

GRUNDFOS



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

Wiring Diagram

Application: Pump Control
Product: LC 241 2x1-5A.DOL 3x208/230/460 PO
Product number: 99612816

Rated voltage: 208/230/460 V
Rated operational voltage: 208/230/460 VAC
Rated current: 10 A
Rated current of auxiliary circuit: 0.5 A
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: 2
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.

Change Note	Date	Name	NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO	Cover Sheet	
			Drafter	JS	Page Number			1	
			Approved	BK	99612816			Number of Pages	12
			Revision	005	Replacement of				

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	10.5 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

NOTE:
This drawing and its
content is the property of
GRUNDFOS. It may not
be copied for third
parties or competitors.
Changes are only to
be made by GRUNDFOS.

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

GRUNDFOS 

LC 241 2x1-5A.DOL 3x208/230/460 PO

99612816

Replacement of

Replaced By

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

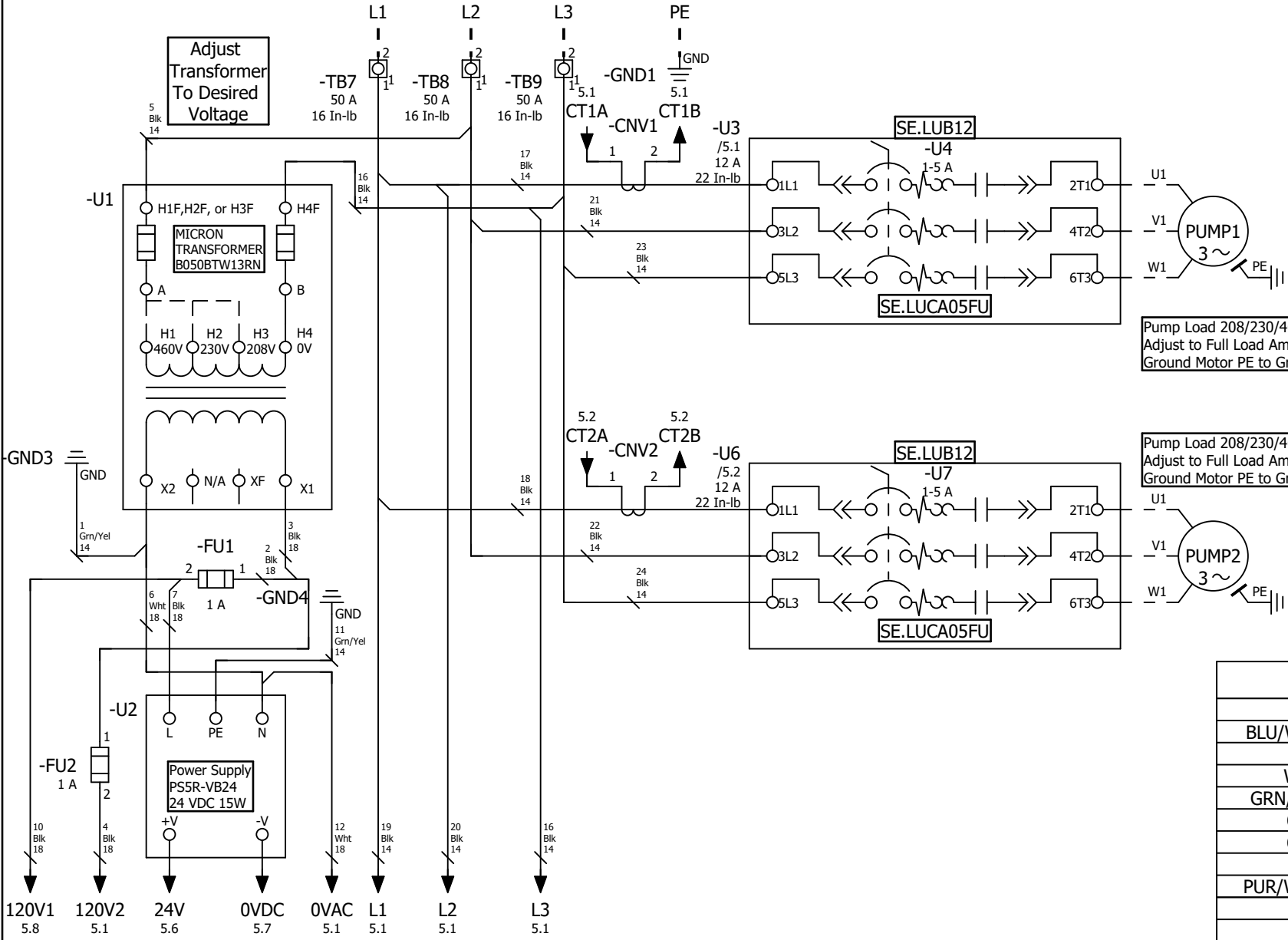
FU1 & FU2 FUSE MUST BE REPLACED WITH
1 AMP 5mmx20mm FAST ACTING 250V MAX

