
Oil Smart® Pump System

Model ESS100, ESSIM30-MD, ESSIMTP3-MD



EBARA Fluid Handling

EBARA International Corporation

EBARA Oil Smart Pump System

Contents

Section	Page
Overview	3
Typical Installation	4
Pump Performance Curve and Model Chart	5
Pump Standard Specifications	6
Pump Dimensions	7
Features	8
Dimension Drawing / Wiring Diagram	9



EBARA Oil Smart Pump System

Overview

Oil Smart® Systems incorporate EBARA pump models EPD and Optima with pump controls and alarm sensors that differentiate between oil and water, allowing for the responsible discharge of water without worrying about contamination. Oil Smart® systems provide the solution for the proper evacuation of water complying with state and federal regulatory requirements (ASME A17.1 & EPA's SPCC).

Applications:

Industrial, Commercial, Residential, Elevator Sumps, Utilities, City Underground Vaults, Transformer Oil Containment, Parking Garages

- Oil Smart® Technology
- Complete Pump Systems that include Ebara EPD and Optima sump pumps with Switch and Panel
- Single & Three Phase Systems
- Easy Installation
- Sensor differentiates between oil and water.
- High red beacon, alarm test and silence buttons
- Audible/visual indicators for presence of oil and water
- Dry contacts for each alarm status

Available Models

ESS100 (plug and play)

- Easy to install Oil Smart® System
- Includes the Oil Smart® Pump Control with 20' piggyback power cord
- Oil Smart® Alarm
- Ebara Pump models Optima 1/3 HP and EPD 1/3 to 3/4 HP

ESSIM30-MD Single Phase Oil Smart® Panel

- Oil Smart® components
- NEMA 4X enclosure
- Green pump run lights
- HOA switch for auto/manual operation of pump
- Local, lockable disconnect
- Ebara Pump models Optima 1/3 HP and EPD 1/3 to 3/4 HP

ESSIMTP3-MD Three Phase Oil Smart® Panel

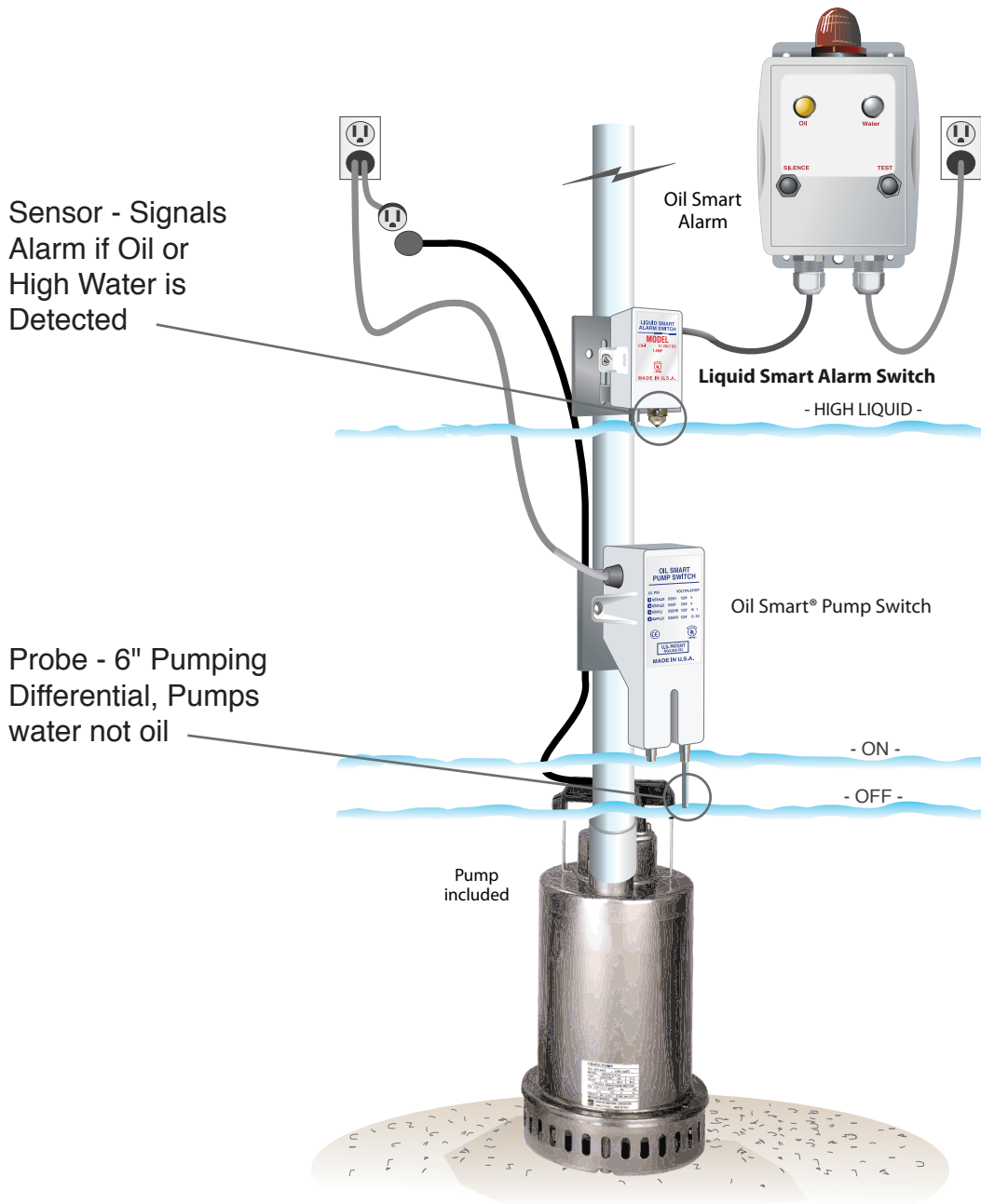
- Oil Smart® components
- NEMA 4X enclosure
- Green pump run lights
- HOA switch for auto/manual operation of pump
- Local, lockable disconnect
- Ebara Pump models EPD 1/2 to 1-1/2 HP



