CSA Std C22.2 No 142-M1987 CSA Std C22.2 No 213-M1987 UL 50 (11th Ed.) UL 916 (3rd Ed.) UL Std. No. 1604 (3rd Ed.)
	CCOE	Certified by Government of India as Model W40176 per certification number P386710/1. Valid from 17-Oct-2016 to 17-Oct-2021	
		Product Markings: Ex d IIB T6 Gb (Ta= -40°C to +65°C)	
	KTL	Evaluated per Approval Standards	Announcement No. 2019-15 of Ministry of Employment and Labor IEC 60529 No. 2015-021902-01
			Certified by KTL: (Korea Testing Laboratory) Model: W40176 Certification Number: 15-KA4BO-0207X Shall be used with Certification Number: IECEx SIR 08.0019X Issue No. 5
			Product Markings: Ex db IIB T6 Gb IP66
			Temperature: −40°C to +65°C (−20°C to +65°C for LCD Display IP66)
	CE / ATEX	Evaluated per Approval Standards	Announcement No. 2013-54
		Certified by SIRA as Model W40176 per certification number IECEx SIR 08.0019X	
		Certified by SIRA as Model W40176 per certification number SIRA 08ATEX1063X	
		Product Markings: Ex db IIB T6 Gb IP66(Ta= -40°C to +65°C)	

⟨Ex⟩ II 2 G C€ 2813

Note: Temperature range for LCD Display is -20°C ≤T ≤65°C

	Evaluated per Approval Standards	IEC 60079-0:2017 Ed. 7.0 IEC 60079-1 :2014-06 Ed. 7.0 EN IEC 60079-0:2018 EN 60079-1:2014	
Product Marking for Metrology	Measurement (Industry) Canada	Certified by Measurement Canada as Model W40161 per certification number AV-2426C Product Markings: Class I, Zone I, Group IIB IP66 (-40 to +65°C)	
	NTEP	Certified by NTEP as Model W40161 & W40201 per certificate number 08-056A1	
		Evaluated per Approval Standards	NIST Handbook 44 (2010) NCWM Publication 14 (2010)
	NMi (MID Standards)	Certified by NMi as DL8000 per certificate number TC7661 Valid I/O Configurations for MID Approval: ▪ To maintain CE approval, you can **only** use the following I/O modules connected to the valid I/O types as shown in the table below. ▪ Review the corresponding certificates to ensure full compliance.	

I/O Modules	I/O Type 1	I/O Type 2
AI-12	Pressure	Density
DI	Feedback Signals	
RS 485	Communication	
RTD	Temperature	
DO	Control Signals	
APM	Pulse In (level B)	
HART	Temperature	
AC I/O	Control Signals (output)	Feedback Signals (input)

		Evaluated per Approval Standards	OIML R117-1 Edition 2007 (E) WELMEC guide 8.8
Miscellaneous Approvals	EAC	Certified by EAC per certificate number TC RU C-US.GB05.B.01094 Valid from 17-04-2015 to 17-04-2020	
	INMETRO	Certified by UL do Brasil as Model 40176 per certification number UL-BR 17.0354X Valid from 13-Jun-2017 to 12-Jun-2020 Product Marking: Ex db IIB T6 Gb IP66 (-40°C ≤ T ≤ +65°C)	
		Evaluated per Approval Standard	ABNT NBR IEC 60079-0:2008 + Errata 1:2011 ABNT NBR IEC 60079-1:2009 + Errata 1:2011
	RoHS2	RoHS (2) EU Directive 2011/65/EU: This product may be considered out-of-scope when used for the intended design purpose in a Large Scale Fixed Installation (LSFI). Consult https://www.emerson.com/compliance for up-to-date product information.	
	RoHS (China)		