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-U8	Lub Starter
HMI	HMI Interface

Power: 208/230/460 VAC 60 Hz

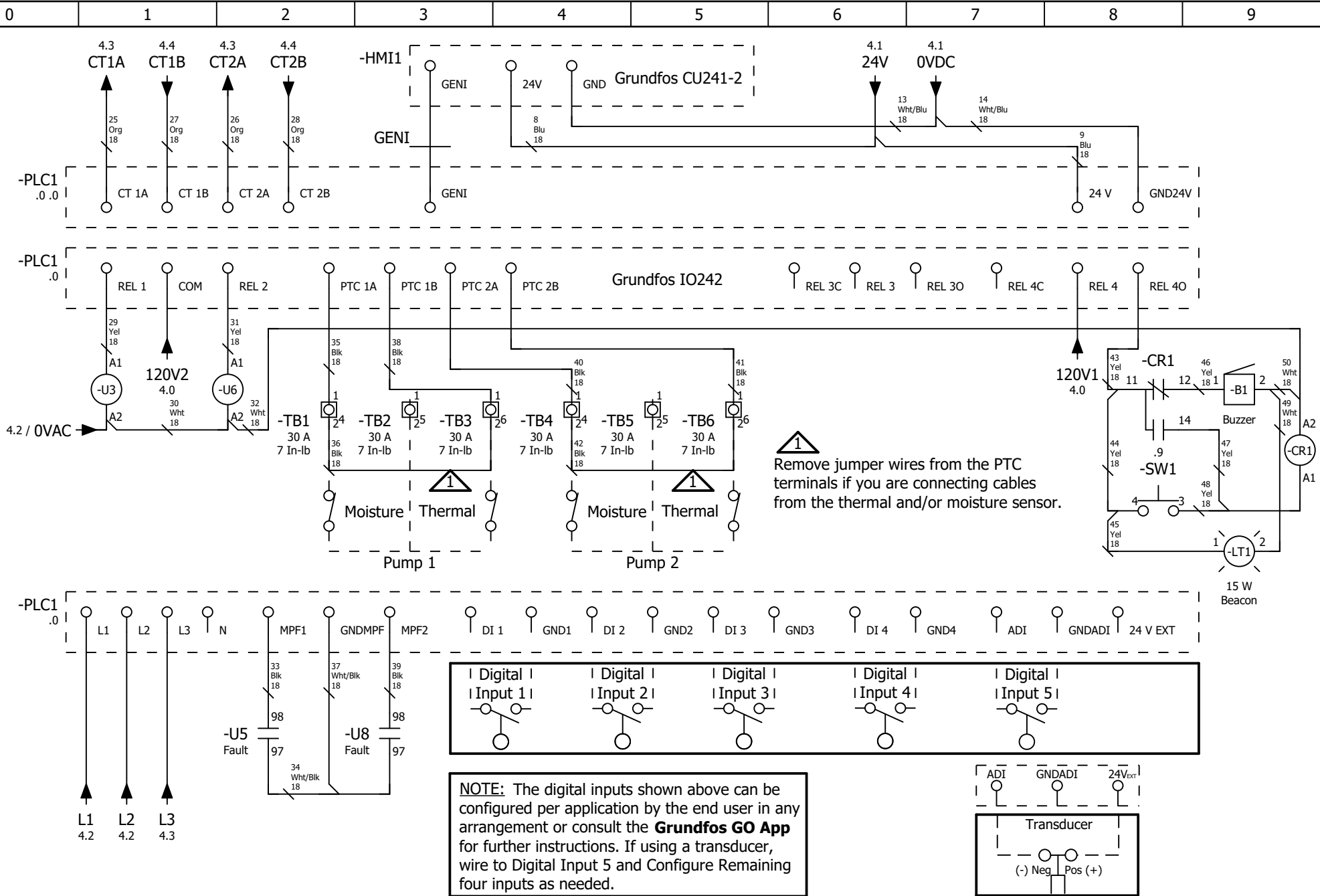
Adjust
Transformer
To Desired
Voltage



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

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



Change Note	Date	Name	NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO	Control Circuit		
			Drafter	JS	99612816		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
	8	29 In	Wire, 14 AWG, MTW, STR, Black 600V		IEWC	1015/14B19-0
	6	29 In	Wire, 18 AWG, MTW, STR, White 600V		IEWC	1015/18B16-9
	2		Wire, 18 AWG, MTW, STR, White/Black 600V		IEWC	1015/160326-9
	8	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	31 In	Wire, 18 AWG, MTW, STR, Blue 600V		IEWC	1015/18B16-3
	2	19 In	Wire, 18 AWG, MTW, STR, White/Blue 600V		IEWC	1015/18B16-9
	2	10 In	Wire, 14 AWG, MTW, STR, Green/Yellow		IEWC	1015/14B19-24E
	8	97 In	Wire, 18 AWG, MTW, STR, Black 600V		IEWC	1015/18B16-0
	4		Wire, 18 AWG, MTW, STR, Orange 600V		IEWC	1015/18B16-5
-2	1		Pilot, Pushbutton Operator		Schneider Electric	ZB4BA2
-3	1		Collar, Pilot		Schneider Electric	ZB4BZ009
-4	1		Label, Grundfos Panel, 250mm		SMT Graphics	1002608
-7;-8	2		Phase Seperator Lub		Schneider Electric	LU9SP0
-10...-13;-15;-17	8		Rail Din, End Stop		IDEC	BNL-5
