



PowerView™
Model PV350 and PV380

Operations Manual

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at www.fwmurphy.com.

Warranty - A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to <http://www.fwmurphy.com/warranty>



Please read the following information before installing.

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

- Read and follow all installation instructions.
- Please contact FW MURPHY immediately if you have any questions.

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Introduction

Congratulations on purchasing the PowerView 350/380. This advanced tool provides monitoring of Tier 4/Euro Stage 4 compliant electronic engines. The PowerView (Model PV350/PV380) monitors multiple J1939 parameters, and provides basic engine alarm/shutdown information.

This manual was developed to help you become familiar with the PowerView 350/380 display, identify navigation basics, and recognize useful options and features. The clear 3.8" monochrome screen makes it easy to see the parameters in the 4-up or 6-up display, especially in bright sunlight.

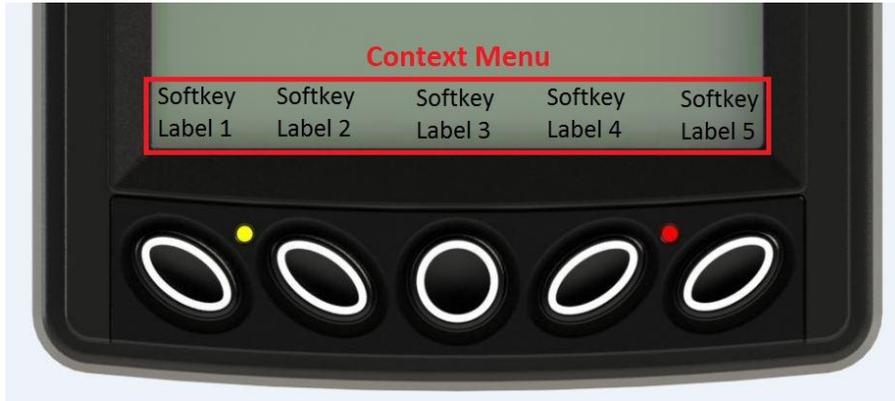
Engine and Transmission Parameters

The following are some of the engine and transmission parameters that can be displayed in standard or metric units as well as in English, Spanish, French, Italian, or German languages.

- Engine Speed
- Total Engine Hours of Operation
- Machine Hours
- Battery Voltage
- Coolant Temperature
- Engine Oil Pressure
- Engine Fuel Level
- Engine Fuel Rate
- Instantaneous Fuel Economy
- Average Fuel Economy
- Exhaust Filter Inlet Temperature
- Exhaust Filter Outlet Temperature
- Engine Total Vehicle Distance
- Diesel Exhaust Fluid (DEF) Level
- Percent Soot Level
- Transmission Oil Pressure
- Transmission Oil Temperature
- Hydraulic Oil Pressure
- Hydraulic Oil Temperature
- % Load @ Current RPM
- Active Fault Codes
- Stored Fault Codes

Navigation and Keypad Functions

The keys on the keypad are as follows:



From any 4- or 6-up display screen, pressing any of these Soft Keys will display the following menu on the screen:



The Soft Keys below each symbol will produce the following when pressed:

Key	Function
Soft Key 1 	Displays the menu items of: <ul style="list-style-type: none"> • Brightness • Contrast • Units • Language • ECU Address In addition, it becomes a down arrow when in the menu selection to move to the next selection.

