

# GRUNDFOS



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

## Wiring Diagram

Application: Pump Control  
Product: LC 241 1x1-5A.DOL.3x230/460/575 PO  
Product number: 99612802

Rated voltage: 230/460/575 V  
Rated operational voltage: 230/460/575 V  
Rated current: 5 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: 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.

			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 1x1-5A.DOL.3x230/460/575 PO	Cover Sheet	
				Drafter	JS		99612802	Page Number	1
Change Note	Date	Name		Approved	BK		Replacement of	Replaced By	Number of Pages
				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.**

Motor Horsepower	
Motor FLA	5 A
Panel Max FLA	5.5 A

**SCCR Rating: 10 kA**

## 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

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 1x1-5A.DOL.3x230/460/575 PO	General Information	
			Drafter	JS	99612802		Page Number	3	
			Approved	BK	Replacement of		Replaced By	Number of Pages	12
			Revision	005					

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

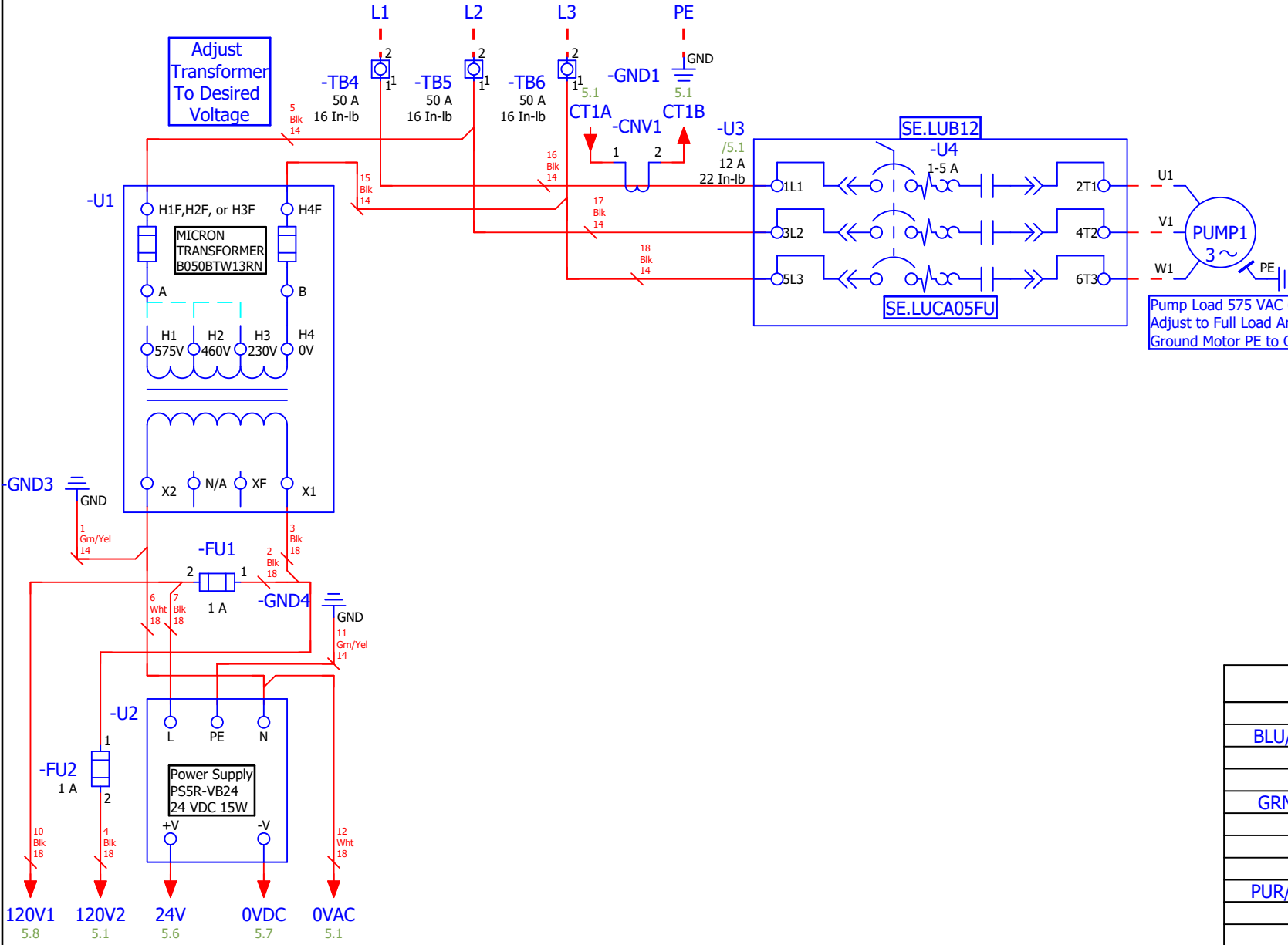
FU1 & FU2 FUSE MUST BE REPLACED WITH  
1 AMP 5mmx20mm FAST ACTING 250V MAX