-14;-16	2		Block, End Barrier,30/50/65A,SE		Schneider Electric	NSYTRAC22
-116	1		Bracket ,Standoff, DaYu, 3P, LUB		Alderon	1002607
-B1	1		Motor protector ,Buzzer,120V,Warble,95DB		Ingram	PB-120A
-BP2	1		Door Inner, DaYu, 16x14 Duplex		Alderon	1002601
-BP4	1		Backplate, Grundfos, DaYu, 16X14		Alderon Industries	1003899
-CNV1;-CNV2	2		Transformer Current, SIRIO, 152035		SIRIO	DT152035-2303
-CR1	1		Relay, S.E. Int, MF, 120V, SPDT		Schneider Electric	RXG11F7
-CR1	1		Relay SE, 1 Pole Socket		Schneider Electric	RGZE1S35M
-CR1	1		Relay, S.E. Int, Label Plate		Schneider Electric	RSZL300
-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;-GND2	2		Lug, Ground		Burndy	KA6U
-HMI1	1		CU241-2 (LCD)		Grundfos	CU241-2
-LT1	1		Beacon, 15W, One Hole, Red		AC/DC	R15-MB
- PARTS	1		Enclosure , Inner Door Hinge Kit		Integra Enclosures	USOPK-G
- PARTS	1		Kit, Label ,Grundfos, DaYu, Alm, P1, P2		SMT Graphics	1002905
- PARTS	1		Label , Laminated Schematics		Alderon	1001997
- PARTS	1		Label Ratings		AWT Labels &	1003595
- PARTS	1		Label Conduit		AWT Labels &	1000122
- 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	1		Label UL 508, USA and Canada		Underwriters	508-S1844
- PARTS	1		Label, Grundfos, DaYu, 3P, 2Pump		SMT Graphics	1002907
- PARTS	1		Label, Grundfos, DaYu, Tb, D12A, 460V		SMT Graphics	1002911

