



ACOWA
INSTRUMENTS
- Part of **WASYS**

PUMA series

Quickguide



Disse sikkerhedsanvisninger giver et hurtigt overblik over de sikkerhedsforanstaltninger der skal træffes i forbindelse med arbejde på dette produkt. Overhold disse sikkerhedsanvisninger ved håndtering, montering, betjening, vedligeholdelse, service og reparation af dette produkt. Opbevar disse sikkerhedsanvisninger på installationsstedet til fremtidig brug.

Tilslutning af pumpeforsyning og strømforsyning



FARE
Elektrisk stød
Død eller alvorlig personskade

- Ved isolationsfejl, kan fejlstrømmen være jævnstrøm el. pulserende jævnstrøm. Overhold national lovgivning om krav til og valg af fejlstrømsafbryder (HPFI) ved installation af styringsenheden.
- Afbryd strømforsyningen før du foretager el-tilslutning. Sørg for at strømforsyning ikke utilsigtet genindkobles.
- Husk at angive hvor hovedafbryderen er placeret ved at anbringe et mærkat eller lign. på styringsenheden.
- Elektriske tilslutninger skal foretages i henhold til forbindelses-diagrammerne.

Tilsigtet brug

Produktet er beregnet til at styre pumper og må ikke udsættes for stærke opløsningsmidler el. olieholdige væsker. Det kan konfigureres til følgende formål: Udpumpning af spildevandsbrønde eller reservoirs.

Produktet kan bruges til følgende formål:

- Netværkspumpestationer
- hovedpumpestationer
- Erhvervsbygninger
- kommunale anlæg

Service på produktet



FARE
Elektrisk stød
Død eller alvorlig personskade

- Afbryd strømforsyningen før du foretager arbejde på produktet eller tilsluttede pumper.
- Sørg for at strømforsyningen ikke uforvarende kan genindkobles.

Udskiftning af sikring og fejlfinding



FARE
Elektrisk stød
Død eller alvorlig personskade

- Afbryd strømforsyningen før du foretager arbejde på produktet eller tilsluttede pumper.
- Sørg for at strømforsyningen ikke uforvarende kan genindkobles.

Bortskafning af produktet



Symbolet med den overstregede skraldespand på et produkt betyder at det skal bortskaffes adskilt fra husholdningsaffald. Når et produkt som er mærket med dette symbol er udtjent, skal det afleveres på en opsamlingsstation som er udpeget af de lokale affaldsmyndigheder. Særskilt indsamling og genbrug af sådanne produkter medvirker til at beskytte miljøet og menneskers sundhed.



ACOWA PUMA serien er en avanceret pumpestyring udviklet til moderne spildevandsanlæg og pumpestationer. Med fokus på driftssikkerhed, energieffektivitet og brugervenlighed er PUMA et kraftfuldt værktøj til både overvågning og styring af pumper i alle typer installationer.

Styrer både 1- & 3-faset pumper

Dette product er en alsidig og kompakt én- eller 2 pumpestyring med gode kommunikationsmuligheder. PUMA serien har evnen til at styre både 1-faset og 3-faset pumper op til 12A (5,5 kW). Pumpstyringen har en robust todelt, slagfast IP65-indkapslet kabinet, der garanterer holdbarhed og beskyttelse mod barske miljøer.

Kommunikation med PUMA Pumpestyring

Oplev alsidige kommunikationsmuligheder. Som standard leveres PUMA serien uden et kommunikationsinterface. Du har dog muligheden for at forbedre det med valgfrie LTE-m 4G eller NB-IoT-modems. Samtidig er kommunikations-modulet designet for en enkel udskiftning, for at imødekomme fremtidige IoT-krav.

Hvad angår sikkerhed, benytter denne pumpestyring en ModBus TCP/IP-protokol, som kan krypteres via TLS. Dette garanterer de højeste standarder for sikker kommunikation. På samme tid deler alle PUMA-registre samme datatype, hvilket effektiviserer dataoverførslen, da det kun kræver få telegrammer for at opdatere data.