EBARA Oil Smart Pump System

Typical Installation

Model ESS-100 (Basic System/Operation)

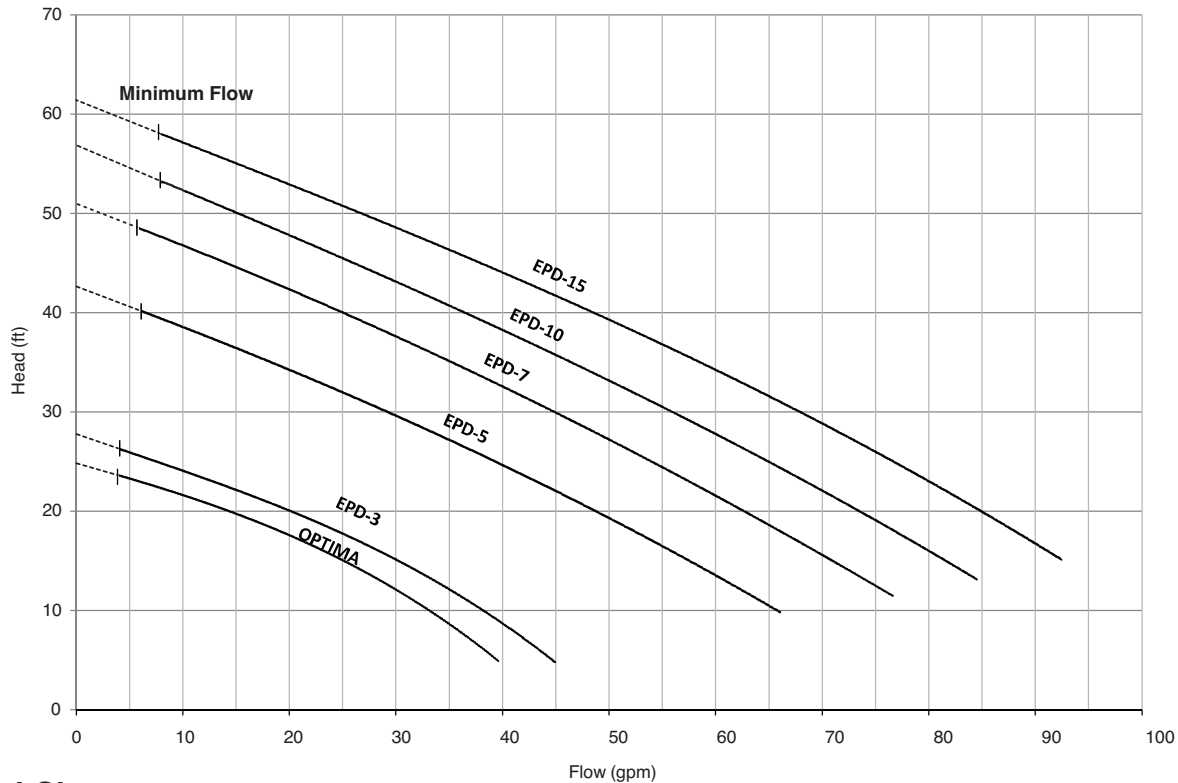


EBARA Oil Smart Pump System

Pump Performance Curve and Model Chart

EPD/Optima* Performance Curve

* For specific pump model EPD or Optima, product technical information, please go to: pumpsebara.com/products/model-optima/



