

KENDALL PUMPS

RELIABLE PUMPS



**DOSING MEMBRANE,
ELECTRONIC & SOLENOID PUMPS
E-SERIES**

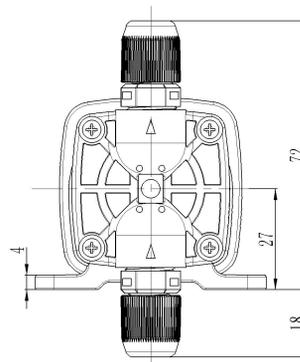
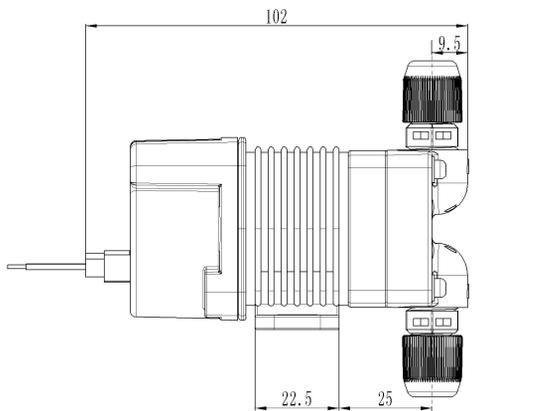
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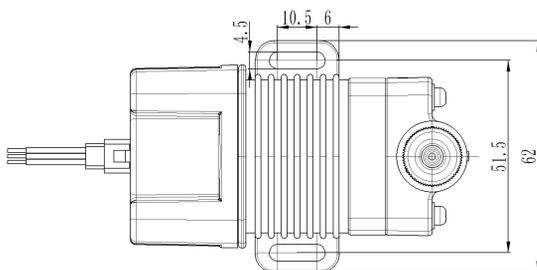
◆ **ELT Series
Solenoid Diaphragm Metering Pump**



▶ **ELT Series
Drawing**



Unit:mm



▶ **Control Method**

Passive pulse signal control

The Spm Range Is 0-720 Stroke/Min, And the

Minimum Flow Rate For Each Injection Is 0.055ml

One Pulse Corresponds To One Stroke(1:1)

▶ **Application**

Laboratory, Villa Disinfectant Pumping

Use On Testing Equipment

▶ **Technical Parameter**

Model	Flow Rate (ml/min)	Work Pressure (MPa)	Stoke Frequency Rate (spm)	Connection Tubling Diameter (mm)	Input voltage (V)	Power Rate (W)	Rated current (A)	weight (kg)
ELT-12V	38	0.2	720	Φ4×Φ6	DC12V	5.6	1.5	0.5
ELT-24V	38	0.2	720	Φ4×Φ6	DC24V	5.6	1.0	0.5

MODEL SERIES	
EM	Manual control, Without LCD Display The Stroke Frequency, Can Be Linked With Liquid Level Switch And Automatically Stopped When Liquid Off, Power Supply: AC100-240V.
EMD	Manual control, LCD Display The Stroke Frequency, Can Be Linked With Liquid Level Switch And Automatically Stopped When Liquid Off, Power Supply: AC100-240V.
EPN	Manual / Automatic Integration, LCD Display The Stroke Frequency / Liquid Level Detection, Passive Pulsation Signal Input At Auto-Control Stroke Working Frequency, Power Supply: AC100-240V.
EPS	Manual / Automatic Integration, Without LCD Display The Stroke Frequency, Liquid Level Detection, AC/DC5-24V Pulsation Signal Input At Auto-Control Stroke Working Frequency, Power Supply: AC100-240V.
EA	Manual / Automatic Integration, LCD Display The Stroke Frequency / Liquid Level Detection, 4-20mA Analog Signal Input At Auto-Control Stroke Working Frequency, Power Supply: AC100-240V.
EB	Manual / Automatic Integration, LCD Display The Stroke Frequency / Liquid Level Detection, RS485 Bus Protocol Auto-Control Working Frequency, Power Supply: AC100-240V.

Model	Work Pressure (Bar)	Flow Rate (L/hr)	Stoke Flow Rate (ml/stroke)	Stoke Frequency Rate (spm)	Power Rate (W)	Vent Valve
B10	10	2.28	0.05-0.11	0-360	20	√
B15	7	3.9	0.09-0.18	0-360	20	√
B20	4	5.7	0.13-0.26	0-360	20	√
B30	2	12	0.28-0.56	0-360	20	×
C15	10	4.8	0.09-0.22	0-360	24	√
C20	7	7.8	0.14-0.36	0-360	24	√
C30	3.5	16.2	0.3-0.75	0-360	24	×
C35	2	24	0.44-1.11	0-360	24	×

Code	Pump Head	Valve Set	Check Valve Ball	Valve Guide	Gasket	O-Ring	Diaphragm	Application
1	PVC	PTFE	Ceramic	PVC	PTFE	PTFE	Double Layers PTFE+EPDM (EPDM is not wet-end)	Acidic / Alkali / Chemical
3	PVDF	PTFE	Ceramic	PVDF	PTFE	PTFE		Highly Corrosive
4	SUS316	SUS316	SUS316	SUS316	PTFE	PTFE		120
5	SUS316L	SUS316L	SUS316L	SUS316L	PTFE	PTFE		120°C

Connection Tubing Diameter (Inter Diameter × Outer Diameter)	
1	Φ4×Φ9, 3 meters PVC Transparent Braided Tube
2	Φ8×Φ13, 3 meters PVC Transparent Braided Tube
3	Φ4×Φ6, 3 meters PVDF Transparent Tube
4	Φ8×Φ10, 3 meters PVDF Transparent Tube
5	G 1/4" Internal Thread For DN8 SUS316/SUS316L Pipeline

EX	XX	X	X	Electromagnetic Diaphragm Metering Pump Model
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◆ Series Model Introduction

Series Model	Functional comment
EM	Control The Flow of Fluid By : <ul style="list-style-type: none"> • Manually Adjust Stroke Working Rate (0-100%) . • Manually Adjust Stroke Length Rate (40%-100%) .
EMD	Control The Flow of Fluid By : <ul style="list-style-type: none"> • LCD To Display The Stroke Frequency . • Manually Adjust Stroke Working Rate (0-100%) . • Manually Adjust Stroke Length Rate (40%-100%) .
EPN	<ul style="list-style-type: none"> • LCD To Display The Stroke Frequency . • Automatic Control By Passive Pulse Signal. • The Pulse Can Be Multiplied/Divided To Calculate The Stroke Frequency. • Manually Adjust Stroke Frequency(0~360spm). • Manually Adjust Length of Stroke(40%-100%).
EPS	<ul style="list-style-type: none"> • Automatic Control By Active Pulse Signal (). • One Pulse Corresponds To One Stroke(1:1). • Manually Adjust Stroke Frequency(0~360spm). • Manually Adjust Length of Stroke(40%-100%).
EA	<ul style="list-style-type: none"> • LCD To Display The Stroke Frequency . • Automatic Control By 4-20mA Analog Signal. • Manually Adjust Stroke Frequency(0~360spm). • Manually Adjust Length of Stroke(40%-100%).
EB	<ul style="list-style-type: none"> • LCD To Display The Stroke Frequency . • Automatic Control By RS485 Bus Protocol. • Manually Adjust Stroke Frequency(0~360spm). • Manually Adjust Length of Stroke(40%-100%).