Vælg, hvordan du vil have, at din pumpestyring skal fungere. Enten som selvstændig enhed med direkte kommunikation. Eller integreret med Acowa HiVe, hvilket giver en bred vifte af protokoltyper som REST, API osv.

Brugergrenseflade og visualisering med PUMA Pumpestyring

For at gøre den daglige drift så gnidningsfri som muligt, er PUMA udstyret med en 2,4" OLED-skærm på forsiden samt 4 brugervenlige betjeningsknapper.

Derudover kan PUMA konfigureres med det gratis konfigurationsværktøj, AcowaZoo. Dette gøres lokalt via USB-stik eller eksternt over 4G modem forbindelse. Alternativt kan brugerne vælge Acowa HiVe, der giver endnu flere muligheder for effektiv pumpestyring.

Dataindsamling med eksternt udstyr

Grundlæggende indsamler PUMA data og logger diverse typer signaler ved at bruge eksternt standardudstyr med 4-20 mA / 0-10V DC eller standard DI (digitalt indgangs-) udstyr. Dette øger alsidigheden og gør PUMA til en ideel løsning for en bred vifte af krav inden for overvågning og logning.

3-faset overvågning

PUMA serien måler strømmen på alle 3-faser og herved opnås langt mere detaljeret og relevant data sammenlignet med traditionelle strømspoler. Enheden overvåger kritiske driftsparametre, såsom fasebrud og sikrer fuldstændig beskyttelse af pumpeinstallationen. Dette forbedrer driftssikkerheden og giver optimal kontrol over systemets ydeevne.

Unikke funktioner for PUMA Pumpestyring

- Valideret flowberegning, der nøjagtigt bestemmer pumpens faktiske kapacitet
- Indløbsflowberegning, der viser indløbsprofilen til pumpstationen
- Unik måling af strøm på alle 3 faser og påvisning af fasebrud
- Specialiserede funktioner til beregning af overløb, motionering, daglig dybde-pumpning, skylning og varieret startniveau
- Nødstyringsfunktionen der aktiveres ved defekt niveautransmitter og styres via niveauipe og efterløbstid. Sikrer stabil drift selv i fejltilstand
- Firmware for pumpestyring og tilknyttet udstyr opdateres løbende i henhold til NIS2-direktivet

These safety instructions provide a quick overview of the safety precautions that must be taken when working with this product. Follow these safety instructions when handling, assembling, operating, maintaining, servicing, and repairing this product. Keep these safety instructions at the installation site for future reference.

Connecting pump power supply and electrical power supply



DANGER
Electric shock

Death or serious personal injury

- In the event of an insulation fault, the fault current may be direct current or pulsating direct current. Follow national regulations regarding the requirements for and selection of residual current devices (RCDs) when installing the control unit.
- Disconnect the power supply before making electrical connections. Ensure the power supply cannot be accidentally reconnected.
- Remember to indicate the location of the main switch by placing a label or similar on the control unit.
- Electrical connections must be made in accordance with the wiring diagrams.

Intended use

The product is designed to control pumps and must not be exposed to strong solvents or oil-based liquids. It can be configured for the following purposes: Pumping wastewater from pits or reservoirs.

The product can be used in the following applications:

- Network pumping stations
- Main pumping stations
- Commercial buildings
- Municipal facilities

Servicing the product



DANGER
Electric shock

Death or serious personal injury

- Disconnect the power supply before performing any work on the product or connected pumps.
- Ensure that the power supply cannot be inadvertently reconnected.

Fuse replacement and troubleshooting



DANGER
Electric shock

Death or serious personal injury

- Disconnect the power supply before performing any work on the product or connected pumps.
- Ensure that the power supply cannot be inadvertently reconnected.

Product disposal



The symbol with the crossed-out waste bin on the product indicates that it must be disposed of separately from household waste. When a product marked with this symbol reaches the end of its life, it must be delivered to a collection point designated by the local waste authorities. Separate collection and recycling of such products helps protect the environment and human health.



The ACOWA PUMA series is an advanced pump controller developed for modern wastewater systems and pumping stations. With a focus on reliability, energy efficiency, and user-friendliness, PUMA is a powerful tool for both monitoring and controlling pumps in all types of installations.