Continued on next page

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Key	Function
<p data-bbox="139 302 289 331">Soft Key 2</p> 	<p data-bbox="467 302 899 331">Displays the Emissions menu :</p> <ul data-bbox="516 373 1117 483" style="list-style-type: none">• Request DPF Regen• Current Regen mode (Auto or Inhibit)• Method of changing the Regen Mode. <p data-bbox="467 525 1481 592">In addition, it becomes an up arrow when in the menu selection to move to the previous selection.</p>
<p data-bbox="139 632 289 661">Soft Key 3</p> 	<p data-bbox="467 632 911 661">Displays the Diagnostics menu:</p> <ul data-bbox="516 703 878 812" style="list-style-type: none">• Active Faults – ECU• Stored Faults – ECU• Clear Fault Codes
<p data-bbox="139 854 289 884">Soft Key 4</p> 	<p data-bbox="467 854 1016 884">Displays the Service Reminders menu:</p> <ul data-bbox="516 926 818 1148" style="list-style-type: none">• Engine Oil• Fuel Filter• Engine Air Filter• Hydraulic Oil• Service Engine• Service Machine
<p data-bbox="139 1192 289 1222">Soft Key 5</p> 	<p data-bbox="467 1192 1156 1222">Scrolls through the four available gauge screens.</p>

After displaying the context menu, if no pushbutton is pressed within 5 seconds, the pop-up menu shall disappear from view.

First Time Startup

When power is applied to the PowerView 350/380, the **Warning** and **Shutdown** lights illuminate and the Murphy logo displays. If a preheat message is being actively broadcast from the Engine Control Unit (ECU), a **Wait to Start** message displays below the Murphy logo as shown in the image below.



Once the engine has started, the 4-up parameter view displays with Engine RPM, Oil Pressure, Voltage, and Coolant Temperature. To reach the various gauge displays, press any button to enable the menu to appear, then press the **Right Arrow** repeatedly.

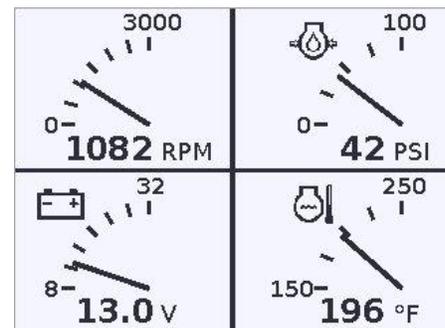
Gauge Displays

There are four (4) gauge displays on the PV350/PV380. They can be displayed when the right arrow is pressed repeatedly from the menu display. The displays are described in detail below:

Engine 4-Up

The Engine 4-Up Screen shall consist of the follow parameters.

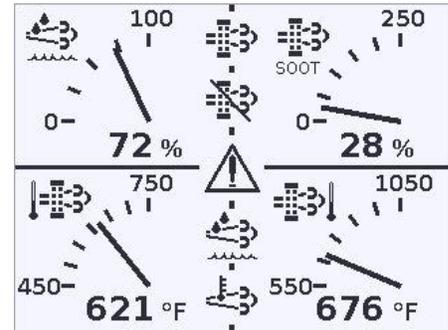
1. Engine Speed
 - Gauge: 0-3,000 rpm
2. Engine Oil Pressure
 - Gauge: 0-100 psi
 - Gauge: 0-700 kPa
 - Gauge: 0-7 bar
3. Coolant Temperature
 - Gauge: 150-250°F
 - Gauge: 65-120°C
4. Battery Voltage
 - Gauge: 8-32V



Emissions 4-Up Screen

The Emissions 4-Up Screen shall consist of the following parameters.

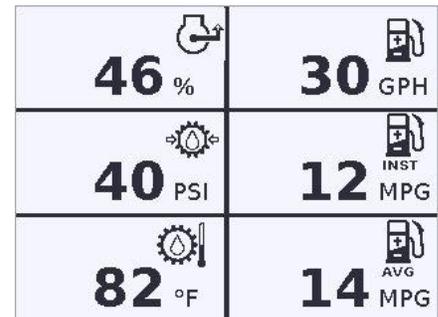
1. DEF Level
 - Gauge: 0-100%
2. Percent Soot level
 - Gauge: 0-250%
3. Exhaust filter inlet temperature
 - Gauge: 450-750°F
 - Gauge: 250-400°C
4. Exhaust filter outlet temperature
 - Gauge: 550-1050°F
 - Gauge: 300-550°C



6-Up #1 Screen

The first 6-Up Screen shall consist of the following parameters.