Change Note	Date	Name	NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO	Summarized Parts List	
			Drafter	JS	99612816		Page Number	6	
			Approved	BK	Replacement of		Replaced By	Number of Pages	12
			Revision	005					

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		Motor Starter Overload,LUCA05, 1-5A		Schneider Electric	LUCA05FU
- PARTS	1		Connect Cable, Grundfos Genie		Grundfos	1003520
- PARTS	1		I and O instructions , Print Package			1003594
- PARTS	2		Screw Pan,10-32x1/2,Phillip,TC		B & F Fastener Supply	PTCSF 102 0050 PH
-PLC1	1		IO242 Basic		Grundfos	IO242
-SW1	1		Contact Block Pilot, NO		Schneider Electric	ZBE1015
-TB1...-TB6	6		Terminal Block 30A, SE		Schneider Electric	NSYTRV42
-TB7...-TB9	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;-U6	2		Motor Starter Tele, LUB12		Schneider Electric	LUB12
-U5;-U8	2		Motor Starter Tele, Aux. Cont, LU		Schneider Electric	LUA1C20
-WD1;-WD4	2	14.771	Duct, Wire, 0.5" x 1.5", WHT		Canalplast	L0515G
-WD5	1	5.731	Duct, Wire, 1" x 3", WHT		Canalplast	H13W

NOTE:
This drawing and its
content is the property of
GRUNDFOS. It may not
be copied for third
parties or competitors.
Changes are only to
be made by GRUNDFOS.

