

# GRUNDFOS



GRUNDFOS  
Poul Due Jensens Vej 7  
DK-8850 Bjerringbro, Denmark

## Wiring Diagram

Application: Pump Control

Product: LC 241 1x1-5A DOL 3x208/230/460 PO

Product number: 99612799

Rated voltage: 208/230/460 VAC

Rated operational voltage: 208/230/460 VAC

Rated current: 5 A

Rated current of auxiliary circuit: 0.5A

Rated frequency: 60 Hz

Pollution degree:

Earthing scheme:

Type of installation: Stationary assembly for indoor/outdoor installation

Degree of protection: 4X

Electromagnetic compatibility:

Ambient Temperature: -4F (-20C) : 104F (40C)

Number of pumps: 1

Rated current, main pump: 5 A

Starting method, main pump: DOL

Rated conditional short-circuit current: 10 kA

Dimensions (WxHxD): 16.26x20.1x8.38 Inch

Caution: Line Terminals of variable-speed-controlled motors may have dangerous voltages even though the motor is stopped.

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Date	12/4/2018
Drafter	JS
Approved	BK
Revision	005

LC 241 1x1-5A DOL 3x208/230/460 PO

99612799

Replacement of

Replaced By

Cover Sheet

Page Number	1
Number of Pages	12

Change Note	Date	Name

# Table of Contents

Page	Page description
1	Cover Sheet
2	Table of Contents
3	General Information
4	Power Circuit
5	Control Circuit
6	Summarized Parts List
7	Summarized Parts List
8	Enclosure
9	Enclosure Perspective
10	Door Layout
11	Mounting Panel Layout
12	Mounting Panel Layout

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			Drafter	JS	99612799		Page Number	2		
			Approved	BK	Replacement of		Replaced By	Number of Pages	12	
			Revision	005						

# Feeder Circuit Protection:

Largest Motor FLA and  
Panel Maximum FLA:

**Feeder Circuit Protection to be Provided by Installer.  
Type and Size to be based upon Local, State, and  
National Electrical Codes.**

**SCCR Rating: 10 kA**

Motor Horsepower	
Motor FLA	5 A
Panel Max FLA	5.5 A

## Field Installed Options Wiring Requirements

Digital Inputs	20 to 14AWG 600V Copper Wire
Analog Inputs	20 to 14AWG 2 wire Shielded Cable
Digital Outputs (Dry Contacts)	20 to 14AWG 600V Copper Wire

## Wiring Sizes & Wiring Technical Characteristics

All Wire is 600V MTW Copper Wire  
Main Disconnect Switch to Power Distribution Block: 2/0AWG ... 10AWG based on Panel FLA  
Motor Supply Wire from Q1 .. Q4: 8AWG .. 14AWG based on FLA of Motor  
A-Y-B Cable for GENIbus connection: 3 x 18AWG 600V Shielded Cable

### Wire Color

BLU	+12/24VDC Power	BLUE
BLU/WHT	-12/24VDC Power	Blue/White
BLK	115VAC Primary Power	Black
WHT	115VAC Neutral	White
GRN/YEL	Ground/PE	Green/Yellow
ORG	Analog Inputs	Orange
ORG	Analog Outputs	Orange
PUR	Digital Inputs	Purple
PUR/WHT	Grounded for Digital Input	Purple/White
YEL	Digital Output	Yellow
BRN	All Other Wiring	Brown

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LC 241 1x1-5A DOL 3x208/230/460 PO

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General Information

Page Number 3

Number of Pages 12

Change Note

Date

Name

Branch Circuit Protection Device/Disconnect Means  
Field Provided - Size per manufacturing specifications  
for Pump/Motor