◆ Example:EPN-B20-1-1

- EPN—Passive Pulse Signal Control Method.
- B20— Flow Rate 5.7L/hr@ Pressure 4 Bar.
- 1— PVC Pump Head Material
- 1— $\Phi 4 \times \Phi 9$ PVC Transparent Braided Tube

◆ EM-B10/B15/B20/C15/C20 Outward



Vent Valve Manual Knob



EM-B10/B15/B20
/C15/C20 Series
Left View



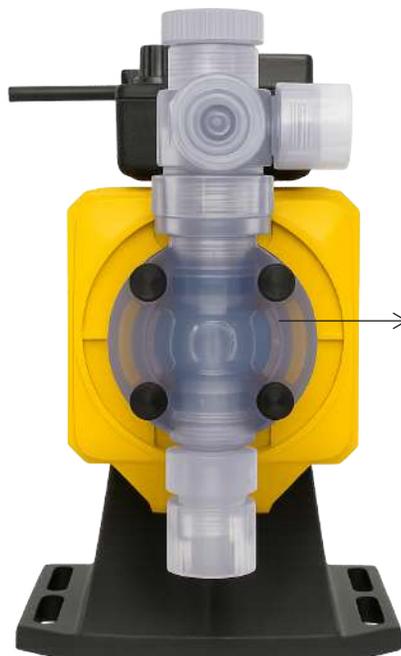
Right View



0-100% Manual
Adjustment Stro
Rate(0-360spm) ke

EM-Series

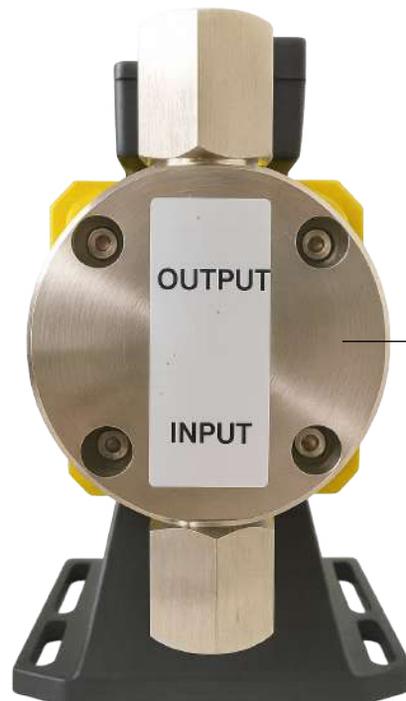
Top View



1-PVC & PTFE & PTFE+EPDM
3-PVDF & PTFE & PTFE+EPDM
4-SUS316 & PTFE & PTFE+EPDM
5-SUS316L& PTFE &PTFE+EPDM
4 Kinds Material Pump Head &
Valve Set/O-ring & Diaphragm
Can Be Selected For Different
Corrosive Fluid. (Note Page 3)

Back View

G1/4" Internal Thread



SUS316 &
SUS316L Pump
Head

Main View

◆ EM-B30/C30/C35 Outward





**EM- B30/C30/C35
Series
Left View**



**EM- B30/C30/C35
Series
Right View**



→ **0-100% Manual
Adjustment Stroke
Rate(0-360spm)**

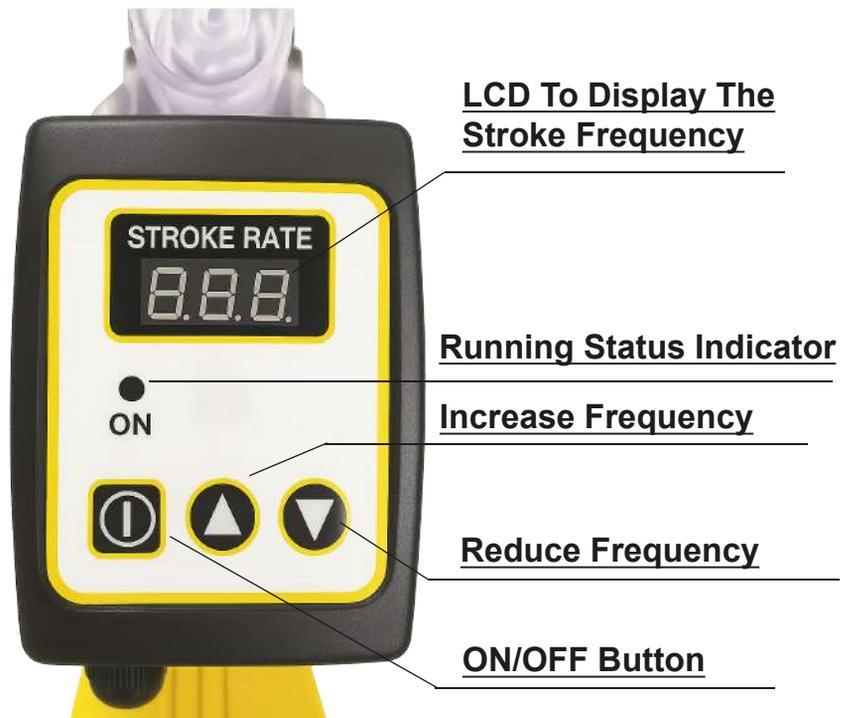
EM-Series

Top View



1-PVC & PTFE & PTFE+EPDM
3-PVDF & PTFE & PTFE+EPDM
4-SUS316 & PTFE & PTFE+EPDM
5-SUS316L & PTFE & PTFE+EPDM
**4 Kinds Material Pump Head &
Valve Set/O-ring & Diaphragm
Can Be Selected For Different
Corrosive Fluid. (Note Page 3)**

Back View



With Air Vent Valve



EPN/EA/EB-
B10/B15/B20/C15
/C20 Series



Input Passive
Pulsation/4-
20mA/RS485 Auto
Control Signal

40%-100% Manual
Adjustment Stroke
Length

Main View

Vent Valve Manual Knob



Left View



EPN/EA/EB-
B10/B15/B20/C15
/C20 Series

Right View



Display the Stroke Working Rate(0-360spm) ,It Can Be Controlled By Input Signal or Manual Set Up .

EPN/EA/EB-
B10/B15/B20/C15
/C20 Series
Top View



1-PVC & PTFE & PTFE+EPDM
3-PVDF & PTFE & PTFE+EPDM
4-SUS316 & PTFE & PTFE+EPDM
5-SUS316L& PTFE &PTFE+EPDM
4 Kinds Material Pump Head & Valve Set/O-ring & Diaphragm Can Be Selected For Different Corrosive Fluid. (Note Page 3)

Back View



No Vent Valve

**EPN/EA/EB-
B30/C30/C35
Series
No Vent Valve**



→ Input Pulsation/4-
20mA/RS485 Auto
Control Signal

→ 40%-100% Manual
Adjustment Stroke
Length

Main View

No Vent Valve



Left View



EPN/EA/EB-
B30/C30/C35
Series
Right View



Display the Stroke Working Rate(0-360spm) ,It Can Be Controlled By Input Signal or Manual Set Up .