Model Chart

ESS-100

Package Part No.	Pump System	Pump	HP	Ph.	Volts
ESS100-OPT3MS1	ESS-100	OPTIMA-3MS1	$\frac{1}{3}$	1	115
ESS100-EPD3MS1	ESS-100	EPD-3MS1	$\frac{1}{3}$	1	115
ESS100-EPD5MS1	ESS-100	EPD-5MS1	$\frac{1}{2}$	1	115
ESS100-EPD7MS1	ESS-100	EPD-7MS1	$\frac{3}{4}$	1	115

ESSIM-30

Package Part No.	Pump System	Pump	HP	Ph.	Volts
ESSIM30MD-OPT3MS1	ESSIM-30-MD	OPTIMA-3MS1	$\frac{1}{3}$	1	115
ESSIM30MD-EPD3MS1	ESSIM-30-MD	EPD-3MS1	$\frac{1}{3}$	1	115
ESSIM30MD-EPD5MS1	ESSIM-30-MD	EPD-5MS1	$\frac{1}{2}$	1	115
ESSIM30MD-EPD7MS1	ESSIM-30-MD	EPD-7MS1	$\frac{3}{4}$	1	115

ESSIM-TP-3

Package Part No.	Pump System	Pump	HP	Ph.	Volts
ESSIMTP3MD-EPD5MT2	ESSIM-TP-3-MD	EPD-5MT2	$\frac{1}{2}$	3	230
ESSIMTP3MD-EPD5MT4	ESSIM-TP-3-MD	EPD-5MT4	$\frac{1}{2}$	3	460
ESSIMTP3MD-EPD7MT2	ESSIM-TP-3-MD	EPD-7MT2	$\frac{3}{4}$	3	230
ESSIMTP3MD-EPD7MT4	ESSIM-TP-3-MD	EPD-7MT4	$\frac{3}{4}$	3	460
ESSIMTP3MD-EPD10MT2	ESSIM-TP-3-MD	EPD-10MT2	1	3	230
ESSIMTP3MD-EPD10MT4	ESSIM-TP-3-MD	EPD-10MT4	1	3	460
ESSIMTP3MD-EPD15MT2	ESSIM-TP-3-MD	EPD-15MT2	$1\frac{1}{2}$	3	230
ESSIMTP3MD-EPD15MT4	ESSIM-TP-3-MD	EPD-15MT4	$1\frac{1}{2}$	3	460



EBARA Oil Smart Pump System

Pump Specifications

Model Optima-3MS1

EPD-3MS1

EPD-5 to 15

Manual Operation Pumps

Performance: ISO 2548

	Standard	Optional
Discharge Size	1/3 HP – 1 1/4 inch	
Range of HP	1/2 HP through 1 1/2 HP – 1 1/2 inch	
Range of Performance	1/3, 1/2, 3/4, 1, and 1 1/2 HP Capacity 2.7 to 86 GPM Head 9.3 to 61 feet	
Limitation Maximum Water Temperature	122°F/50°C (140°F/60°C intermittent duty)	
Solids	3/8" Spherical (2% by concentration)	
Synchronous Speed	3600 RPM	
Materials Casing Impeller Shaft Motor Frame Fasteners	304L Stainless Steel 304L Stainless Steel* 303 Stainless Steel 304L Stainless Steel 304L Stainless Steel	
Shaft Seal (Double)** Material – Upper Material – Lower Impeller Type Bearing Motor Single Phase Three Phase Motor Protection† Power Cord Single Phase Three Phase	NBR Fitted Carbon/Ceramic 1/2, 3/4, 1, and 1 1/2 HP FPM Fitted Silicon Carbide/Silicon Carbide 1/2, 3/4, 1, and 1 1/2 HP Semi-Open Sealed Ball Bearing Air-filled, Insulation Class F, 2 Pole, Rated Continuous Duty–Permanent Split Capacitor 115 V 230V or 460V Built-in Motor Protection with Auto Reset UL/CSA SJTOW-A with ECS No. 250 cap plug with grounding pin – 20 Ft. Length Rated 15 Amp 125V – NEMA 5-15P UL/CSA STOW-A water resistant, stripped end jacket removed 2" and conductor stripped 5/8" – 20 Ft. length	