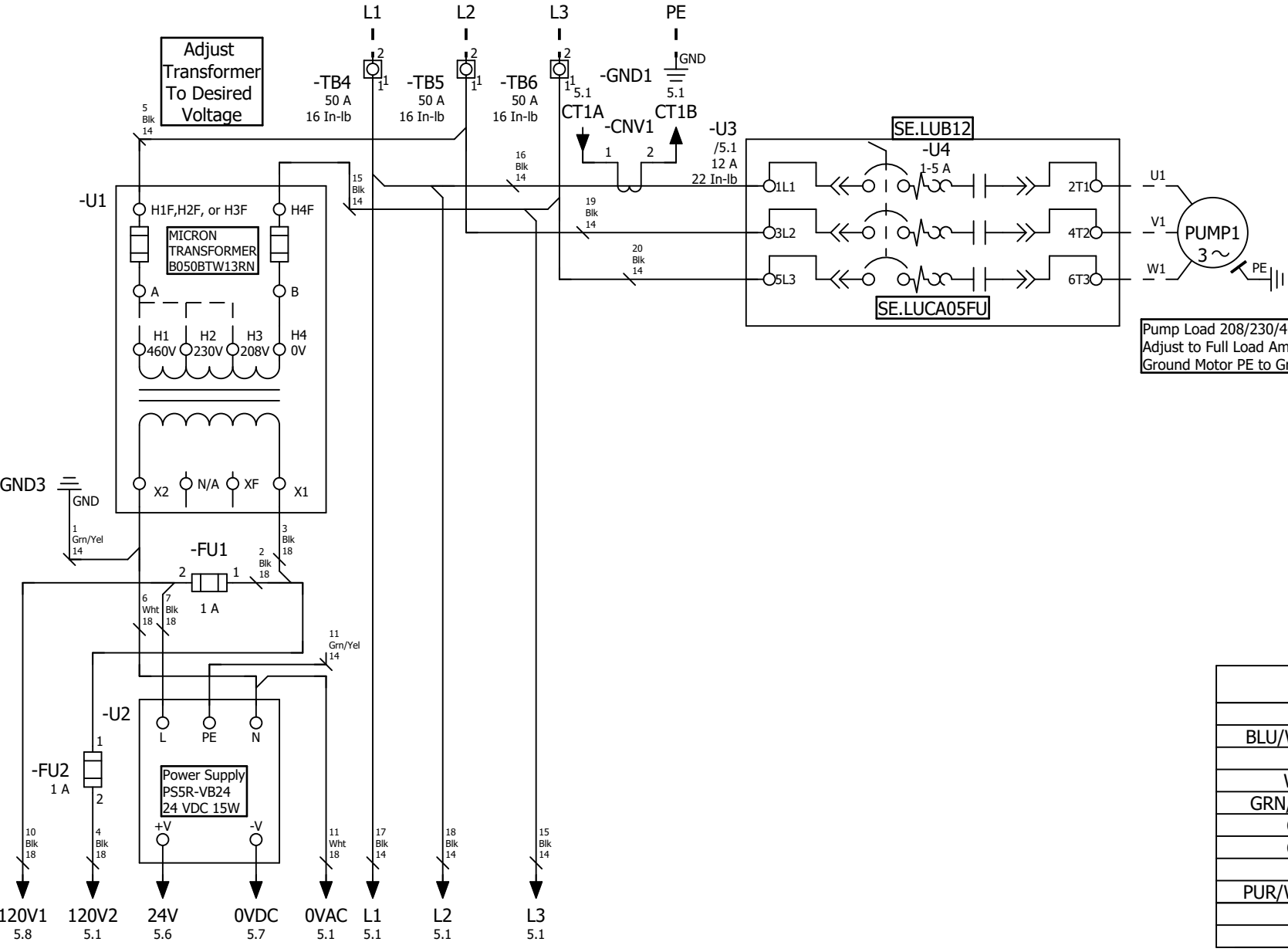
FU1 & FU2 FUSE MUST BE REPLACED WITH  
1 AMP 5mmx20mm FAST ACTING 250V MAX

# Legend

- - -	Field Wiring
.....	Field Supplied
SW1	Test/Silence
LT	Beacon
B	Buzzer
CR	Control Relay
GND	Ground Lug
TB	Terminal Block
PLC	Grundfos PLC
U1	Power Supply
U2	Power Supply
U3-U5	Lub Starter
HMI	HMI Interface