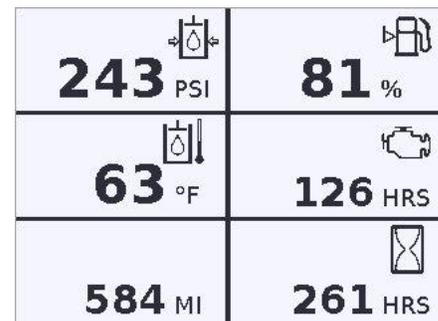
1. Percent Engine Load at current RPM
2. Transmission Oil Pressure
3. Transmission Oil Temperature
4. Engine Fuel Rate
5. Instantaneous Fuel Economy
6. Average Fuel Economy



6-Up #2 Screen

The second 6-Up Screen shall consist of the following parameters.

1. Hydraulic Oil Pressure
2. Hydraulic Oil Temperature
3. Engine Total Vehicle Distance
4. Engine Fuel Level
5. Engine Total Hours of Operation
6. Machine Hours



Adjusting the Menu Selections

Brightness

Follow these steps to adjust the Brightness:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 1 (Menu), and if Brightness does not have the arrow beside it, press Soft Key 2 (up arrow) to place the arrow beside Brightness.
3. Press Soft Keys 3 (+) and 4 (-) to adjust the Brightness.
4. Press Soft Key 5 (return arrow) to exit the menu.

Contrast

Follow these steps to adjust the Contrast:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 1 (Menu), and if Contrast does not have the arrow beside it, press Soft Key 1 (down arrow) or Soft Key 2 (up arrow) to place the arrow beside Contrast.
3. Press Soft Keys 3 (+) and 4 (-) to adjust the Contrast.
4. Press Soft Key 5 (return arrow) to exit the menu.

Units

Follow these steps to adjust the Units:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 1 (Menu), and if Units does not have the arrow beside it, press Soft Keys 1 or 2 (up and down arrows) to place the arrow beside Units.
3. Press Soft Keys 3 (+) and 4 (-) to cycle through the choices of:
 - a. USA Standard
 - b. Metric kPa
 - c. Metric Bar
4. Press Soft Key 5 (return arrow) to exit the menu.

Language

Follow these steps to adjust the Language:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 1 (Menu), and if Language does not have the arrow beside it, press Soft Keys 1 or 2 (up and down arrows) to place the arrow beside Language.
3. Press Soft Keys 3 (+) and 4 (-) to cycle through the choices of:
 - a. English
 - b. French
 - c. German
 - d. Spanish
 - e. Italian
4. Press Soft Key 5 (return arrow) to exit the menu.

ECU Address

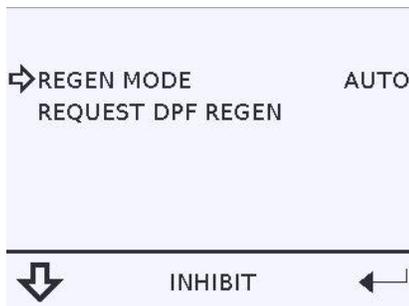
Follow these steps to adjust the ECU Address:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 1 (Menu), and if ECU Address does not have the arrow beside it, press Soft Keys 1 or 2 (up and down arrows) to place the arrow beside ECU Address.
3. Press Soft Keys 3 (+) and 4 (-) to adjust to the appropriate ECU Address.
4. Press Soft Key 5 (return arrow) to exit the menu.

DPF Regen

Follow these steps to adjust the Regen Mode:

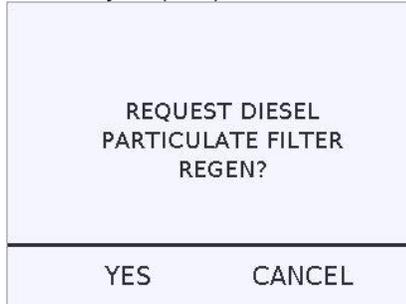
1. Press any Soft Key to display the Menu.
2. Press the Soft Key 2 (Emissions Menu).
3. If Regen Mode does not have the arrow beside it, press Soft Keys 1 or 2 to place the arrow beside Regen Mode.