# 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	Transformer
U2	Power Supply
U3-U5	Lub Starter
U6	Phase Loss relay
HMI	HMI Interface

Power: 230/460/575 VAC 60 Hz

Adjust  
Transformer  
To Desired  
Voltage



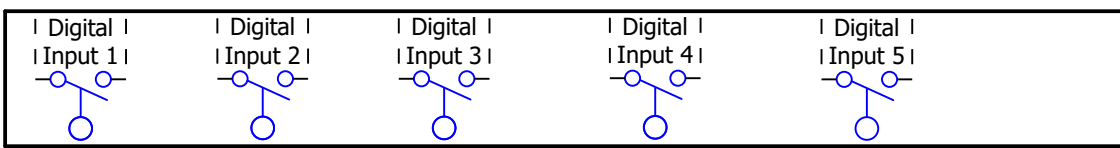
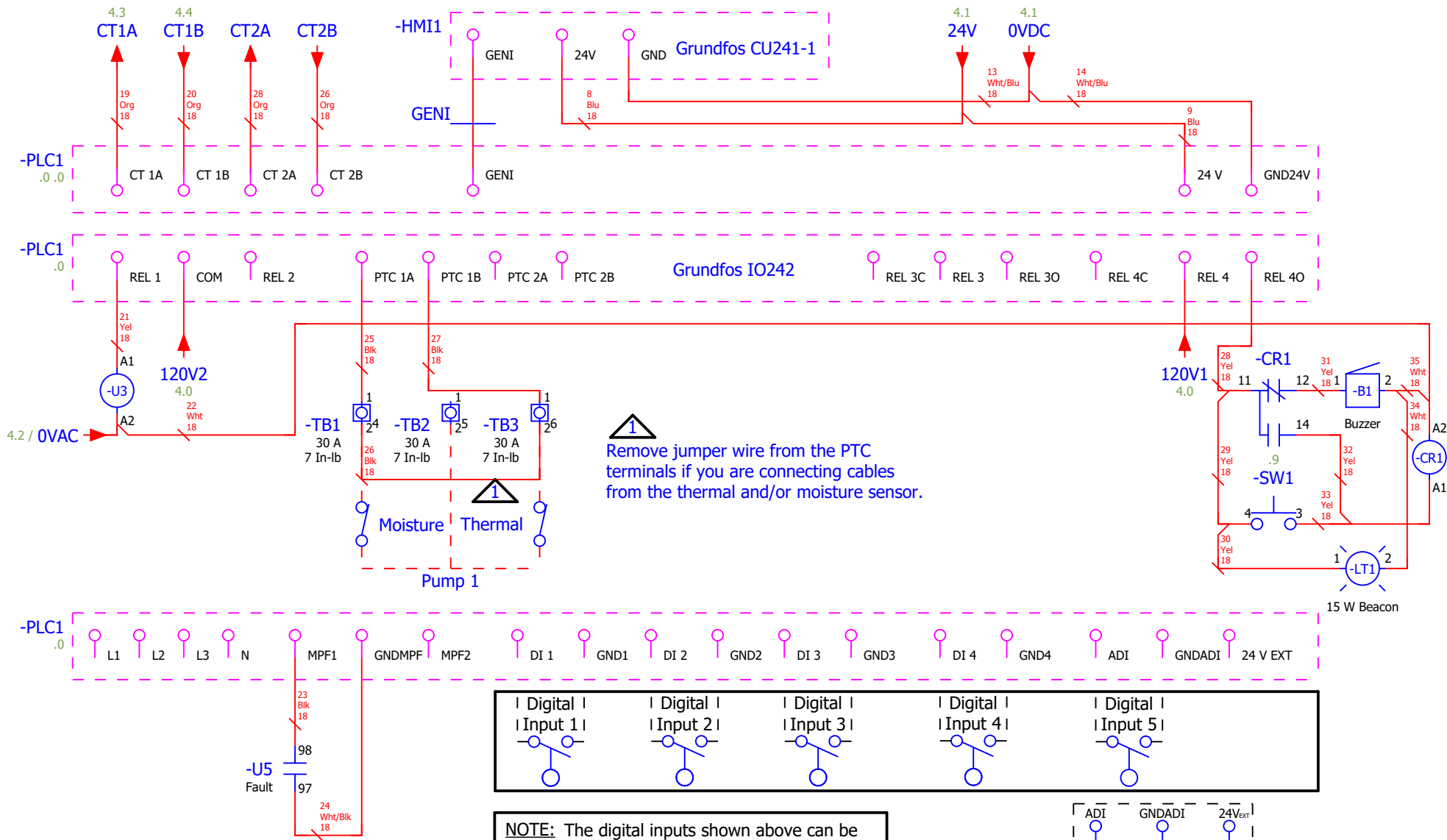
Pump Load 575 VAC 60 Hz 1-5 A  
Adjust to Full Load Amperes of Motor  
Ground Motor PE to Ground Lug