EPN/EA/EB-
B30/C30/C35
Series
Top View



1-PVC & PTFE & PTFE+EPDM
3-PVDF & PTFE & PTFE+EPDM
4-SUS316 & PTFE & PTFE+EPDM
5-SUS316L& PTFE &PTFE+EPDM
4 Kinds Material Pump Head & Valve Set/O-ring & Diaphragm Can Be Selected For Different Corrosive Fluid. (Note Page 3)

Back View

◆ EPS-B30/C30/C35 Outward





DC/AC5-24V Active
Pulse Signal Input
Control

Running Status Indicator

ON/OFF Button &
Manual/EXT Mode
Switch Button

◆ Flow @Pressure Data Sheet

Model	Unite	0 Bar	1 Bar	2 Bar	3 Bar	4 Bar	5 Bar	6 Bar	7 Bar	8 Bar	9 Bar	10 Bar	11 Bar
B10	L/hr	5.34	3.42	3.36	3.27	3.18	3.06	3.00	2.88	2.7	2.52	2.28	1.95
B15	L/hr	6.28	5.46	5.34	5.22	4.98	4.74	4.5	4.32	3.66			
B20	L/hr	8.34	6.84	6.6	6.18	6	5.85	5.82					
B30	L/hr	14.46	13.08	12.12	10.8								
C15	L/hr	8.64	6.6	6.54	6.48	6.24	6.07	5.82	5.64	5.52	5.04	4.86	
C20	L/hr	14.64	8.76	8.7	8.64	8.52	8.22	8.04	7.8	7.62	7.38	7.02	5.64
C30	L/hr	23.52	18.42	17.76	17.04	16.35	12.84						
C35	L/hr	27.48	26.06	24.18	22.12								

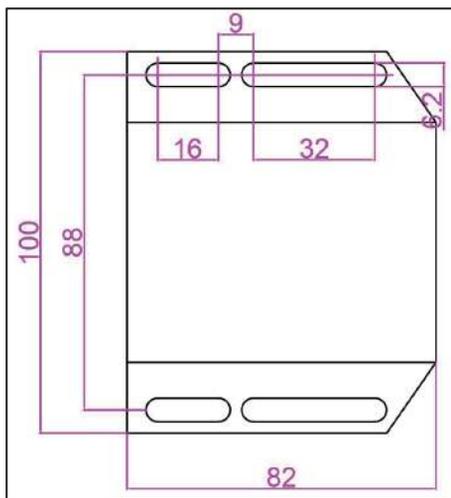
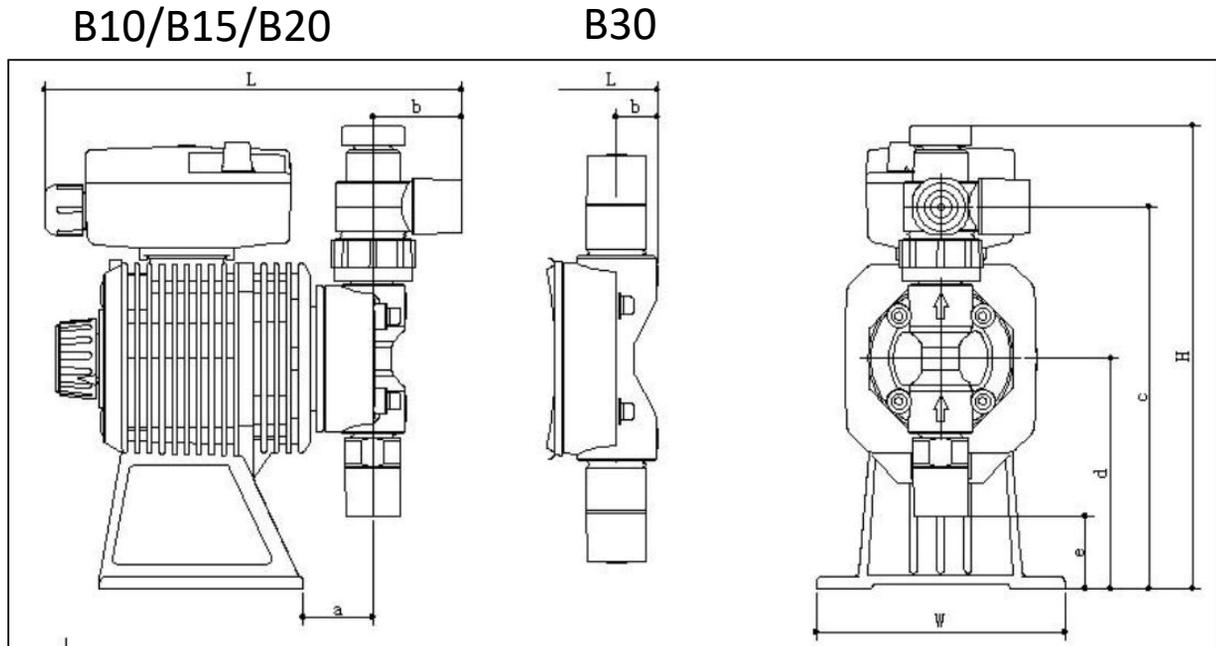
◆ Pump Head Material Selection Guidew

Fluid	Ceramic	PVDF	PP	PVC	PTFE	FPM	EPDM	PE	SUS316	SUS316L
CH3COOH(75%)	○	●	●	●	●	x	●	●	●	●
AL2(SO4)3	●	●	●	●	●	●	●	●	●	●
R-NH2	●	○	●	x	●	x	○	●	●	●
Ca(OH)2	●	●	●	●	●	●	●	●	●	●
Ca(OCL)2	●	●	●	●	●	●	●	●	x	x
CuSO4	●	●	●	●	●	●	●	●	●	●
FeCL3	●	●	●	●	●	●	●	●	x	x
HF(40%)	x	●	●	○	●	●	x	●	x	x
HCL	●	●	●	●	●	●	x	●	x	x
H2O2(30%)	●	●	●	●	●	●	○	●	●	●
HNO3(65%)	●	●	○	x	●	●	x	○	○	○
H3PO4(50%)	●	●	●	●	●	●	●	●	○	○
NaOH	○	●	●	●	●	○	●	●	●	●
NaHSO3	●	●	●	●	●	●	●	●	○	○
Na2CO3	○	●	●	●	●	○	●	●	●	●
NaOCL-NaCL	●	●	●	●	●	●	●	●	x	x
H2SO4(85%)	●	●	●	●	●	●	x	●	○	○
H2SO4(98.5%)	●	●	x	x	●	●	x	x	x	x
KMnO4(10%)	●	●	●	●	●	●	●	●	●	●
Alcohol	●	●	●	●	●	●	●	●	●	●

●	GOOD	○	ORDINARY	x	NO
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◆ Drawing & Size