Power: 208/230/460 VAC 60 Hz

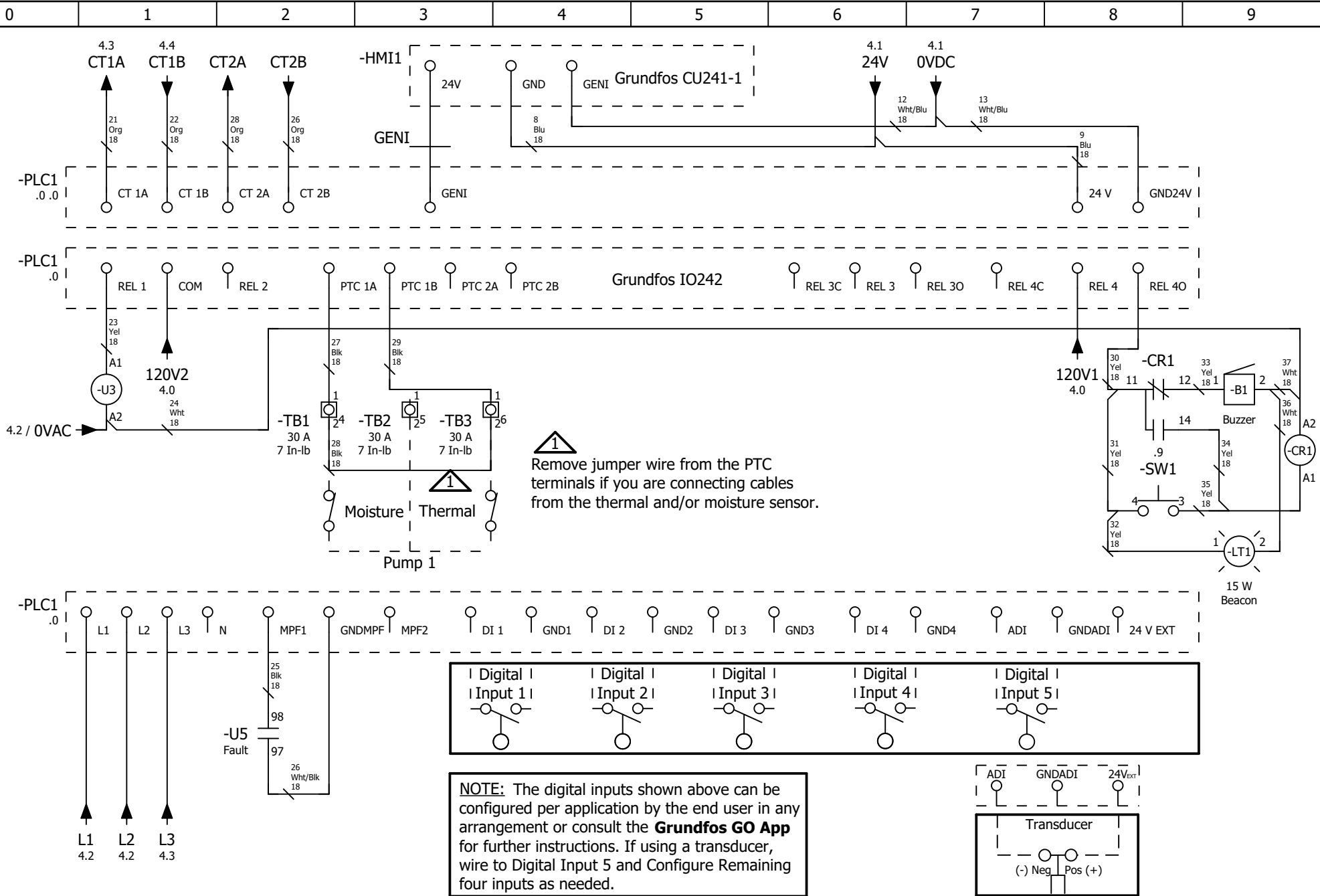
Adjust  
Transformer  
To Desired  
Voltage



Pump Load 208/230/460 VAC 60 Hz 1-5 A  
Adjust to Full Load Amperes of Motor  
Ground Motor PE to Ground Lug

Wire Color	
BLU	+12/24VDC Power
BLU/WHT	-12/24VDC Power
BLK	115VAC Primary Power
WHT	115VAC Neutral
GRN/YEL	Ground/PE
ORG	Analog Inputs
ORG	Analog Outputs
PUR	Digital Inputs
PUR/WHT	Grounded for Digital Input
YEL	Digital Output
BRN	All Other Wiring

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			Date	12/4/2018	99612799		Replacement of	Replaced By	Page Number	4
			Revision	005					Number of Pages	12



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			Drafter	JS	99612799		Replacement of	Replaced By	Page Number	5
			Approved	BK					Number of Pages	12
			Revision	005						