## Wire Color

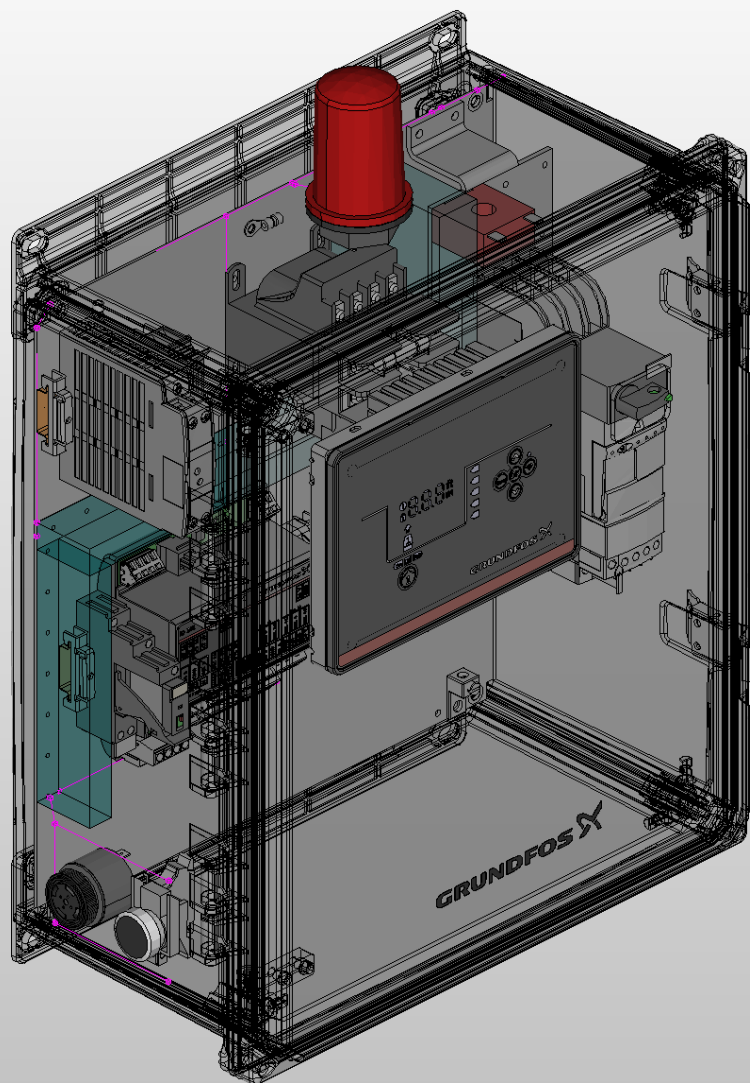
BLU	+12/24VDC Power
BLU/WHT	-12/24VDC Power
BLK	115VAC Primary Power
WHT	115VAC Neutral
GRN/YEL	Ground/PE
ORG	Analog Inputs
ORG	Analog Outputs
PUR	Digital Inputs
PUR/WHT	Grounded for Digital Input
YEL	Digital Output
BRN	All Other Wiring