* ITEM NO. Optima-3MS1 – Impeller material is Thermo Plastic-Noryl GFN2

** Optima-3 & EPD-3 – 1/3 HP Shaft Seal is single mechanical seal (lower side) and 1 lip seal (upper side)
– Mechanical Seal material: Carbon/Ceramic/FPM

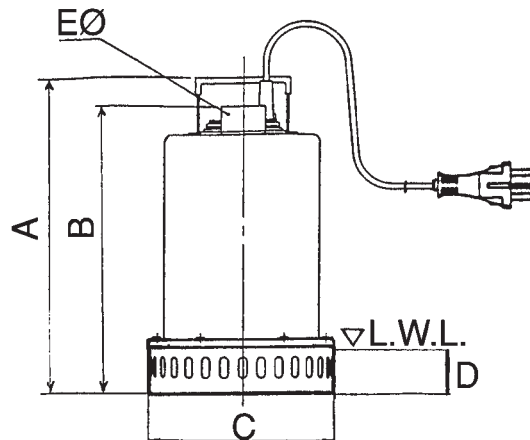
† Three Phase models require user to provide motor protection



EBARA Oil Smart Pump System

Pump Dimensions

Model Optima-3MS1
 EPD-3MS1
 EPD-5 to 15
 Manual Operation Pumps



Dimensions: inch

Phase	Discharge Size	Model	HP	Pump & Motor					Cable Size		Weight lbs.
				A*	B	C	D	E	O.D.	Length	
Single	1 ¹ / ₄	Optima-3MS1	1 ¹ / ₃	10 ³ / ₄	9 ³ / ₃₂	6 ⁹ / ₁₆	2 ³ / ₈	1 ¹ / ₄	0.335	20 FT.	11
	1 ¹ / ₄	EPD-3MS1	1 ¹ / ₃	10 ³ / ₄	9 ³ / ₃₂	6 ⁹ / ₁₆	2 ³ / ₈	1 ¹ / ₄	0.335	20 FT.	11
	1 ¹ / ₂	EPD-5MS1	1 ¹ / ₂	17 ³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	26
Three	1 ¹ / ₂	EPD-5MT2	1 ¹ / ₂	13 ⁷ / ₈	12 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	26
	1 ¹ / ₂	EPD-5MT4	1 ¹ / ₂	13 ⁷ / ₈	12 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	26
Single	1 ¹ / ₂	EPD-7MS1	3 ³ / ₄	17 ³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	29
Three	1 ¹ / ₂	EPD-7MT2	3 ³ / ₄	13 ⁷ / ₈	12 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	29
	1 ¹ / ₂	EPD-7MT4	3 ³ / ₄	13 ⁷ / ₈	12 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	29
	1 ¹ / ₂	EPD-10MT2	1	14 ³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	31
	1 ¹ / ₂	EPD-10MT4	1	14 ¹³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	31
	1 ¹ / ₂	EPD-15MT2	1 ¹ / ₂	14 ¹³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	31
	1 ¹ / ₂	EPD-15MT4	1 ¹ / ₂	14 ¹³ / ₁₆	13 ³ / ₈	8 ¹ / ₄	2 ³ / ₈	1 ¹ / ₂	0.335	20 FT.	31

Dimensions: mm

Phase	Discharge Size	Model	HP	Pump & Motor					Cable Size		Weight kg.
				A*	B	C	D	E	O.D.	Length	
Single	31.75	Optima-3MS1	1 ¹ / ₃	273	231	167	60	31	8.50	6.09 M	5
	31.75	EPD-3MS1	1 ¹ / ₃	273	231	167	60	31	8.50	6.09 M	5
	38.10	EPD-5MS1	1 ¹ / ₂	437	340	210	60	38	8.50	6.09 M	12
Three	38.10	EPD-5MT2	1 ¹ / ₂	352	315	210	60	38	8.50	6.09 M	12
	38.10	EPD-5MT4	1 ¹ / ₂	352	315	210	60	38	8.50	6.09 M	12
Single	38.10	EPD-7MS1	3 ³ / ₄	437	340	210	60	38	8.50	6.09 M	13
Three	38.10	EPD-7MT2	3 ³ / ₄	352	315	210	60	38	8.50	6.09 M	13
	38.10	EPD-7MT4	3 ³ / ₄	352	315	210	60	38	8.50	6.09 M	13
	38.10	EPD-10MT2	1	377	340	210	60	38	8.50	6.09 M	14
	38.10	EPD-10MT4	1	377	340	210	60	38	8.50	6.09 M	14
	38.10	EPD-15MT2	1 ¹ / ₂	377	340	210	60	38	8.50	6.09 M	14
	38.10	EPD-15MT4	1 ¹ / ₂	377	340	210	60	38	8.50	6.09 M	14

NOTE: *A dimension listed = maximum height
 PIGGY-BACK Plug comes on single phase manual pumps
 Three phase Pumps **DO NOT** come with plug – Jacket is removed 2 inches & conductors are stripped 5/8 inch.