# Summarized Parts List

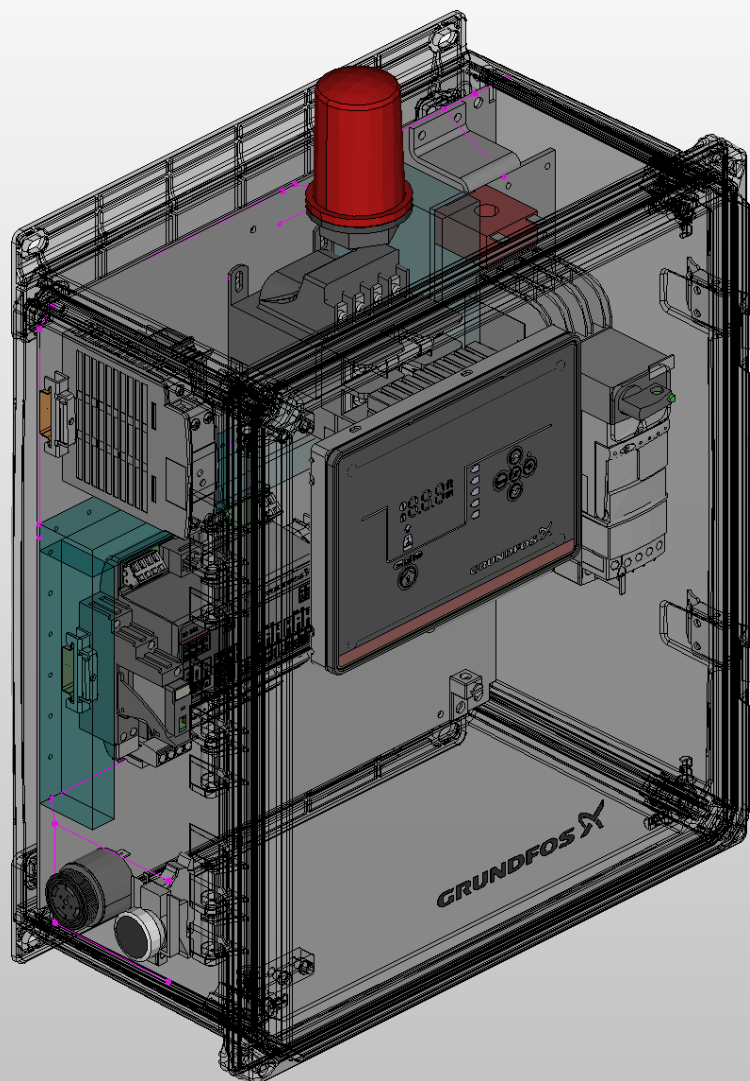
Device Tag	Quantity	Length (In)	Part Description	ERP #	Manufacturer	Part Number
	5	29 In	Wire, 14 AWG, MTW, STR, Black 600V		IEWC	1015/14B19-0
	4	29 In	Wire, 18 AWG, MTW, STR, White 600V		IEWC	1015/18B16-9
	5	31 In	Wire, 18 AWG, MTW, STR, Yellow 600V		IEWC	1015/18B16-4
	5	71 In	Wire, 18 AWG, MTW, STR, Red 600V		IEWC	1015/18B16-1
	2		Wire, 18 AWG, MTW, STR, White/Blue 600V		IEWC	1015/18B16-9
	2	12 In	Wire, 18 AWG, MTW, STR, Blue 600V		IEWC	1015/18B16-3
	4	47 In	Wire, 18 AWG, MTW, STR, Black 600V		IEWC	1015/18B16-0
	1		Wire, 18 AWG, MTW, STR, White/Black 600V		IEWC	1015/160326-9
	2		Wire, 18 AWG, MTW, STR, Orange 600V		IEWC	1015/18B16-5
-1	1		Pilot, Pushbutton Operator		Schneider Electric	ZB4BA2
-2	1		Collar, Pilot		Schneider Electric	ZB4BZ009
-3	1		Label, Grundfos Panel, 250mm		SMT Graphics	1002608
-6	1		Phase Seperator Lub		Schneider Electric	LU9SP0
-7...-10;-12;-13;-15	9		Din Rail, End Stop		IDEC	BNL-5
-11;-14	2		Block, End Barrier,30/50/65A,SE		Schneider Electric	NSYTRAC22
-116	1		Bracket ,Standoff, DaYu,3P,LUB		Alderon	1002607
-AUX1	1		Relay, S.E. Int, MF, 120V, SPDT		Schneider Electric	RXG11F7
-AUX1	1		Relay SE, 1 Pole Socket		Schneider Electric	RGZE1S35M
-AUX1	1		Relay, S.E. Int, Label Plate		Schneider Electric	RSZL300
-B1	1		Motor protector ,Buzzer,120V,Warble,95DB		Ingram	PB-120A
-BP2	1		Inner Door, DaYu, 16"x14"Simplex		Alderon	1002600
-BP3	1		Backplate, Grundfos, DaYu, 16X14		Alderon Industries	1003899
-CNV1	2		Transformer Current, SIRIO, 152035		SIRIO	DT152035-2303
-DIN1;-DIN2	2	12.521	Rail Din, Steel, Low		Wago	210-112
-ENCL1	1		Enclosure, Integra, Premium, 16x14x7		Integra Enclosures	H161407HLL
-FU1;-FU2	2		Terminal box Fuse, SE		Schneider Electric	NSYTRV42SF5
-FU1;-FU2	4		Fuse, 5mm X 20mm, 1A		Littlefuse	F2677-ND
-FU4;-FU5	2		Fuse, Primary, FNQR, 0.5A		Bussmann	FNQR-1/2
-GND1	1		Lug, Ground		Burndy	KA6U
-HMI1	1		HMI, CU241-1 Grundfos		Grundfos	CU241-1
-LT1	1		Beacon, 15W, One Hole, Red		AC/DC	R15-MB
- PARTS	1		Label, Grundfos, DaYu, 1Pump		SMT Graphics	1002906
- PARTS	1		Label, Grundfos, DaYu, TB, S12A, 460V		SMT Graphics	1002910
- PARTS	1		Kit, Label ,Grundfos, DaYu, Alm, P1, P2		SMT Graphics	1002905
- PARTS	2		Label , Laminated Schematics		Alderon	1001997
- PARTS	1		Label Ratings		AWT Labels &	1003595
- PARTS	1		Label Conduit		AWT Labels &	1000122
- PARTS	1		I and O instructions , Print Package			1003594
- PARTS	12		Screw Phillips ,6x1/2, Self Drill		B & F Fastener Supply	PTEKF2 006 0050 PH
- PARTS	8		Screw Phillips, 6x3/4, Self Drill		B & F Fastener Supply	D6-075PSDZ
- PARTS	8		Screw Hex, 8x1/2, Self Drill		B & F Fastener Supply	HTEKF2 008 0050
- PARTS	2		Screw Pan,10-32x1/2,Phillip,TC		B & F Fastener Supply	PTCSF 102 0050 PH
- PARTS	1		Label UL 508, USA and Canada		Underwriters	508-S1844