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 1x1-5A.DOL.3x230/460/575 PO	Power Circuit		
			Date	12/4/2018	99612802		Replacement of	Replaced By	Page Number	4
			Revision	005					Number of Pages	12



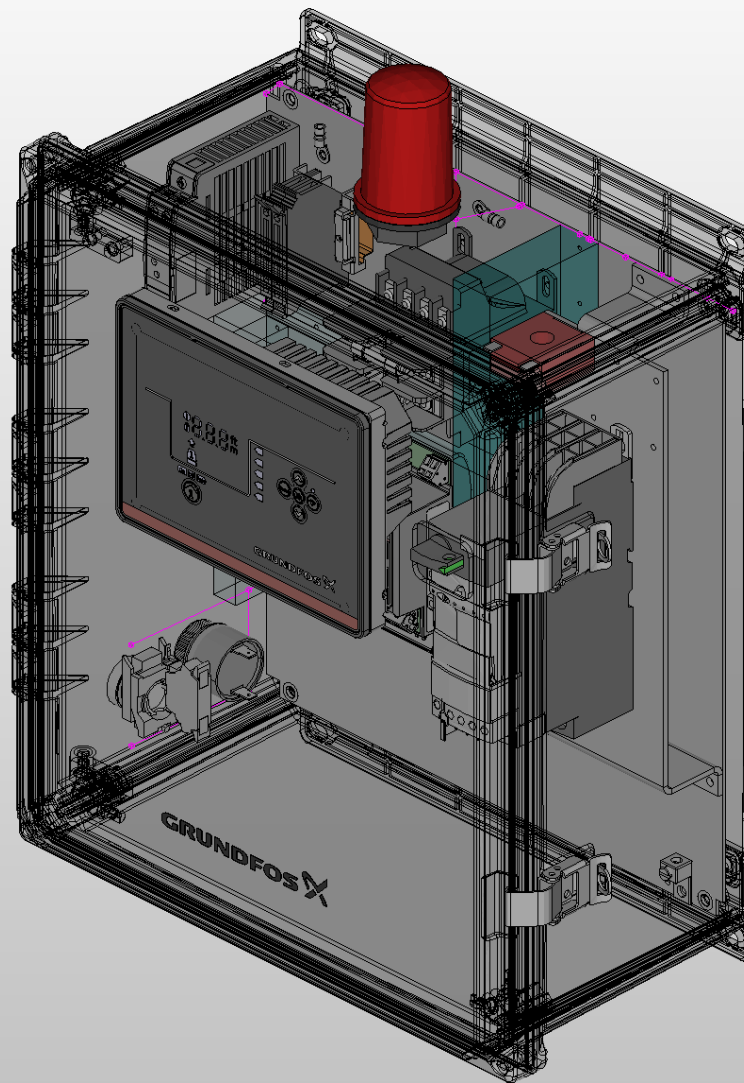


**NOTE:** The digital inputs shown above can be configured per application by the end user in any arrangement or consult the **Grundfos GO App** for further instructions. If using a transducer, wire to Digital Input 5 and Configure Remaining four inputs as needed.