EBARA Oil Smart Pump System

Features

ESS100

Model ESS100 includes Oil Smart Pump Switch, Oil Smart Alarm and Ebara stainless steel pump model Optima (1/3 HP) or EPD (from 1/3 HP up to 3/4 HP).

Oil Smart® Pump Switch

- Pumps Water, Not Oil
- Includes 20' cord & piggyback plug; pump plugs directly into piggyback
- Will operate any pump up to 3/4 HP.
- Provides On and Off: 6" Pumping Differential
- Able to test Oil Smart Switch function at any common 120VAC receptacle with your fingers

Oil Smart® Alarm

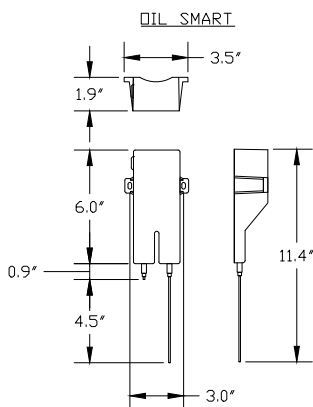
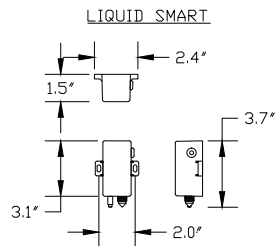
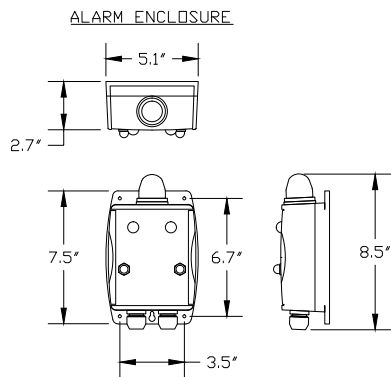
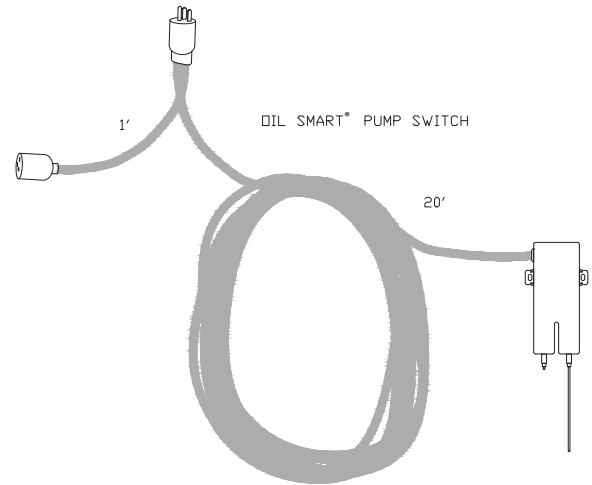
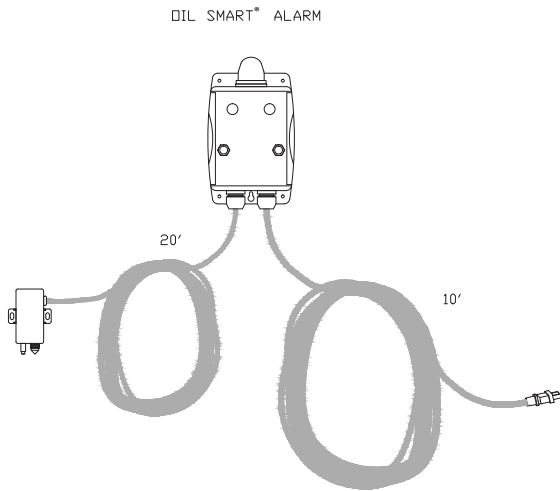
- Alarm differentiates between oil and water
- Includes 10' 120VAC power cord, Liquid Smart Sensor with 20' cord
- Yellow Oil LED Indicator, White Water LED Indicator, Test and Silence Buttons, High Red Beacon LED Light
- High 85 Decibel Alarm
- Dry Contacts for Oil, Water, High Liquid