▶ B Series Drawing



Installation Size

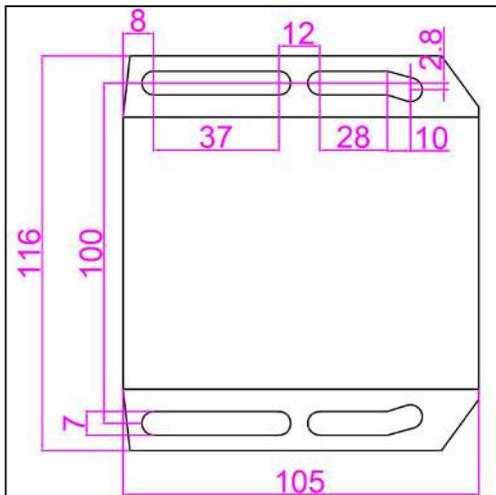
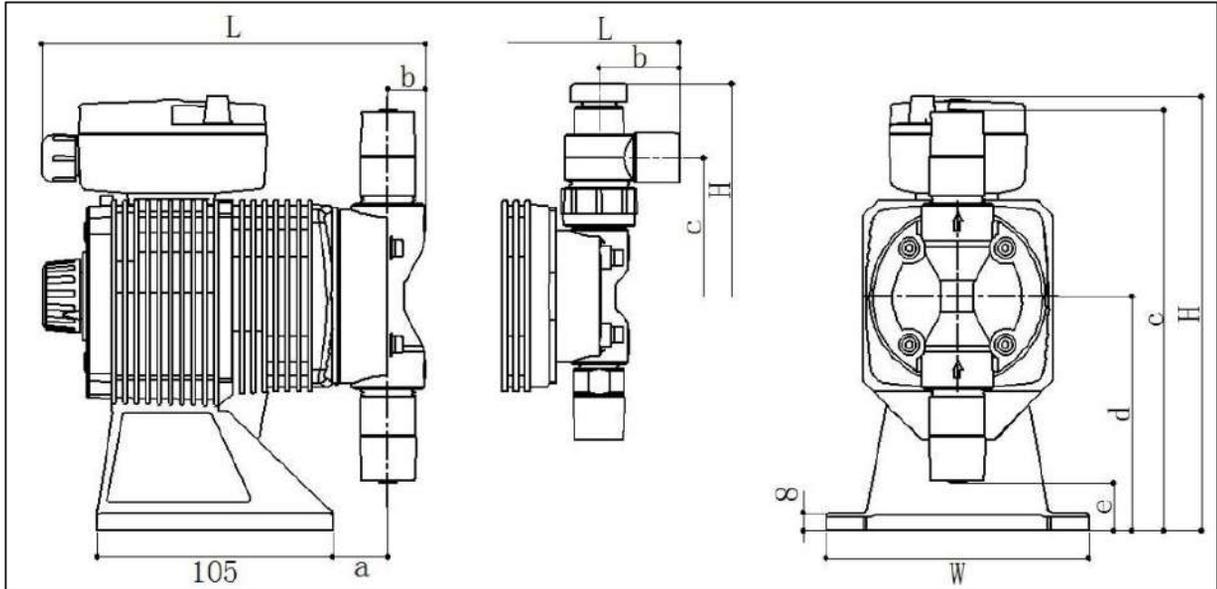
▶ B Series Size

Model	W	H	L	a	b	c	d	e	Connect Size
B10	100	185	168	28	37	153	92	29	Φ4xΦ9
B15	100	185	168	28	37	153	92	29	Φ4xΦ9
B20	100	185	168	28	37	153	92	29	Φ4xΦ9
B35	100	173	146	30	16	—	92	11	Φ8xΦ13

► C Series Drawing

C30/C35

C15/C20

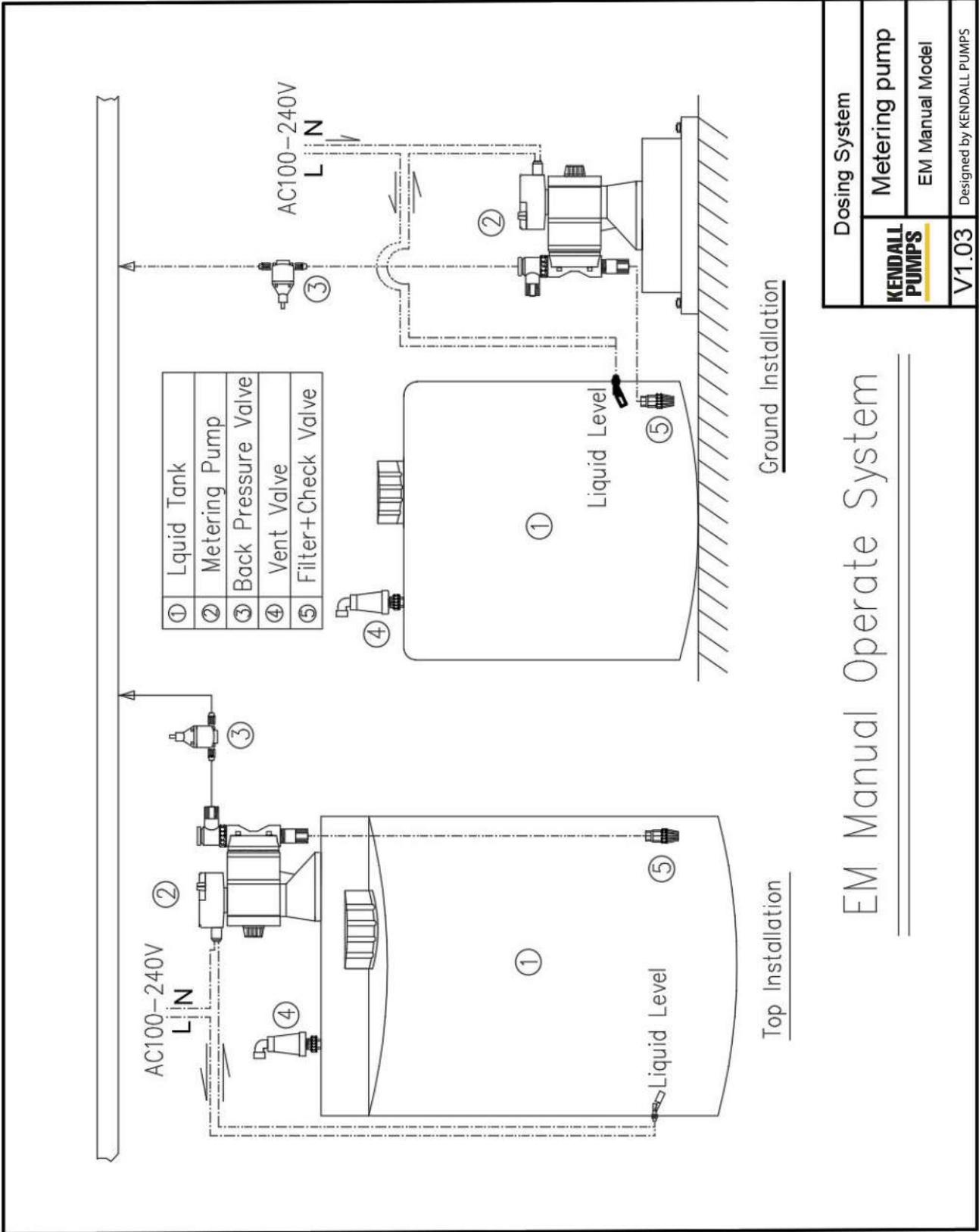


Installation Size

► C Series Size

Model	W	H	L	a	b	c	d	e	Connect Size
C10	116	195	196	27	37	153	90	26	Φ4xΦ9
C15	116	195	196	27	37	153	90	26	Φ4xΦ9
C20	116	190	167	25	16	184	103	22	Φ8xΦ13
C30	116	190	167	25	16	184	103	22	Φ8xΦ13