Enclosure

5



Enclosure

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
Drafter	JS
Approved	BK
Revision	005

LC 241 1x1-5A.DOL.3x230/460/575 PO

99612802

Replacement of

Replaced By

Enclosure

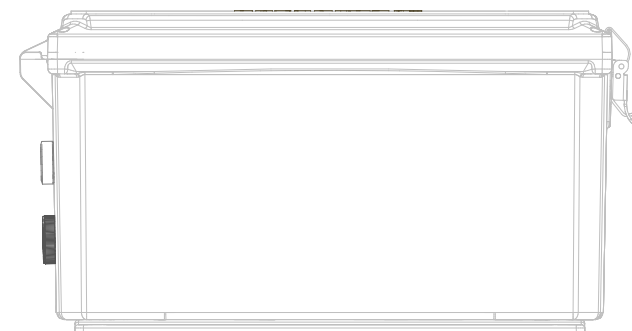
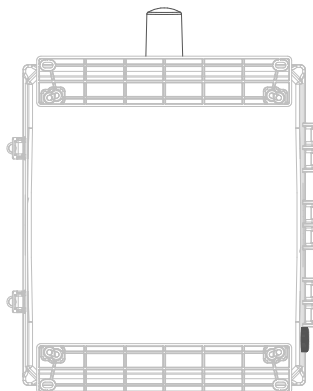
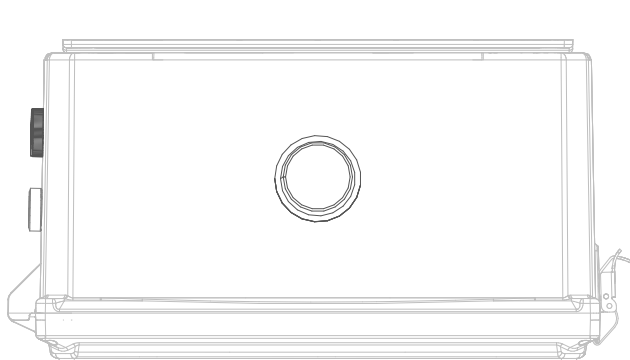
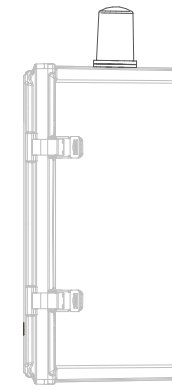
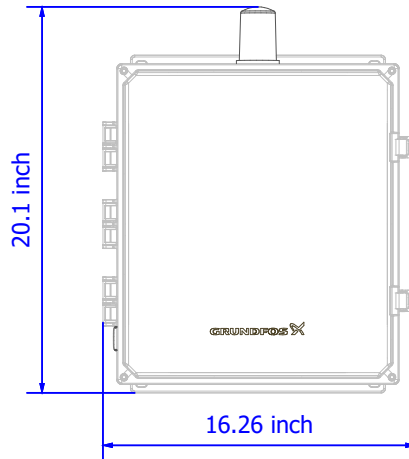
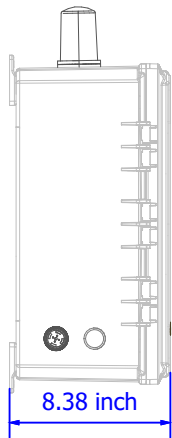
Page Number 8

Number of Pages 12

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
Drafter	JS
Approved	BK
Revision	005