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



LC 241 2x1-5A.DOL 3x208/230/460 PO

99612816

Replacement of

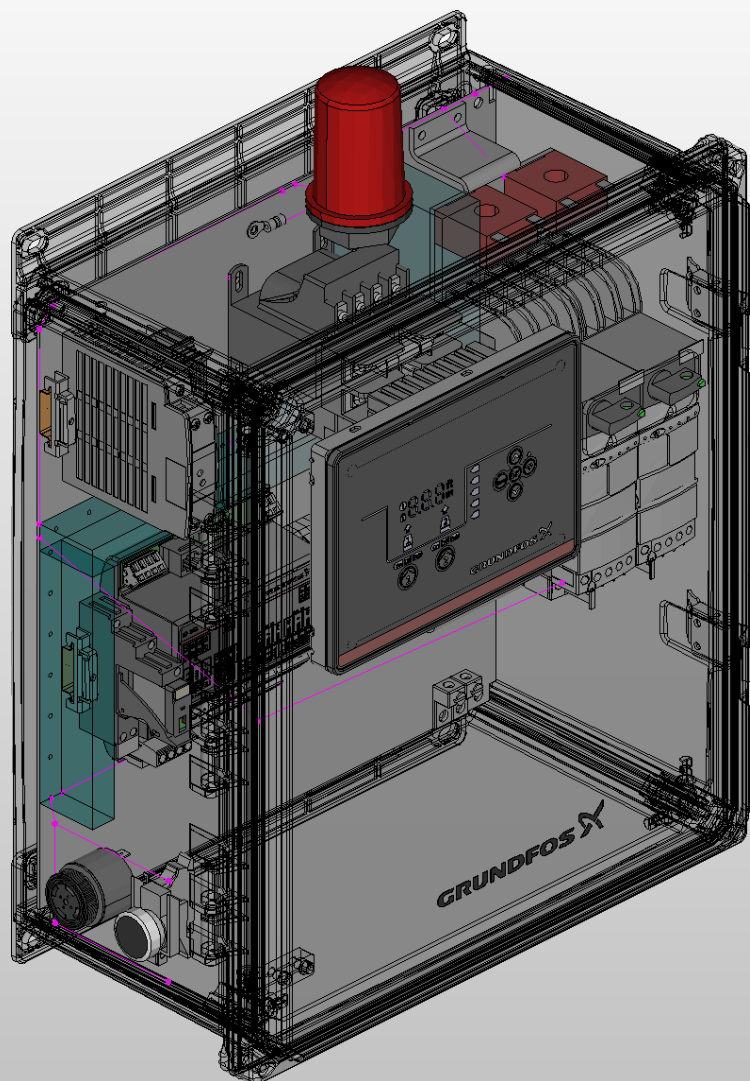
Replaced By

Summarized Parts List

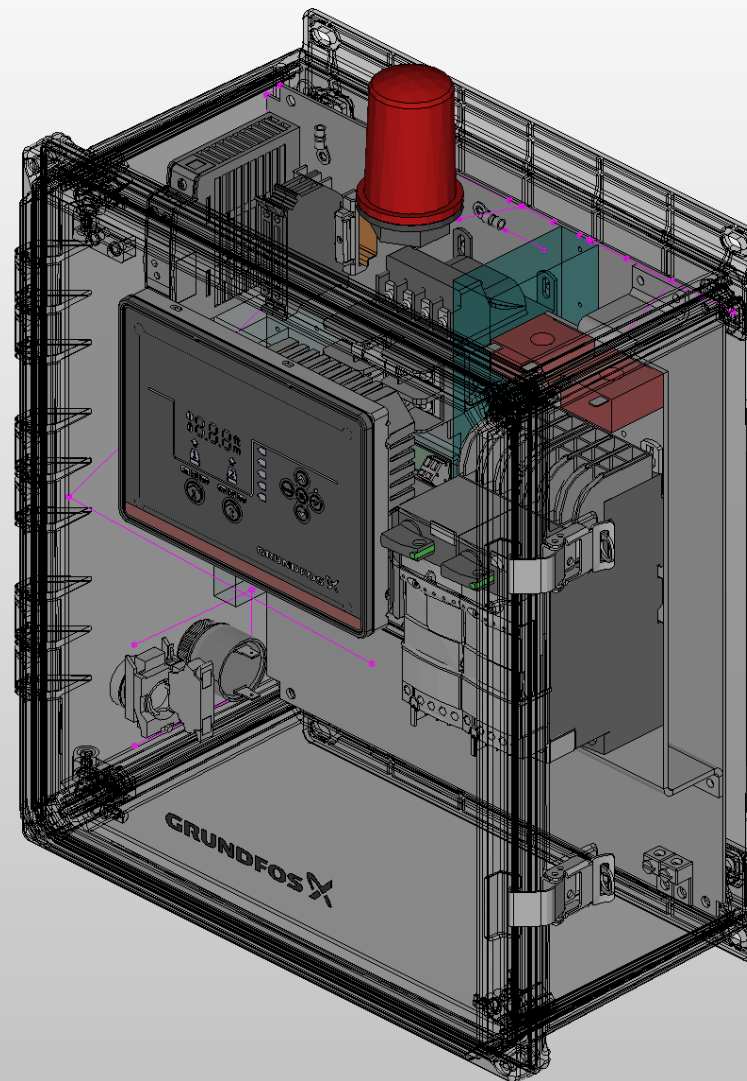
Page Number 7

Number of Pages 12

Change Note Date Name



Enclosure

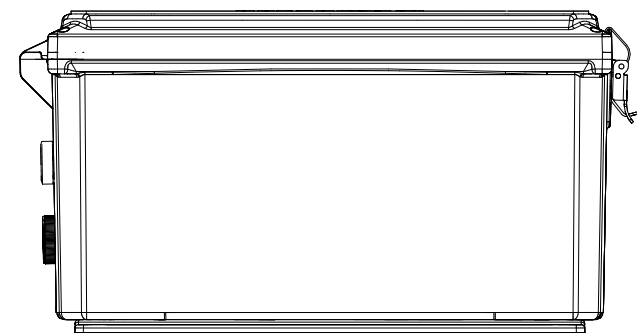
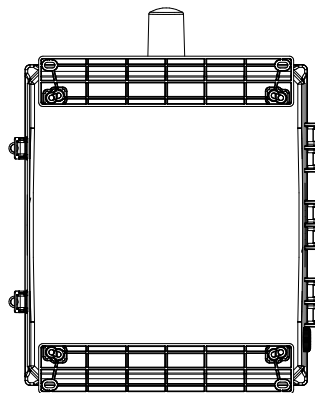
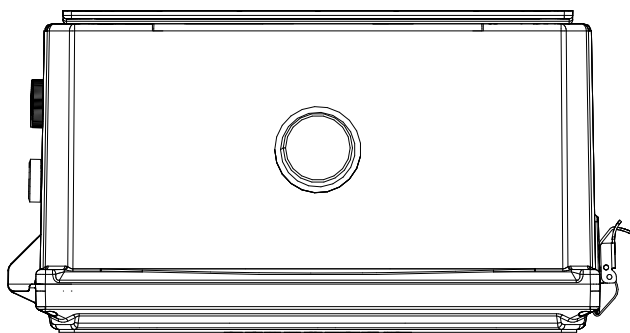
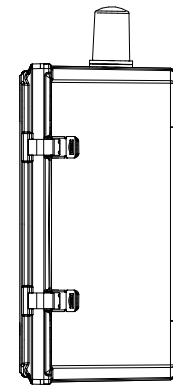