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			Drafter	JS	99612799		Page Number	6	
			Approved	BK	Replacement of		Replaced By	Number of Pages	12

# Summarized Parts List

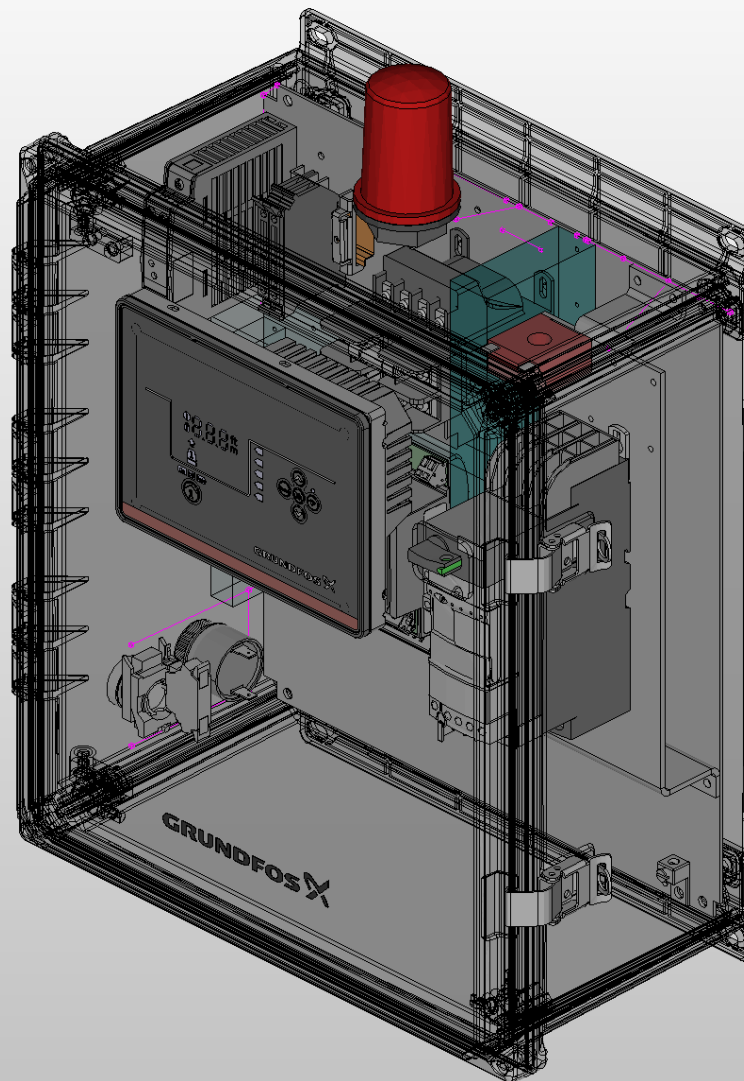
Device Tag	Quantity	Length (In)	Part Description	ERP #	Manufacturer	Part Number
- PARTS	1		Carton, 26 x 20 x 14		U-Line	S-18371
- PARTS	1		Enclosure , Inner Door Hinge Kit		Integra Enclosures	USOPK-G
- PARTS	1		Connect Cable, Grundfos Genie		Grundfos	1003520
-PLC1	1		IO242 Basic		Grundfos	IO242
-SW1	1		Contact Block Pilot, NO		Schneider Electric	ZBE1015
-TB1...-TB3	3		Terminal Block 30A, SE		Schneider Electric	NSYTRV42
-TB4...-TB6	3		Terminal Block 50A, SE		Schneider Electric	NSYTRV62
-U1	1		Transformer 50VA,208/230/460:120		Micron	B050MBT13RN
-U2	1		Power Supply, IDEC, 24 VDC,15W		IDEC	PS5R-VB24
-U3	1		Motor Starter Tele, LUB12		Schneider Electric	LUB12
-U4	1		Motor Starter Overload,LUCA05, 1-5A		Schneider Electric	LUCA05FU
-U5	1		Motor Starter Tele, Aux. Cont, LU		Schneider Electric	LUA1C20
-WD1;-WD3	2	14.771	Duct, Wire, 0.5" x 1.5", WHT		Canalplast	L0515G
-WD4	1	5.731	Duct, Wire, 1" x 3", WHT		Canalplast	H13W