4. Press the Soft Key 3 to change the Regen Mode (“INHIBIT” when in AUTO mode, “AUTO” when in INHIBIT mode)

Follow these steps to request the ECU to start a DPF Regen:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 2 (Emissions Menu).
3. If “Request DPF Regen” does not have an arrow beside it, press Soft Keys 1 or 2 to place the arrow beside Request DPF Regen.
4. Press Soft Key 3 (OK). A confirmation screen will be displayed:



5. Pressing the Soft Key 2 (Yes) will request the ECU to begin a DPF Regen. Pressing Soft Key 4 (Cancel) will return to the previous menu.

Diagnosics Menu

Follow these steps to display the Diagnosics Menu:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 3 (Diagnosics Mode).
3. To view the:
 - a. Active Faults, press the Soft Key 3 (OK).
 - i. The Diagnostic Message screen # of # will appear. Press the Soft Keys 1 and 2 to scroll through additional messages if present. Each saved code shows the SPN (Suspect Parameter Number), FMI (Failure Mode Identifier), and OC (Occurrence Count). The OC indicates if the same fault occurred more than once. If available, a text explanation of the Warning or Shutdown also displays.
 - ii. Press the Soft Key 5 (return arrow) to return to the Faults screen.

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- b. Stored Faults, press the Soft Key 1 (down arrow) once, then the Soft Key 3 (OK).
 - i. Stored faults are requested from the ECU. While the data is being requested, “Requesting Data” and “Receiving Data” will be displayed. If data is not received from the ECU, “Timeout / Failure” will be displayed. Pressing Get Faults will request data from the ECU again. If data is received, the Diagnostic Message screen # of # will appear. Press the Soft Keys 1 and 2 to scroll through additional messages if present. Each saved code shows the SPN (Suspect Parameter Number), FMI (Failure Mode Identifier), and OC (Occurrence Count). The OC indicates if the same fault occurred more than once. If available, a text explanation of the Warning or Shutdown also displays. Press the Soft Key 3 (Get Faults) to receive additional Stored Faults. Press the Soft Key 5 (return arrow) to return to the Faults screen.
- c. Ability to Clear Fault Codes, press the Soft Key 1 (down arrow) twice, then the Soft Key 3 (OK).
 - i. Press the Soft Key 3 (OK) to Clear Fault Codes. A message will be sent to clear the stored faults to the ECU. Press the Soft Key 5 to return to the Faults screen.

Service Reminders Menu

Follow these steps to display the Service Reminders Menu:

1. Press any Soft Key to display the Menu.
2. Press the Soft Key 4 (Service Reminders).
3. To view the:
 - a. Engine Oil reminders, press the Soft Key 1 (down arrow).
 - i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.
 - ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.
 - iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
 - b. Fuel Filter reminders, ensure the right arrow is beside the first item in the list, and press the Soft Key 3 (+) until Fuel Filter appears. Press the Soft Key 1 (down arrow).
 - i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.

- ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.
 - iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
 - c. Engine Air Filter reminders, ensure the right arrow is beside the first item in the list, and press the Soft Key 3 (+) until Engine Air Filter appears. Press the Soft Key 1 (down arrow).
 - i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.
 - ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.
 - iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
 - d. Hydraulic oil reminders, ensure the right arrow is beside the first item in the list, and press the Soft Key 3 (+) until Hydraulic Oil appears. Press the Soft Key 1 (down arrow).
 - i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.
 - ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.
 - iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
 - e. Service Engine reminders, ensure the right arrow is beside the first item in the list, and press the Soft Key 3 (+) until Service Engine appears. Press the Soft Key 1 (down arrow).
 - i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.
 - ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.