Class I, Division 2 Version Specifications

Physical		
Construction	14-gauge, painted, stainless steel enclosure with 3 mm (0.12 inches) thick aluminum door and stainless-steel spring catches	
Dimensions	Height	432 mm (17 inches)
	Width	410 mm (16.14 inches)
	Depth	276 mm (10.86 inches)
Weight	16 kg (36 pounds)	
Wiring Access	Center	Two 35 mm (1.375 inches) diameter holes for customer supplied 1-inch Type 4 rated conduit hub; normally used for I/O. Four additional center punch locations included to aid customer placement of additional entries.
	Right	35 mm (1.375 inches) diameter hole for customer supplied 1-inch Type 4 rated conduit hub; normally used for AC power input and AC status/control signals.
Approvals		
Product Marking for Hazardous Locations	CSA CUS	Certified by CSA as Model W40201 per CSA certification number 1859870
		Class I, Div. 2, Groups A, B, C, D T4 (-25°C to +70°C)
	Evaluated per Approval Standards	ANSI/IEC 60529:2004 ANSI/UL 60079-0-2013 ANSI/UL 60079-1-2015 CAN/CSA-C22.2 No 0-M91 CAN/CSA-C22.2 No 94-M91 CAN/CSA-C22.2 No. 60079-0-15 CAN/CSA-C22.2 No. 60079-1-16 CAN/CSA-60529:05 CSA Std C22.2 No 142-M1987 CSA Std C22.2 No 213-M1987 UL 50 (11th Ed.) UL 916 (3rd Ed.) UL Std. No. 1604 (3rd Ed.)
	CE / ATEX	Certified by Sira as Model W40208 per certification number SIRA 11ATEX4040X
		Product Markings: Ex nA IIC T4 Gc (-20°C ≤ T ≤ 70°C)
		II 3 GD
	Evaluated per Approval Standards	EN 60079-0:2006 EN 60079-0:2009 EN 60079-15:2005 EN 61241-0:2006 EN 61241:2004

Product Markings for Metrology	Measurement (Industry) Canada	Certified by Measurement Canada as Model W40161 per certification number AV-2426C
		Product Markings: Class I, Zone I, Group IIB IP66 (-40 to +65°C) Approval No.: AV-2426C
	NTEP	Certified by NTEP as Models W40161 & W40201 per certificate number 08-056A1
		Evaluated per Approval Standards NIST Handbook 44 (2010) NCWM Publication 14 (2010)
Miscellaneous Approvals	RoHS2	RoHS (2) EU Directive 2011/65/EU: This product may be considered out-of-scope when used for the intended design purpose in a Large Scale Fixed Installation (LSFI). Consult https://www.emerson.com/compliance for up-to-date product information.
	RoHS (China)	
	NEPSI China	National Supervision and Inspection Centre for Explosion Protection and Safety of Instrumentation Certificate No. GYJ21.1081X Model W40176 Standards GB38361.1-2010 & GB3836.2-2010 Expiration: February 28,2026
	CCC	China Compulsory Certification Certificate No. 2021322304004023 Model W40176 Standards GB3836.1-2010 & GB3836.2-2010 Expiration: May 30, 2026

For customer service and technical support,
visit *Emerson.com/Guardian*.

North America and Latin America:
 Emerson Energy and Transportation
 Solutions
 6005 Rogerdale Road
 Houston, TX 77072 U.S.A.
 T +1 281 879 2699 | F +1 281 988 4445
 Emerson.com/SCADAforEnergy

United Kingdom:
 Emerson Process Management Limited
 Fosse House, 6 Smith Way
 Grove Park, Enderby
 Leicester LE19 1SX UK
 T +44 0 870 240 1987

Europe:
 Emerson S.R.L
 Regulatory Compliance Shared Services
 Department
 Company No. J12/88/2006
 Emerson 4 Street
 Parcul Industrial Tetarom 11
 Romania
 T +40 374 132 000

Middle East/Africa:
 Emerson Energy and Transportation
 Solutions
 Emerson FZE
 P.O. Box 17033
 Jebel Ali Free Zone – South 2
 Dubai U.A.E.
 T +971 4 8118100 | F +971 4 8865465

Asia-Pacific:
 Emerson Energy and Transportation
 Solutions
 1 Pandan Crescent
 Singapore 128461
 T +65 6777 8211| F +65 6777 0947

Energy and Transportation Solutions

EMERSON