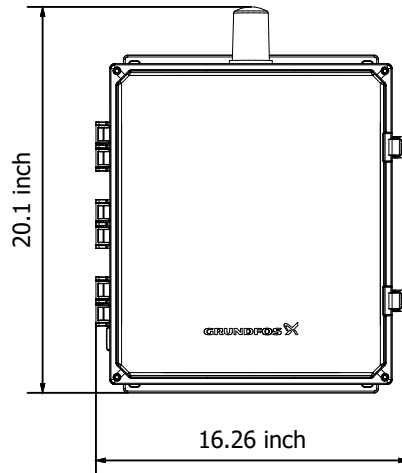
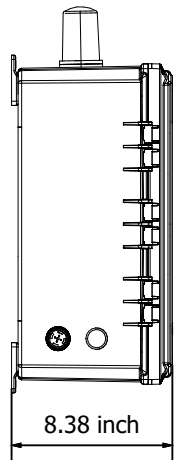


Enclosure

7

9

			NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO		Enclosure		
				Drafter	JS		99612816	Replacement of	Replaced By	Page Number	8
Change Note	Date	Name		Approved	BK					Number of Pages	12
				Revision	005						



NOTE:
This drawing and its
content is the property of
GRUNDFOS. It may not
be copied for third
parties or competitors.
Changes are only to
be made by GRUNDFOS.