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NOTE: If the type is set to Engine Hours, the unit must be connected to an ECU and be receiving data to reset the service reminder. If Engine Hours data is not being received, the service reminder will not reset.

- iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
- f. Service Machine reminders, ensure the right arrow is beside the first item in the list, and press the Soft Key 3 (+) until Service Machine appears. Press the Soft Key 1 (down arrow).
- i. The arrow moves down one slot to Interval. Use the Soft Keys 3 (+) and 4 (-) to adjust the number of hours.
 - ii. Press the Soft Key 1 (down arrow) to move the right arrow to Hour Type. Choose the appropriate setting of Engine Hours or Machine Hours. The Remaining hours will adjust accordingly.
 - iii. To reset the hours, Press the Soft Key 1 (down arrow) to move the right arrow to Reset. Press the Soft Key 3 (OK) and the hours will be reset.
 - iv. Press the Soft Key 5 (return arrow) to return to the gauge screen.

NOTE: The interval remaining time may be negative when the service reminder is “expired”.

Acknowledging Faults

LED Indicators

The PV350/PV380 features amber (Warning) and red (Shutdown) colored LEDs on the front keypad. These are illuminated according the J1939 error definition for alarms and shut-down conditions.



Indicator Lamps

On each gauge screen and menu (where space allows) the following indicator lamps shall be shown:

Icon	PGN	SPN	Description
	DM1		Stop Diagnostic lamp: indicates an active DM1 stop fault.
	DM1		Warning Diagnostic lamp: indicates an active DM1 fault.
	64892	3714	High Exhaust Temperature (HEST) lamp: indicates regeneration in process.

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Icon	PGN	SPN	Description
	64892	3697	DPF Particulate Filter Restricted lamp: indicates a Regen is needed.
	64892	3703	DPF Inhibit lamp: indicates an inhibited Regen status.
	65110	1761	Diesel Exhaust Fluid (DEF) lamp: displays when the fluid level drops below 12%.

Supported Parameters

The following table of parameters shall be available for selections based on being actively broadcast on the CAN bus:

	Description	Short Description	PGN
1	PERCENT LOAD AT CURRENT RPM	LOAD@RPM	61443
2	ENGINE SPEED	ENG RPM	61444
3	TOTAL VEHICLE DISTANCE	VEH DIST	65248
4	TOTAL ENGINE HOURS	ENG HRS	65253
5	ENGINE COOLANT TEMPERATURE	COOL TEMP	65262
6	ENGINE OIL PRESSURE	OIL PRES	65263
7	FUEL RATE	FUEL RATE	65266
8	INSTANTANEOUS FUEL ECONOMY	FUEL ECON	65266
9	AVERAGE FUEL ECONOMY	AVG ECON	65266
10	AIR INLET TEMPERATURE	AIR IN TP	65269
11	BATTERY POTENTIAL VOLTAGE	BAT VOLT	65271

Continued on next page

	Description	Short Description	PGN
12	TRANSMISSION OIL PRESSURE	TRAN PRES	65272
13	TRANSMISSION OIL TEMPERATURE	TRAN TEMP	65272
14	FUEL LEVEL	FUEL LEVEL	65276
15	HYDRAULIC PRESSURE	HYD PRES	61448
16	HYDRAULIC TEMPERATURE	HYD TEMP	65128
17	MACHINE HOURS	MACH HRS	61444
18	DIESEL EXHAUST FLUID LEVEL	DEF LVL	65110
19	% SOOT	% SOOT	64891
20	EXHAUST FILTER OUTLET TEMP	EF OUT T	64947
21	EXHAUST FILTER INLET TEMP	EF IN T	64948