LC 241 1x1-5A.DOL.3x230/460/575 PO

99612802

Replacement of

Replaced By

Enclosure Perspective

Page Number 9

Number of Pages 12

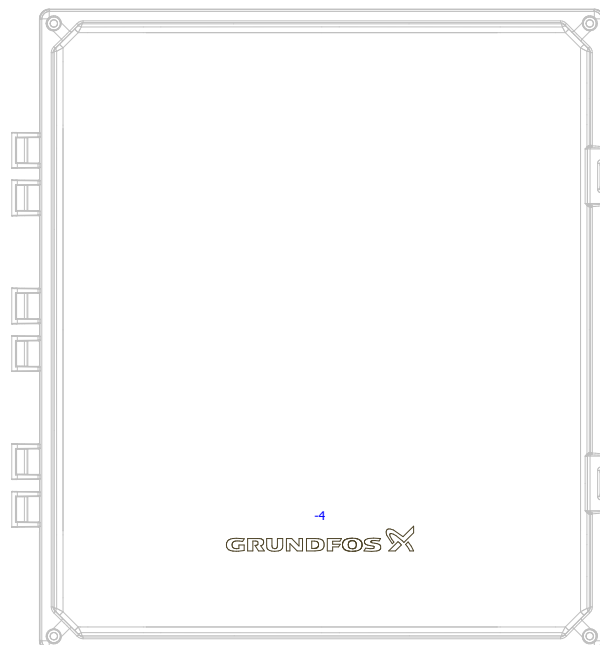
Change Note

Date

Name

# Enclosure legend

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



Door Layout

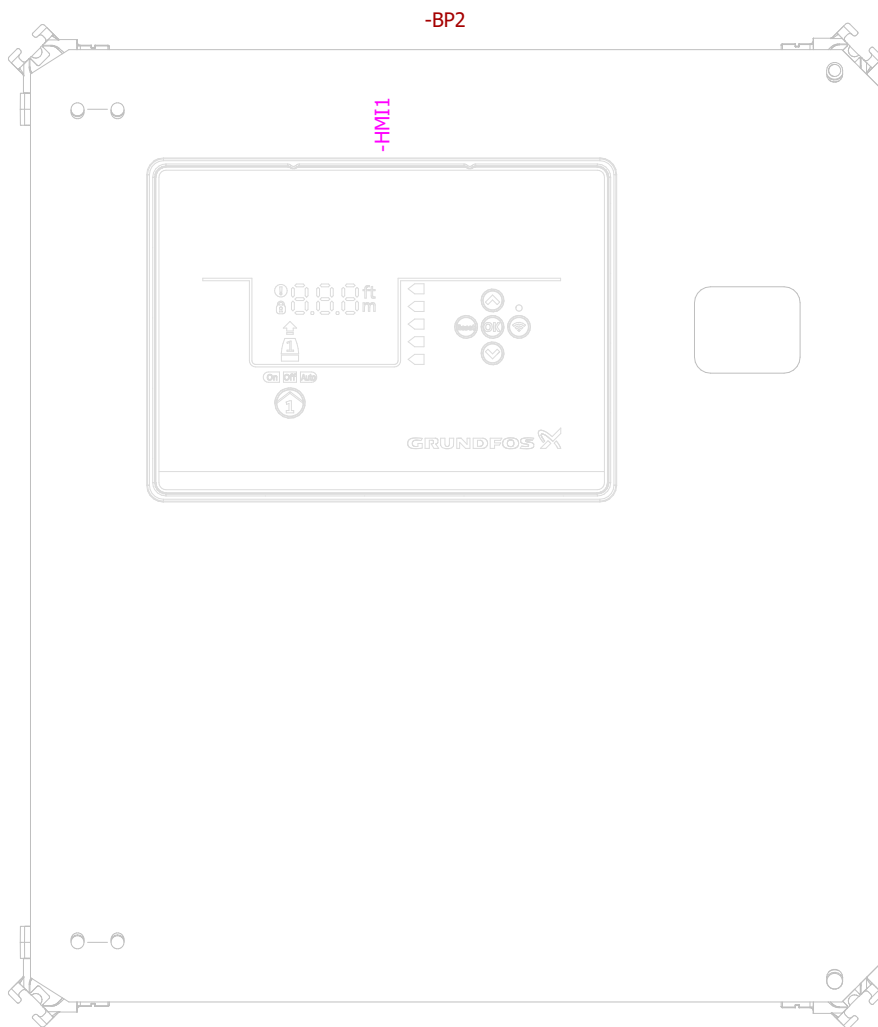
9

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 1x1-5A.DOL.3x230/460/575 PO	Door Layout	
				Drafter	JS		99612802	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

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 1x1-5A.DOL.3x230/460/575 PO