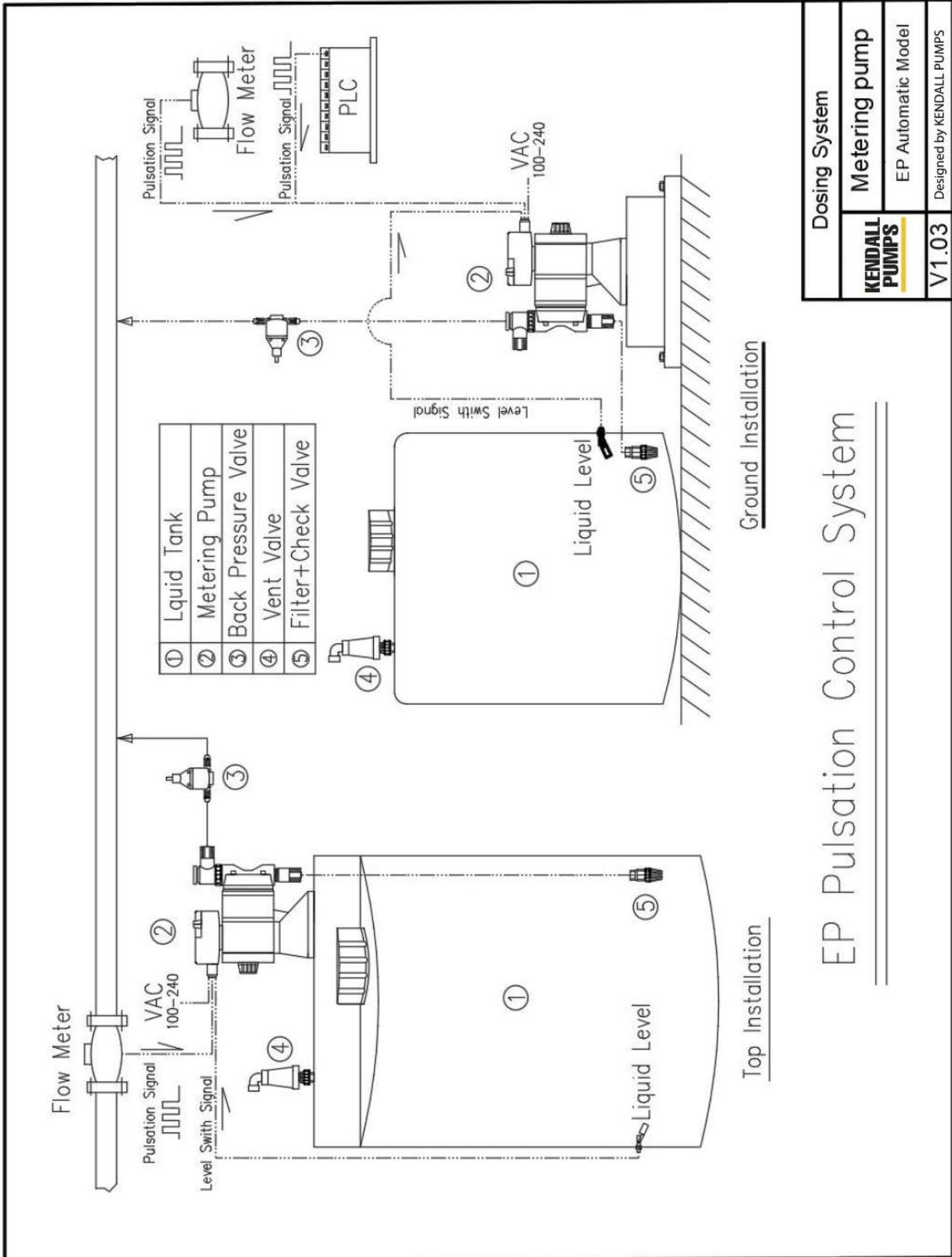
EM/EMD-Series Dosing System Drawing



Dosing System	
KENDALL PUMPS	Metering pump
V1.03	EM Manual Model
Designed by KENDALL PUMPS	

EM Manual Operate System

◆ EPN-Series Dosing System Drawing



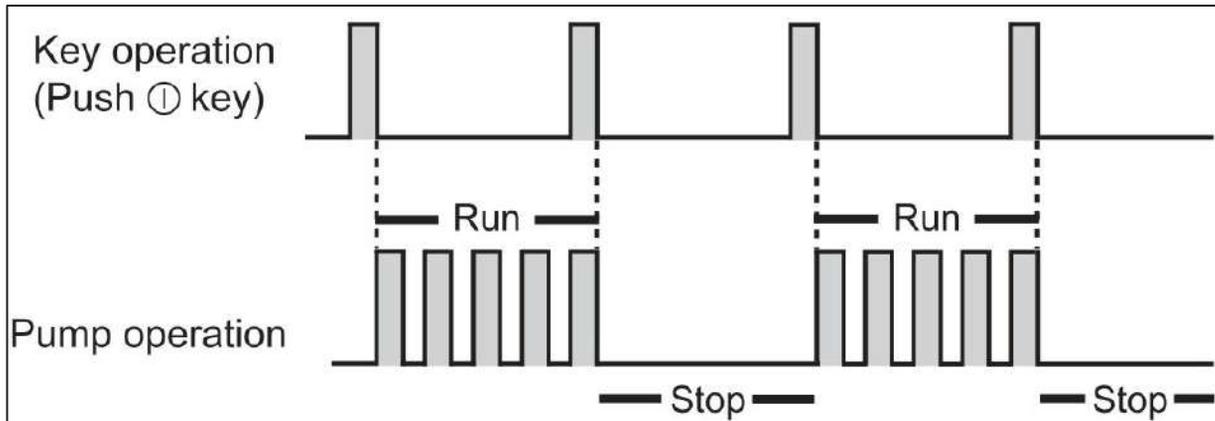
Ground Installation

Top Installation

Dosing System	
KENDALL PUMPS	Metering pump
V1.03	EP Automatic Model
Designed by KENDALL PUMPS	

EP Pulsation Control System

Way 1 — Set the pump Operation by Manual

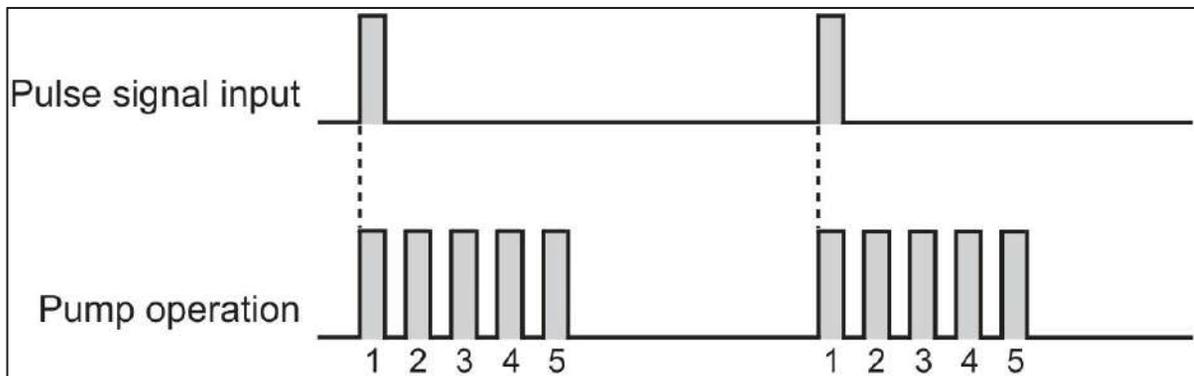


- ◆ The shots of pump's stroke can be set within 0-360 shots/min each pulse by manual key.
- ◆ The total ml/min can be obtained based on the flow rate (ml/shot) and the shot number (shots/min)