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



LC 241 2x1-5A.DOL 3x208/230/460 PO

99612816

Replacement of

Replaced By

Enclosure Perspective

Page Number 9

Number of Pages 12

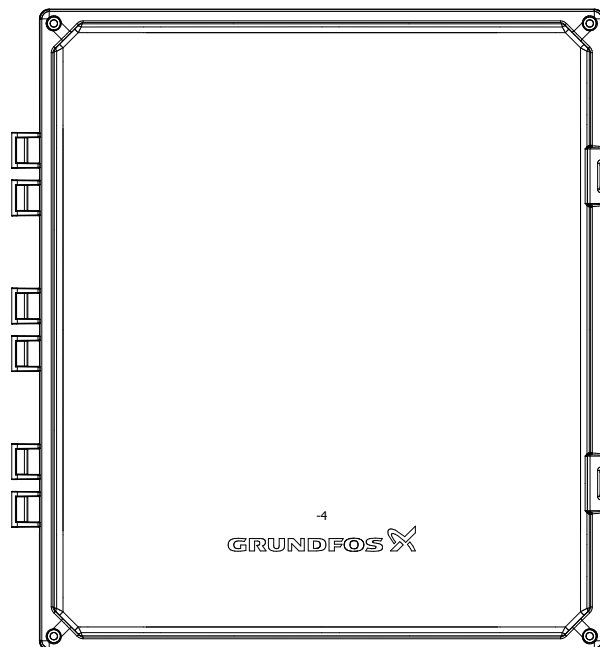
Change Note

Date

Name

Enclosure legend

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



Door Layout

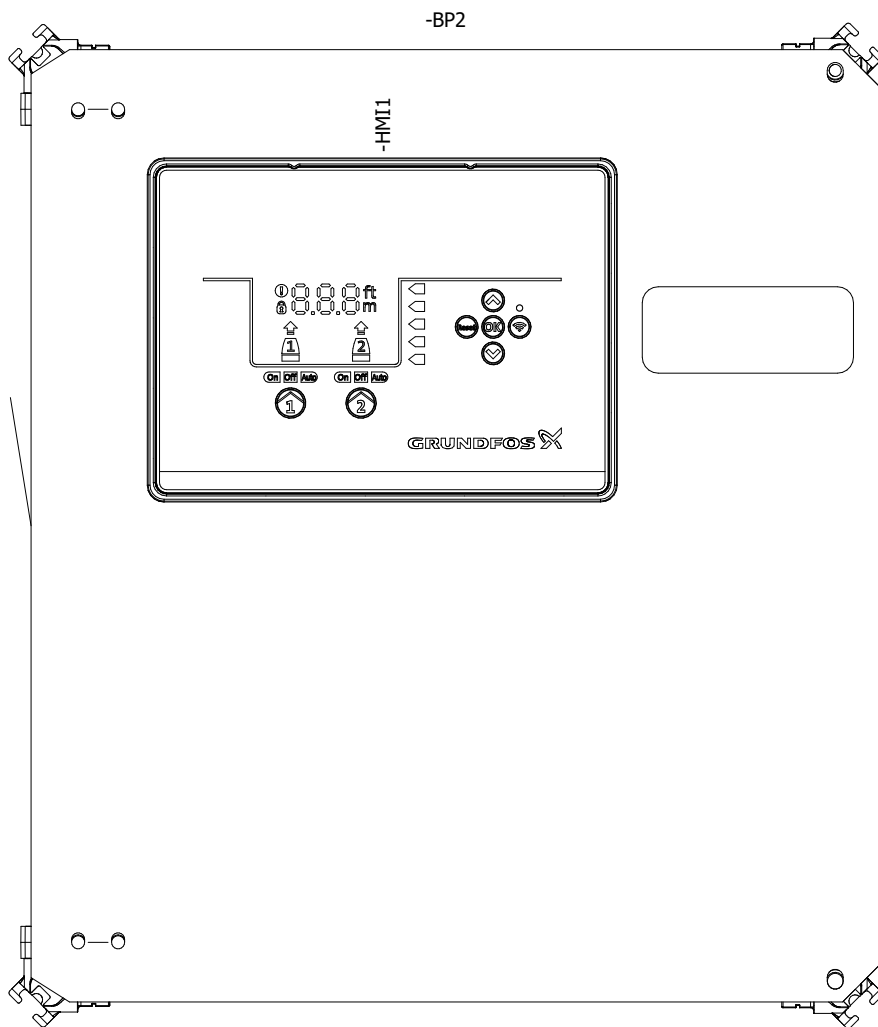
9

11

			NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO	Door Layout	
				Drafter	JS		99612816	Page Number	10
Change Note	Date	Name		Approved	BK		Replacement of	Replaced By	Number of Pages
				Revision	005				

Enclosure legend

Device tag	Description
BP2	Door Inner, DaYu, 16x14 Duplex
HMI1	CU241-2 (LCD)



Mounting Panel Layout

NOTE:
This drawing and its
content is the property of
GRUNDFOS. It may not
be copied for third
parties or competitors.
Changes are only to
be made by GRUNDFOS.