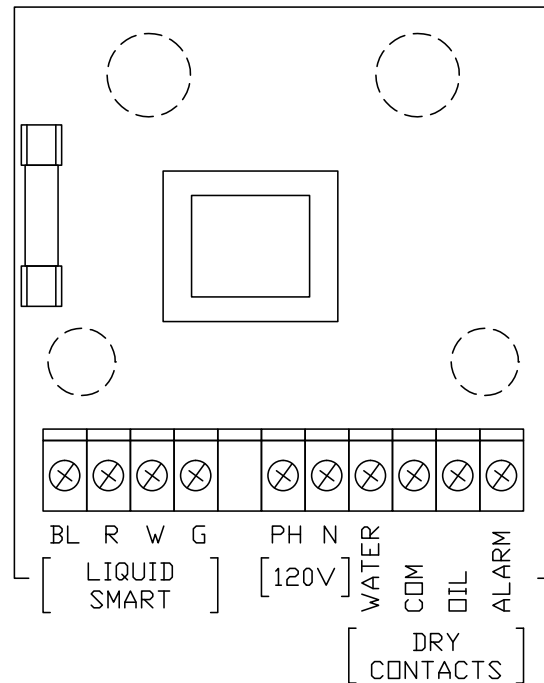
EBARA Oil Smart Pump System

Dimensions and Wiring Diagram

ESS100



BACK OF BOARD
INSIDE ALARM ENCLOSURE



DRY CONTACT RATINGS:
60V AC OR DC, 1 AMP MAXIMUM.
NOTE: TO ACCESS CIRCUIT BOARD,
REMOVE BACK COVER OF ALARM
ENCLOSURE.

EBARA Oil Smart Pump System

Features

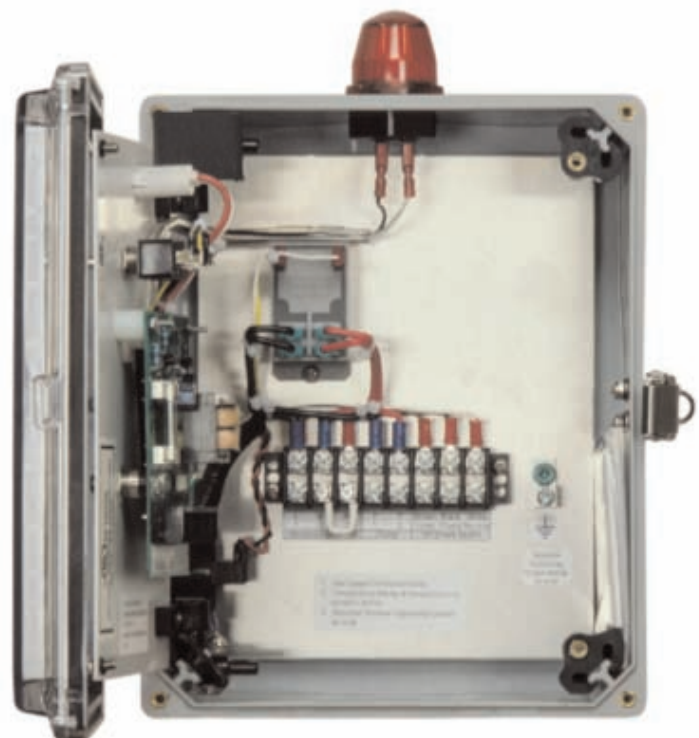
ESSIM-30-MD Oil Smart® Simplex Single Phase

Model ESSIM-30-MD includes Oil Smart Pump Switch, Simplex single phase panel and Ebara stainless steel pump model Optima (1/3 HP) or EPD (from 1/3 HP up to 3/4 HP).

- Single Phase, 115VAC
- Includes Oil Smart Switch and Liquid Smart Sensor; 20' cords
- Alarm and Pump Control Differentiates Between Oil and Water
- HOA Toggle Switch and Green Light for Pump Run
- Yellow Oil LED Indicator, White Water LED Indicator, Test and Silence Buttons, High Red Beacon LED Light
- High 85 Decibel Alarm
- Dry Contacts for Oil, Water, High Liquid
- Terminal Blocks for Hardwiring
- Local, Lockable Disconnect