Way 2 — Set the pump Operation by External Signal (Ext Operation)

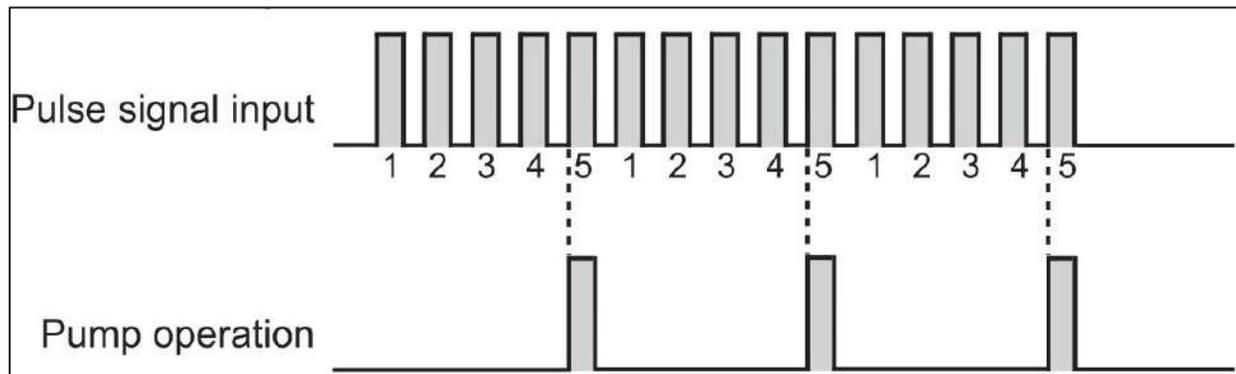
The operation is available after programming

Way 2 — Multiplier programming



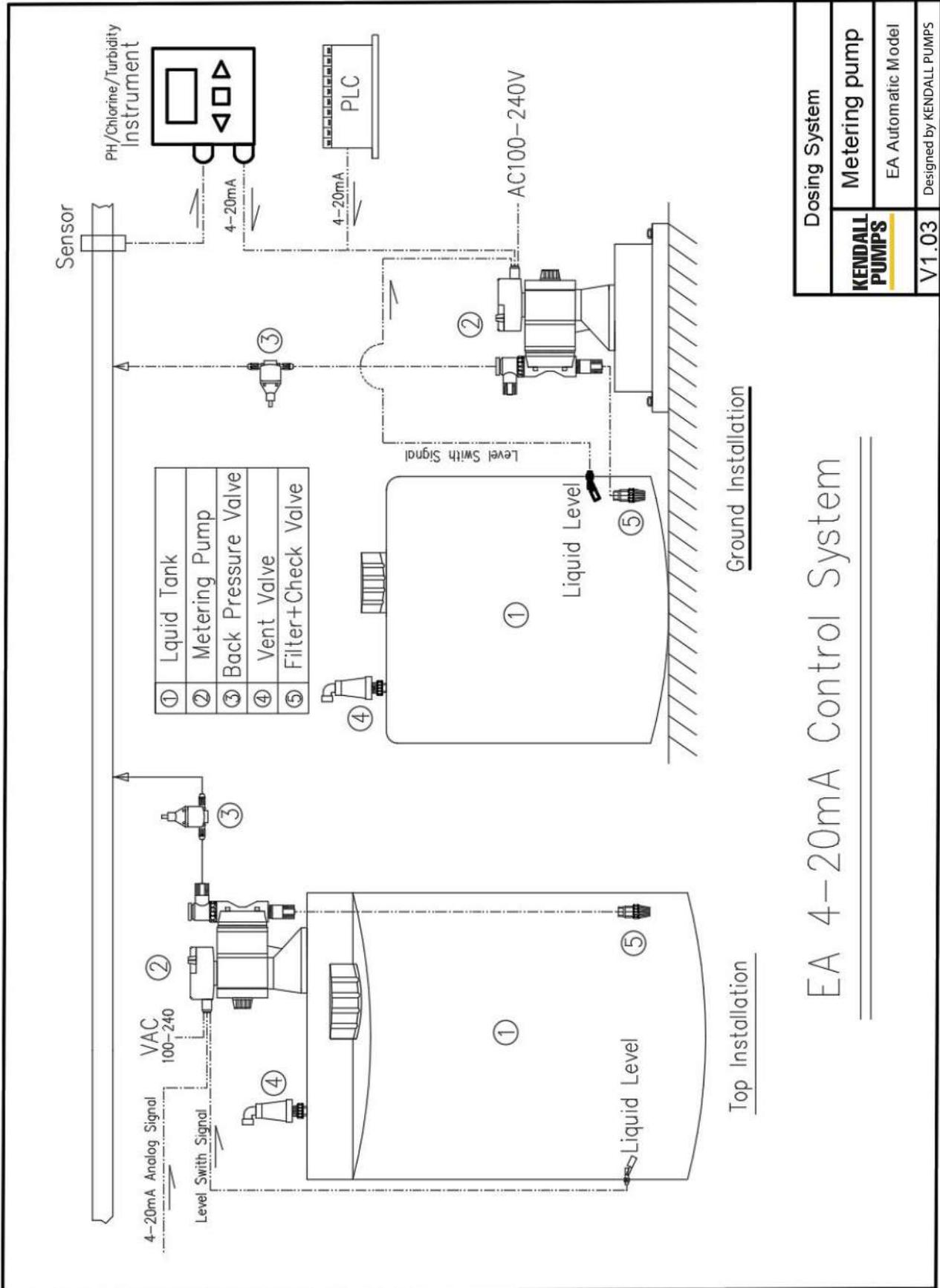
- ◆ The pump runs in 1:N operation when the multiplier is programmed to N.
- ◆ For example, when the multiplier is programmed to 1:5 so the pump will make five shots per signal.
- ◆ The total ml/min can be obtained based on the flow rate (ml/shot) and the shot number (shots/min).
- ◆ 1-999 shots can be allocated to one pulse signal.