Specifications

Electrical

Display	3.8" (9.65 cm) QVGA (320x240 pixels); monochrome transreflective LCD with heater , MTFB 50,000 hours
Resolution	QVGA, 320 x 240 pixels
Backlighting	White LED
CAN	PV350: (2) CAN 2.0B; second CAN port is NMEA 2000 isolated (J1939 and NMEA 2000 protocols; proprietary messaging). PV380: (1) CAN 2.0B (J1939 protocol and proprietary messaging), (1) RS-485 serial (MODBus)
Protocols	J1939, NMEA 2000
Connection	PV350: Deutsch DT Series 6 pin, M12 (5 socket) PV380: Deutsch DT Series 6 and 12 pin
Keyboard	5 tactile buttons
Input	PV350: (1) resistive analog PV380: (4) resistive analog: (3) analog; 0-5V analog or digital (1) frequency; 2-10,000Hz, 3.6-120VAC
Output	PV350: (1) 500 mA; switched low-side PV380: (1) 500mA; switched low-side (1) 5V supply (250mA); protected
Voltage	6-36 VDC; reverse polarity protected

Environmental

Operating Temperature	-40° C to +85° C (-40° F to +185° F)
Storage Temperature	-40° C to +85° C (-40° F to +185° F)
Protection	IP66 and 67, (IEC/EN 60529)
Emissions and Immunity	Electromagnetic Compatibility: 2004/108/EC and 2006/95/EC directives: <ul style="list-style-type: none">• EN 61000-6-4:2001 (emission)• EN 61000-6-2:2001 (immunity)• EN 501121-3-2 and EN 12895• J1113/2, 4, 11, 12, 21, 24, 26 and 41
Vibration	7.86g random vibrate (5-2,000Hz)
Shock	±50g shock in 3 axis

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FW MURPHY

5311 South 122nd East Avenue
Tulsa, Oklahoma 74146 USA
Phone: +1 918 317 4100 Fax: +1 918 317 4266
E-mail: sales@fwmurphy.com
Web: www.fwmurphy.com

ECONROLS, INC

5757 Farinon Drive
San Antonio, Texas 78249 USA
Phone: +1 210 495 9772 Fax: +1 210 495 9791
E-mail: info@econrols.com
Web: www.econrols.com

FWM INDUSTRIAL PANEL DIVISION

5311 South 122nd East Avenue
Tulsa, Oklahoma 74146 USA
Phone: +1 918 317 4100 Fax: +1 918 317 4124
E-mail: ipdsales@fwmurphy.com
Web: www.fwmurphy.com

FRANK W. MURPHY, LTD

Church Road, Laverstock
Salisbury SP1 1QZ UK
Phone: +44 1722 410055 Fax: +44 1722 410088
E-mail: sales@fwmurphy.co.uk
Web: www.fwmurphy.co.uk

FW MURPHY INSTRUMENTS (HANGZHOU) CO. LTD

77 23rd Street
Hangzhou Economic & Technological Development Area
Hangzhou, Zhejiang 310018 China
Phone: +86 571 8788 6060 Fax: +86 571 8684 8878
E-mail: apsales@fwmurphy.com
Web: www.fwmurphy.com/company_ch

FW MURPHY (LATIN AMERICA & CARIBBEAN)

Apdo. Postal 2-06, Admon. "Lomas" Cord. Arakán 606-16
Lomas 4th Sección 78211, San Luis Potosí, S.L.P., México
Phone: +1 918 317-2500
E-mail: lasales@fwmurphy.com
Web: www.fwmurphy.com

FW MURPHY INDIA

301, 3rd Floor, Krsna Chambers
11, Galaxy Garden, North Main Road,
Koregaon Park, Pune - 411001, Maharashtra, India
Phone: +91 91581 37633
E-mail: indiasales@fwmurphy.com
Web: www.fwmurphy.com

FW MURPHY (SOUTH KOREA)

Seongnam, South Korea
Phone: +82 70 7951 4100
E-mail: skoreasales@fwmurphy.com
Web: www.fwmurphy.com



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