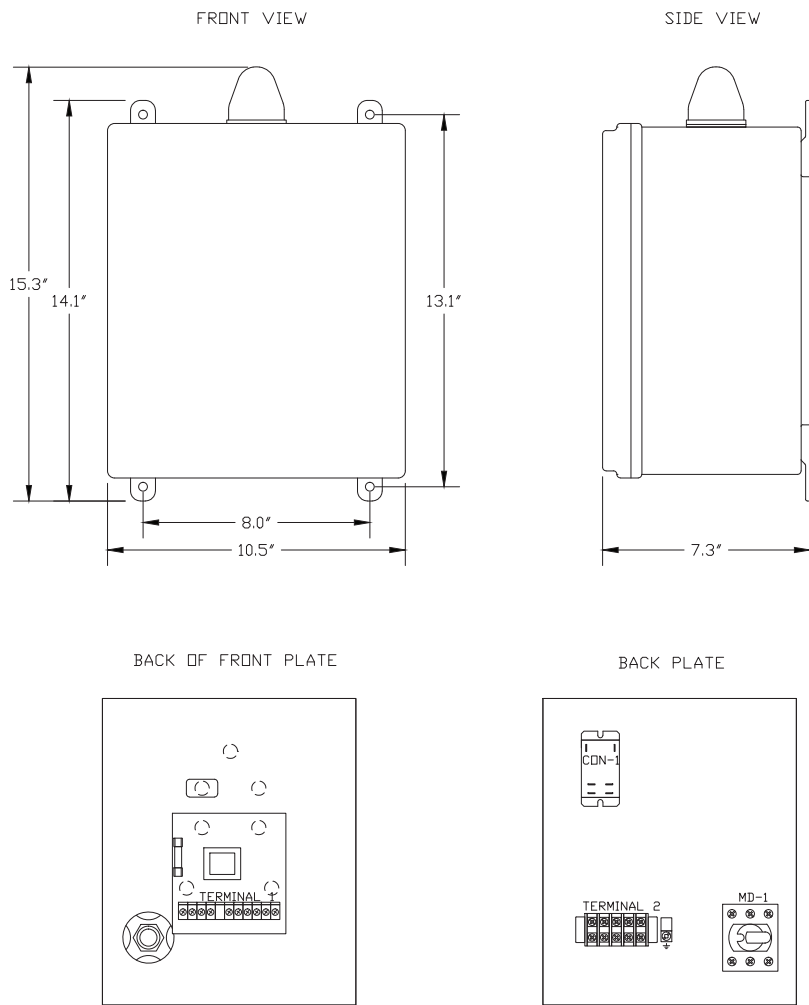
Components and Panel Interior



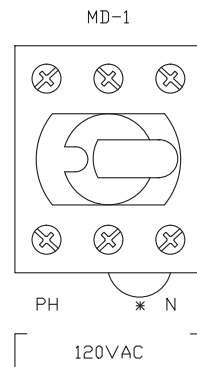
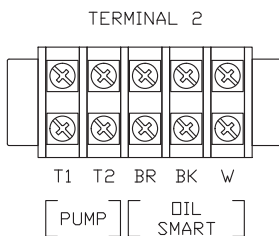
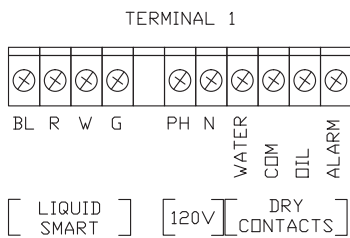
EBARA Oil Smart Pump System

Dimensions and Wiring Diagram

ESSIM-30-MD Oil Smart® Simplex Single Phase



Use Copper Conductors Only
 Temperature ratings of conductors is to be 60°C (167°F)
 Branch circuit protection shall be provided by the installer:
 Must be sized according to pump/motor manufacturing specifications.



VERIFY CORRECT OPERATION OF CONTROL PANEL AFTER INSTALLATION IS COMPLETE.

*FOR 208/240V, REMOVE JUMPER



EBARA Oil Smart Pump System

Features

ESSIM-TP-3-MD Oil Smart® Simplex Three Phase

Model ESSIM-TP-3-MD includes Oil Smart Pump Switch, Simplex three phase panel and Ebara stainless steel pump model EPD (from 1/2 HP up to 1-1/2 HP).

- Three Phase, 230/460VAC
- Includes Oil Smart Switch and Liquid Smart Sensor; 20' cords
- Alarm and Pump Control Differentiates Between Oil and Water
- HOA Toggle Switch and Green Light for Pump Run
- Yellow Oil LED Indicator, White Water LED Indicator, Test and Silence Buttons, High Red Beacon LED Light
- High 85 Decibel Alarm
- Dry Contacts for Oil, Water, High Liquid
- Terminal Blocks for Hardwiring
- Local, Lockable Disconnect