Way 2.2 — Divider programming



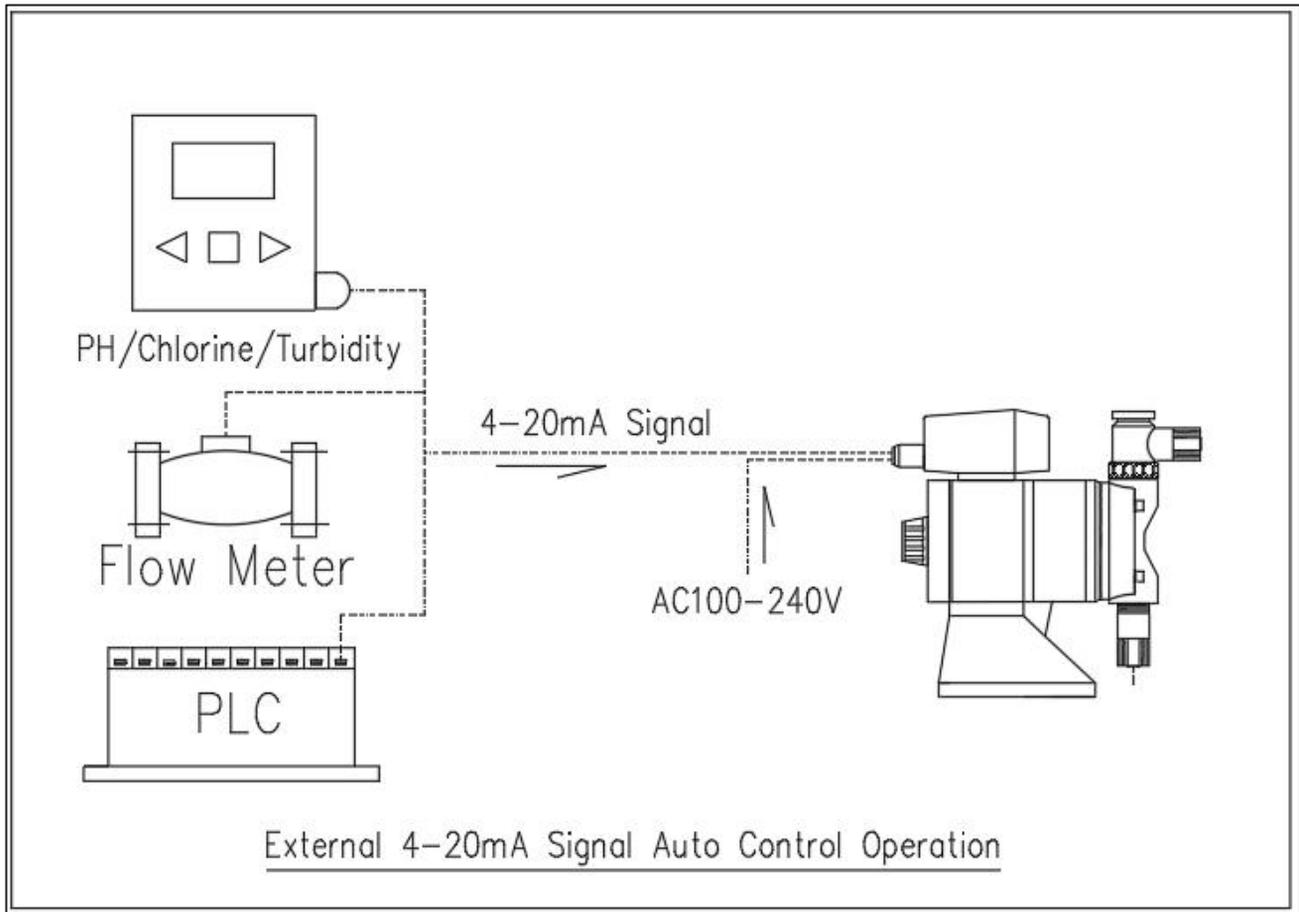
- ◆ The pump runs in N:1 operation when the multiplier is programmed to N.
- ◆ For example, when the multiplier is programmed to 5:1 so the pump will make 1 shot per five signals.
- ◆ The total ml/min can be obtained based on the flow rate (ml/shot) and the shot number (shots/min).
- ◆ 1-999 pulse signals can be allocated to one shot.

◆ EA-Series Dosing System Drawing

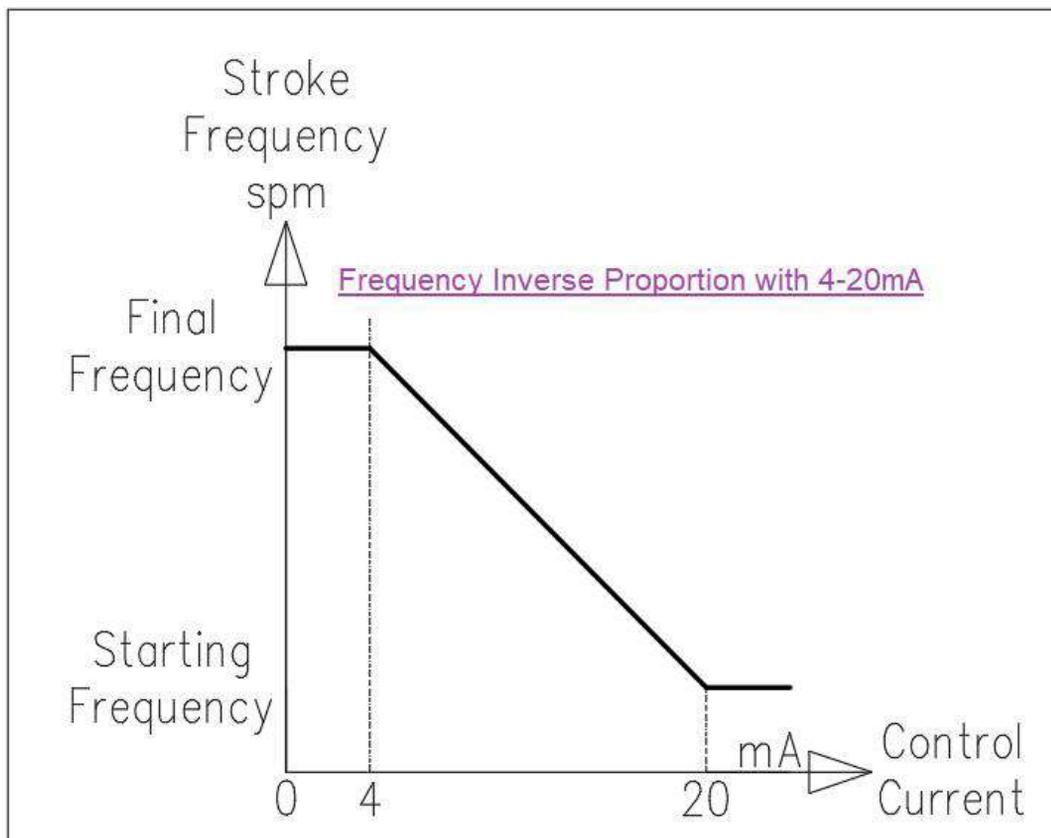
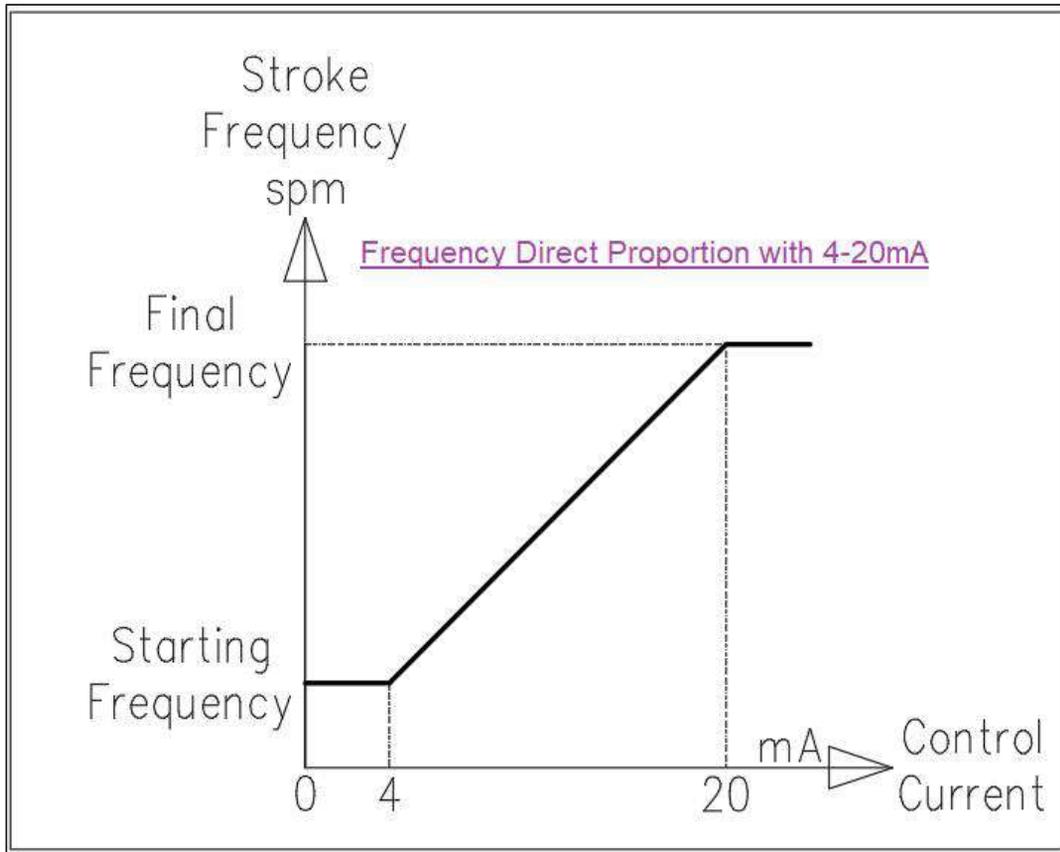