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				Drafter	JS		99612799	Page Number	7	
				Approved	BK		Replacement of	Replaced By	Number of Pages	12
				Revision	005					



Enclosure

7



Enclosure

9

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LC 241 1x1-5A DOL 3x208/230/460 PO

99612799

Replacement of

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Enclosure

Page Number 8

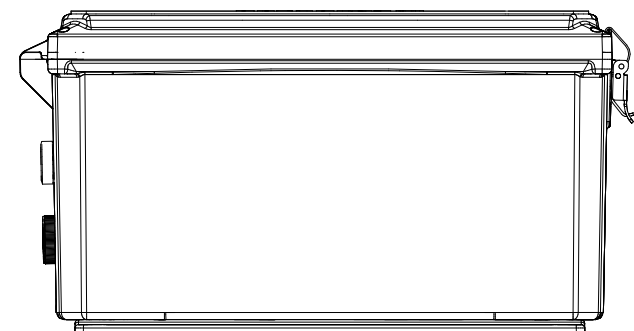
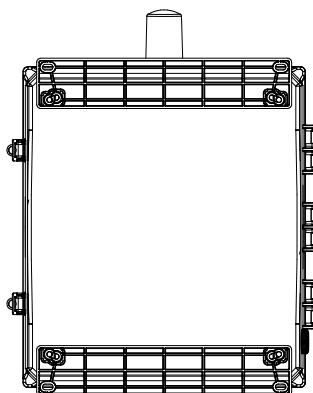
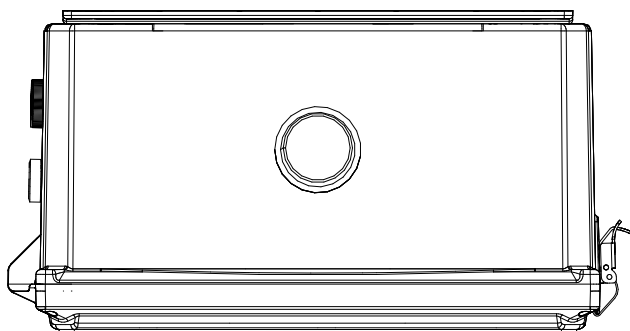
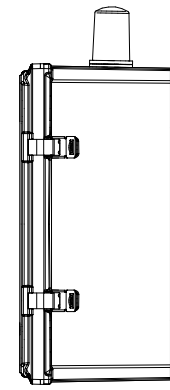
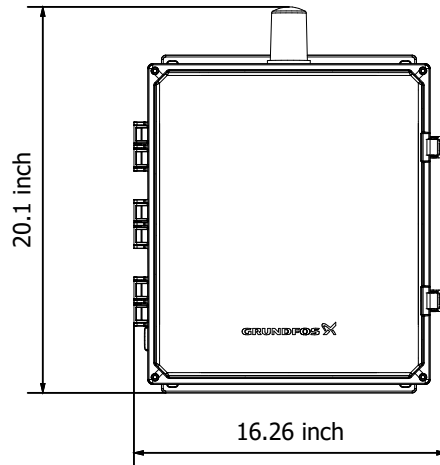
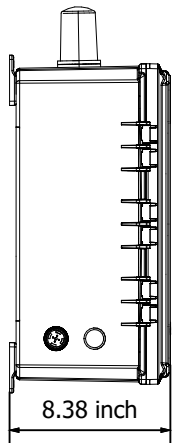
Number of Pages 12

Change Note

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LC 241 1x1-5A DOL 3x208/230/460 PO