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

GRUNDFOS 

LC 241 2x1-5A.DOL 3x208/230/460 PO

99612816

Replacement of

Replaced By

Mounting Panel Layout

Page Number

11

Number of Pages

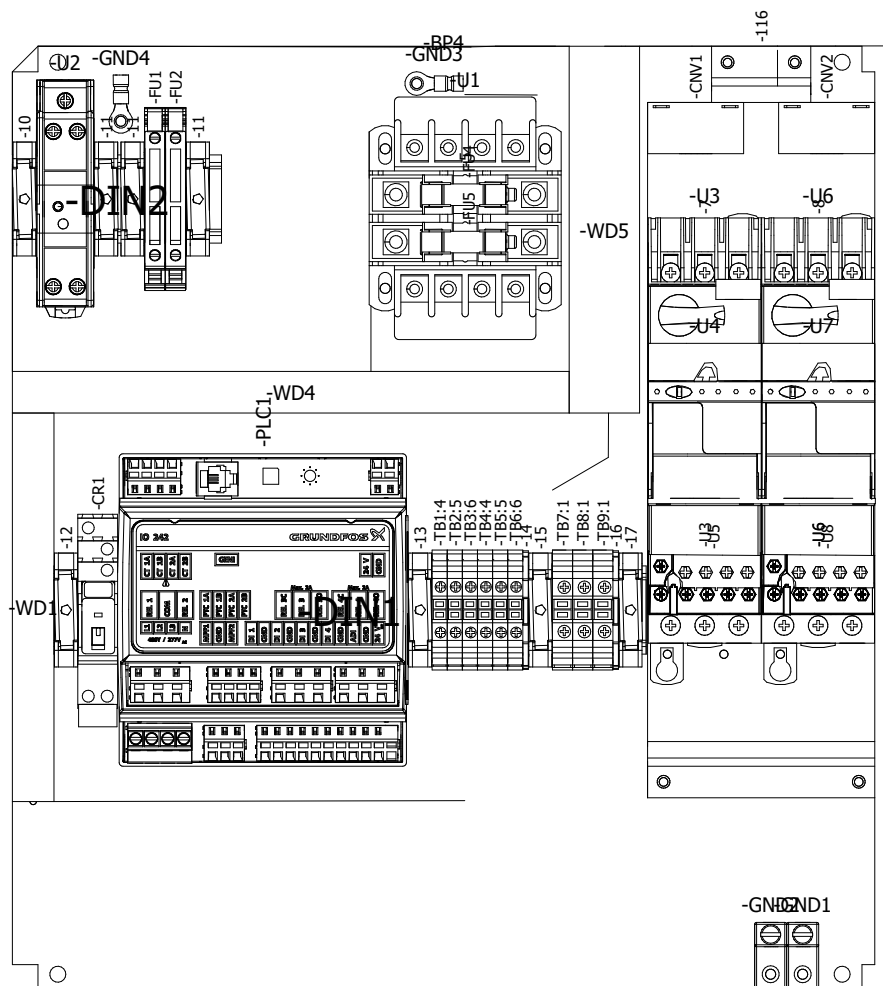
12

Change Note

Date

Name

Enclosure legend



Device tag	Description
DIN1	Rail Din, Steel, Low
WD1	Duct, Wire, 0.5" x 1.5", WHT
12	Rail Din, End Stop
17	Rail Din, End Stop
U1	Transformer 50VA,208/230/460:120
5	
FU4	Fuse, Primary, FNQR, 0.5A
FU5	Fuse, Primary, FNQR, 0.5A
DIN2	Rail Din, Steel, Low
10	Rail Din, End Stop
11	Rail Din, End Stop
11	Rail Din, End Stop
11	Rail Din, End Stop
U2	Power Supply, IDEC, 24 VDC,15W
CNV1	Transformer Current, SIRIO, 152035
CNV2	Transformer Current, SIRIO, 152035
GND1	Lug, Ground
GND2	Lug, Ground
U3	Motor Starter Tele, LUB12
U3	
U3	
U6	Motor Starter Tele, LUB12
U6	
U6	
U4	
U7	
7	Phase Separator Lub
8	Phase Separator Lub
U5	Motor Starter Tele, Aux. Cont, LU
U8	Motor Starter Tele, Aux. Cont, LU
16	Block, End Barrier,30/50/65A,SE
13	Rail Din, End Stop
TB1	Terminal Block 30A, SE
TB2	Terminal Block 30A, SE
TB3	Terminal Block 30A, SE
TB4	Terminal Block 30A, SE
TB5	Terminal Block 30A, SE
TB6	Terminal Block 30A, SE
TB7	Terminal Block 50A, SE
TB8	Terminal Block 50A, SE

Mounting Panel Layout

11

			NOTE: This drawing and its content is the property of GRUNDFOS. It may not be copied for third parties or competitors. Changes are only to be made by GRUNDFOS.	Date	12/4/2018		LC 241 2x1-5A.DOL 3x208/230/460 PO	Mounting Panel Layout	
				Drafter	JS		99612816	Page Number	12
Change Note	Date	Name		Approved	BK		Replacement of	Replaced By	Number of Pages
				Revision	005				