Dosing System	
KENDALL PUMPS	Metering pump
V1.03	EA Automatic Model
Designed by KENDALL PUMPS	

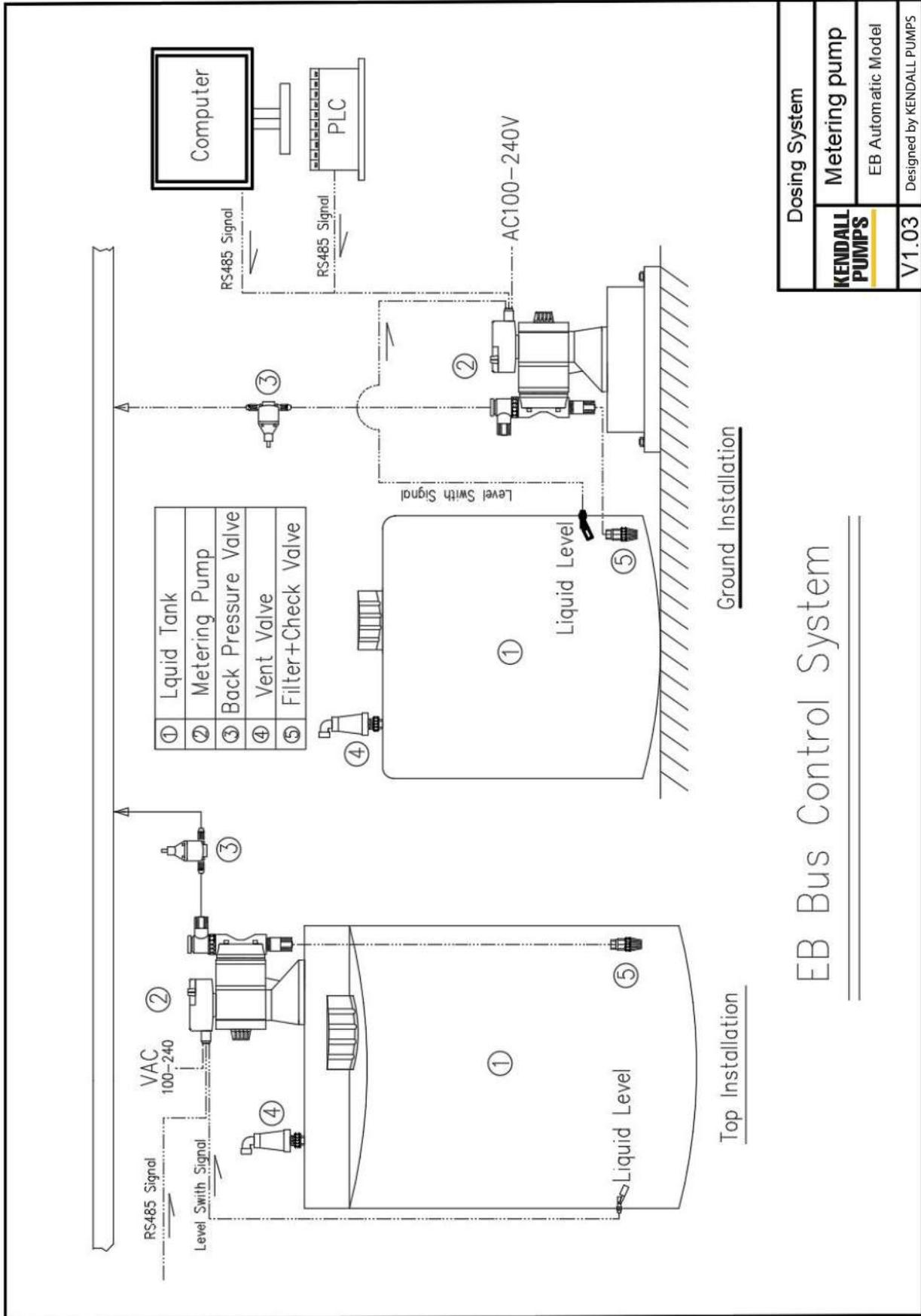
EA 4-20mA Control System



- ◆ The 4-20 mA signal can be derived from test instrument, fluid flow meter or PLC.
- ◆ 4-20 mA and Metering pump's Stroke Work Frequency (SPM) can be set to proportional and inverse.
- ◆ The 4-20 mA signal can control the flow rate from 0-100%



◆ EB-Series Dosing System Drawing



Dosing System	
KENDALL PUMPS	Metering pump
V1.03	EB Automatic Model
Designed by KENDALL PUMPS	

EB Bus Control System

◆ Accessories

Name	Qty	Unit	Image
Dosing Check Valve	1	pc	
Foot Valve With Filter	1	pc	
Magnetic Anti-corrosion Liquid Level Swith	1	pc	
Internal Thread Tee Connector	1	pc	
Suitable Size Hose	3	m	

KENDALL PUMPS

RELIABLE PUMPS