99612799

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Enclosure Perspective

Page Number 9

Number of Pages 12

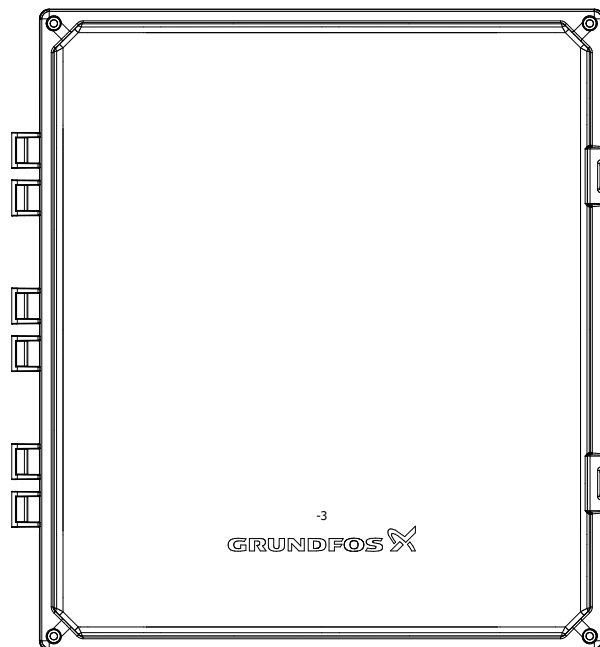
Change Note

Date

Name

# Enclosure legend

Device tag	Description
ENCL1	
3	Label, Grundfos Panel, 250mm



Door Layout

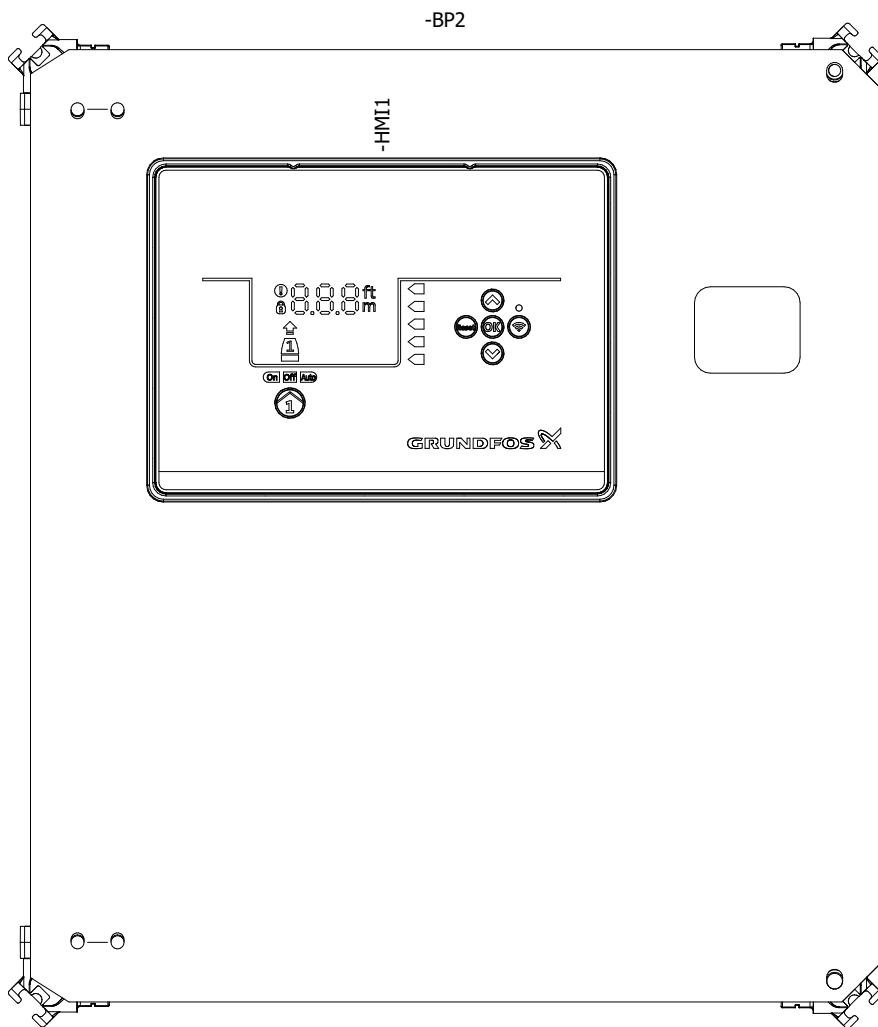
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11

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				Drafter	JS		99612799	Page Number	10
Change Note	Date	Name		Approved	BK		Replacement of	Replaced By	Number of Pages
				Revision	005				

# Enclosure legend

Device tag	Description
BP2	Inner Door, DaYu, 16"x14" Simplex
HMI1	HMI, CU241-1 Grundfos