99612802

Replacement of

Replaced By

Mounting Panel Layout

Page Number

11

Number of Pages

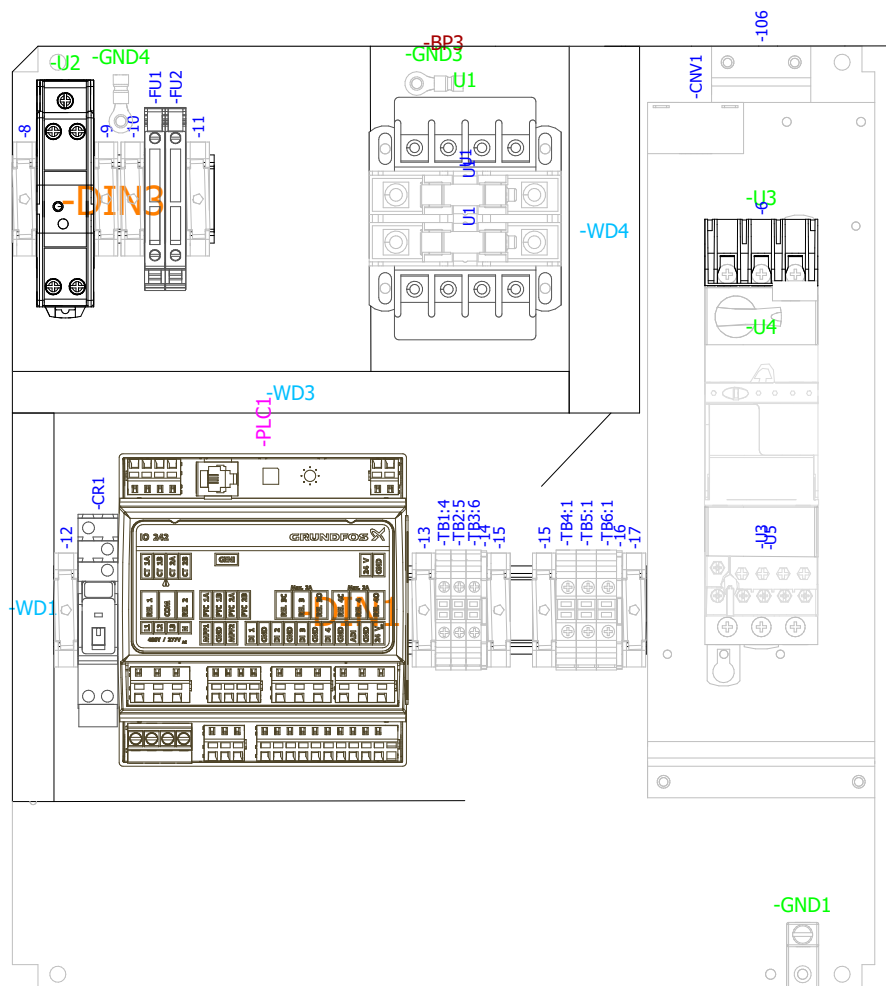
12

Change Note

Date

Name

# Enclosure legend



Device tag	Description
DIN1	Rail Din, Steel, Low
WD1	Duct, Wire, 0.5" x 1.5", WHT
12	Din Rail, End Stop
17	Din Rail, End Stop
8	Din Rail, End Stop
9	Din Rail, End Stop
10	Din Rail, End Stop
11	Din Rail, End Stop
U2	Power Supply, IDEC, 24 VDC,15W
GND1	Lug, Ground
16	Block, End Barrier,30/50/65A,SE
13	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
14	Block, End Barrier,30/50/65A,SE
15	Din Rail, End Stop
15	Din Rail, End Stop
GND3	
U1	Transformer 50VA,230/460/575:115
U1	
U1	Fuse, Primary, FNQR, 4/10A
U1	Fuse, Primary, FNQR, 4/10A
GND4	
U3	Motor Starter Tele, LUB12
U3	
CNV1	Transformer Current, SIRIO, 152035
FU1	Fuse 5mm x 20mm, 1 Amp
FU2	Fuse 5mm x 20mm, 1 Amp
6	Phase Seperator Lub
U4	
U5	Motor Starter Tele, Aux. Cont, LU
PLC1	IO242 Basic
BP3	Backplate, Grundfos, DaYu, 16X14
DIN3	Rail Din, Steel, Low
WD3	Duct, Wire, 0.5" x 1.5", WHT
WD4	Duct, Wire, 1" x 3", WHT

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 1x1-5A.DOL.3x230/460/575 PO

99612802

Replacement of

Replaced By

Mounting Panel Layout

Page Number

12

Number of Pages

12

# 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
	5	44 In	Wire, 18 AWG, MTW, STR, White 600V		IEWC	1015/18B16-9
	7	31 In	Wire, 18 AWG, MTW, STR, Yellow 600V		IEWC	1015/18B16-4
	5	53 In	Wire, 18 AWG, MTW, STR, Red 600V		IEWC	1015/18B16-1
	2	11 In	Wire, 14 AWG, MTW, STR, Green/Yellow		IEWC	1015/14B19-24E
	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