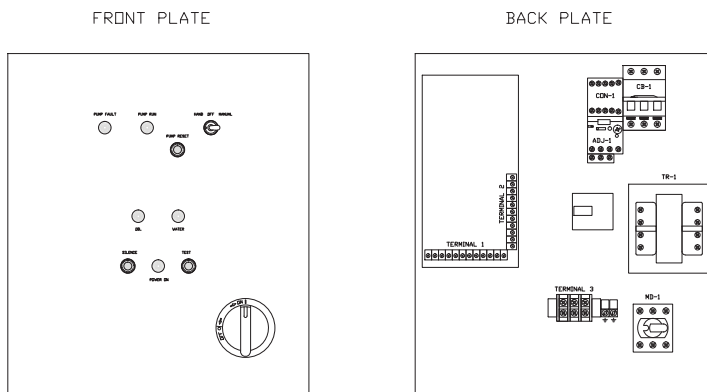
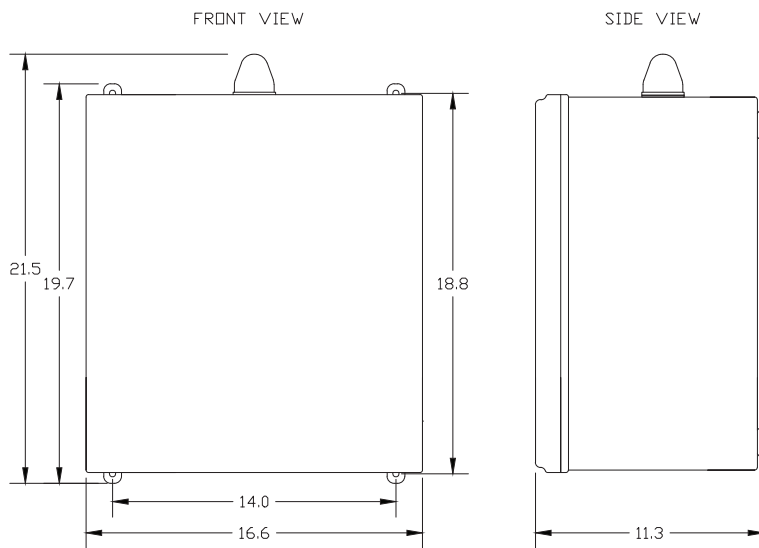
Components and Panel Interior



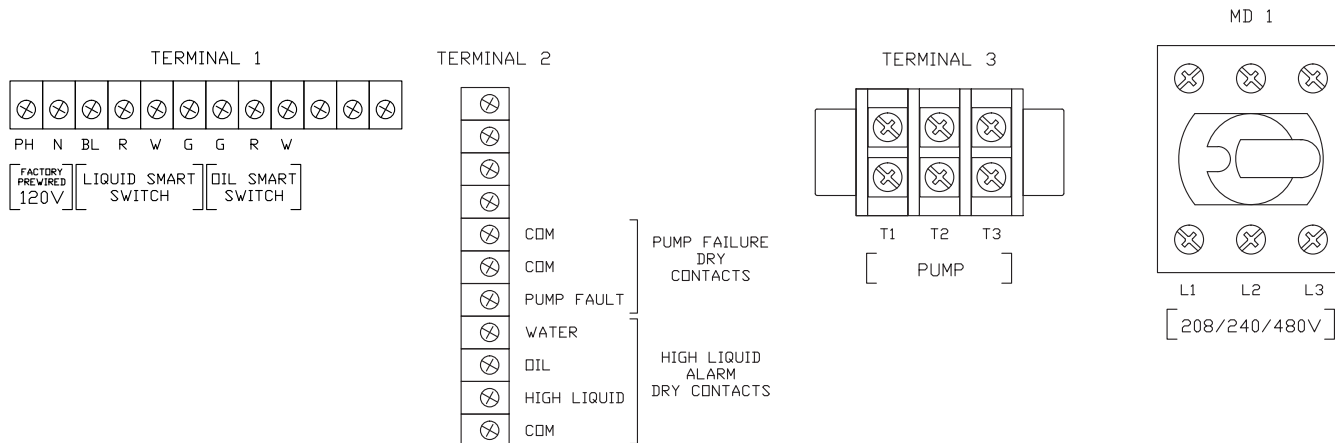
EBARA Oil Smart Pump System

Dimensions and Wiring Diagram

ESSIM-TP-3-MD Oil Smart® Simplex Three Phase



Use Copper Conductors Only
 Temperature ratings of conductors is to be 60°C (167°F)
 Branch circuit protection shall be provided by the installer:
 Must be sized according to pump/motor manufacturing specifications.



VERIFY CORRECT OPERATION OF CONTROL PANEL AFTER INSTALLATION IS COMPLETE.