Mounting Panel Layout

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99612799

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Mounting Panel Layout

Page Number

11

Number of Pages

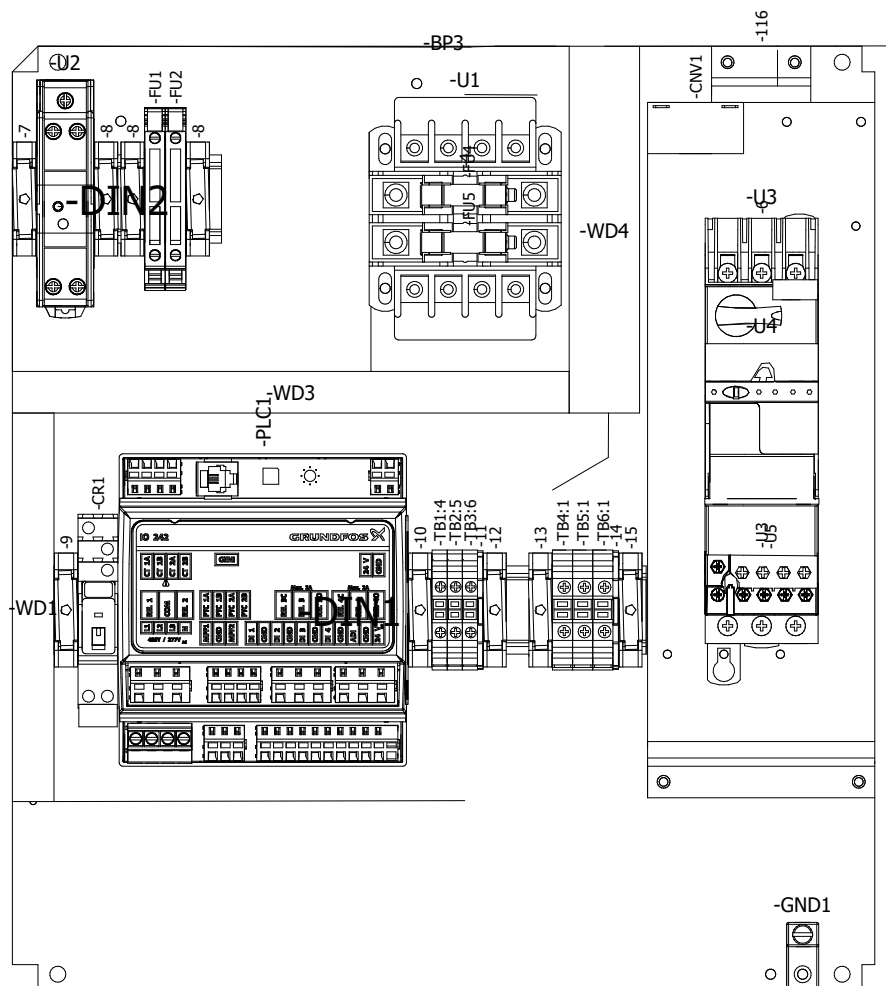
12

Change Note

Date

Name

# Enclosure legend



Device tag	Description
DIN1	Rail Din, Steel, Low
WD1	Duct, Wire, 0.5" x 1.5", WHT
9	Din Rail, End Stop
15	Din Rail, End Stop
U1	Transformer 50VA,208/230/460:120
4	
FU4	Fuse, Primary, FNQR, 0.5A
FU5	Fuse, Primary, FNQR, 0.5A
DIN2	Rail Din, Steel, Low
7	Din Rail, End Stop
8	Din Rail, End Stop
8	Din Rail, End Stop
8	Din Rail, End Stop
U2	Power Supply, IDEC, 24 VDC,15W
CNV1	Transformer Current, SIRIO, 152035
GND1	Lug, Ground
U3	Motor Starter Tele, LUB12
U3	
U3	
U4	Motor Starter Overload,LUCA05, 1-5A
6	Phase Sperator Lub
U5	Motor Starter Tele, Aux. Cont, LU
14	Block, End Barrier,30/50/65A,SE
10	Din Rail, End Stop
TB1	Terminal Block 30A, SE
TB2	Terminal Block 30A, SE
TB3	Terminal Block 30A, SE
TB4	Terminal Block 50A, SE
TB5	Terminal Block 50A, SE
TB6	Terminal Block 50A, SE
11	Block, End Barrier,30/50/65A,SE
13	Din Rail, End Stop
FU1	Fuse 5mm x 20mm, 1 Amp
FU2	Fuse 5mm x 20mm, 1 Amp
PLC1	IO242 Basic
12	Din Rail, End Stop
BP3	Backplate, Grundfos, DaYu, 16X14
WD3	Duct, Wire, 0.5" x 1.5", WHT
WD4	Duct, Wire, 1" x 3", WHT
116	Bracket ,Standoff, DaYu, 3P, LUB

Mounting Panel Layout

11

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				Drafter	JS		99612799	Page Number	12
Change Note	Date	Name		Approved	BK		Replacement of	Replaced By	Number of Pages
				Revision	005				