-2	1		Pilot, Pushbutton Operator		Schneider Electric	ZB4BA2
-3	1		Collar, Pilot		Schneider Electric	ZB4BZ009
-4	1		Label, Grundfos Panel, 250mm		SMT Graphics	1002608
-6	1		Phase Seperator Lub		Schneider Electric	LU9SP0
-8...-13;-15;-17	9		Din Rail, End Stop		IDEC	BNL-5
-14;-16	2		Block, End Barrier,30/50/65A,SE		Schneider Electric	NSYTRAC22
-106	1		Bracket ,Standoff, DaYu,3P,LUB		Alderon	1002607
-B1	1		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	1		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;-DIN3	2	12.406	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
-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		Enclosure , Inner Door Hinge Kit		Integra Enclosures	USOPK-G
- PARTS	1		Connect Cable, Grundfos Genie		Grundfos	1003520
- PARTS	1		Label, Grundfos, DaYu, 1Pump		SMT Graphics	1002906
- 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

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 1x1-5A.DOL.3x230/460/575 PO	Summarized Parts List	
			Drafter	JS	99612802		Page Number	13	
			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		Label, Grundfos, DaYu, TB, S12A, 575V		SMT Graphics	1002913
- PARTS	1		Kit, Label ,Grundfos, DaYu, Alm, P1, P2		SMT Graphics	1002905
-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,230/460/575:115		Micron	B050BTW13RN
U1	2		Fuse, Primary, FNQR, 4/10A		Bussman	FNQR-4/10
-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

13

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 1x1-5A.DOL.3x230/460/575 PO	Summarized Parts List		
				Drafter	JS		99612802	Page Number	14	
				Approved	BK		Replacement of	Replaced By	Number of Pages	12
				Revision	005					