Controls both single-phase & three-phase pumps

This product is a versatile and compact one- or two-pump controller with excellent communication options. The PUMA series is capable of controlling both single-phase and three-phase pumps up to 12A (5.5 kW). The controller is housed in a robust, two-part, impact-resistant IP65-rated enclosure, ensuring durability and protection against harsh environments.

Communication with the PUMA Pump Controller

Experience versatile communication options. By default, the PUMA series comes without a communication interface. However, you have the option to upgrade it with LTE-M 4G or NB-IoT modems. The communication module is designed for easy replacement to meet future IoT requirements.

In terms of security, this pump controller uses a ModBus TCP/IP protocol that can be encrypted via TLS. This ensures the highest standards of secure communication. At the same time, all PUMA registers share the same data type, which streamlines data transfer as only a few telegrams are needed to update data.

Choose how you want your pump controller to operate — either as a standalone unit with direct communication, or integrated with Acowa HiVe, which provides a wide range of protocol types such as REST, API, and more.

User Interface and Visualization with PUMA Pump Controller

To make daily operation as smooth as possible, PUMA is equipped with a 2.4" OLED display on the front and four user-friendly control buttons. Additionally, PUMA can be configured using the free configuration tool, AcowaZoo. This can be done locally via USB or remotely through a 4G modem connection. Alternatively, users can choose Acowa HiVe, which offers even more possibilities for efficient pump control.

Data Collection with External Equipment

PUMA fundamentally collects and logs various types of signals by using standard external equipment with 4-20 mA / 0-10V DC or standard DI (digital input) devices. This enhances its versatility and makes PUMA an ideal solution for a wide range of monitoring and logging requirements.

Three-Phase Monitoring

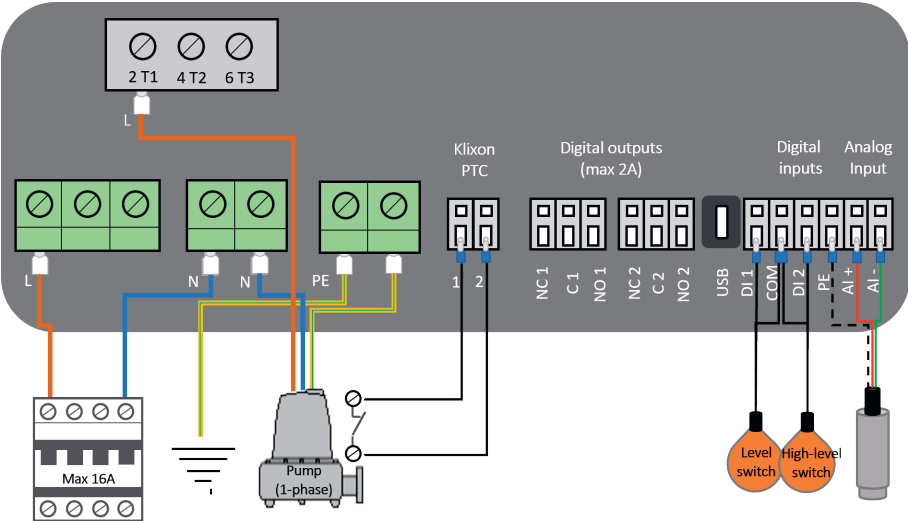
The PUMA series measures current on all three phases, providing much more detailed and relevant data compared to traditional current transformers. The unit monitors critical operational parameters, such as phase failure, ensuring full protection of the pump installation. This enhances operational reliability and provides optimal control over system performance.

Unique Features of the PUMA Pump Controller

- Validated flow calculation that accurately determines the actual pump capacity
- Inflow calculation that displays the inflow profile to the pumping station
- Unique measurement of current on all 3 phases
- Specialized functions for calculating overflow, exercising, daily depth pumping, flushing, and variable start levels
- Emergency control function activated in the event of a faulty level transmitter and controlled via level float, ensuring stable operation even in failure conditions
- Built-in power bank that eliminates the need for external battery backup in case of power failure
- Firmware for the pump controller and connected equipment is continuously updated in accordance with the NIS2 directive

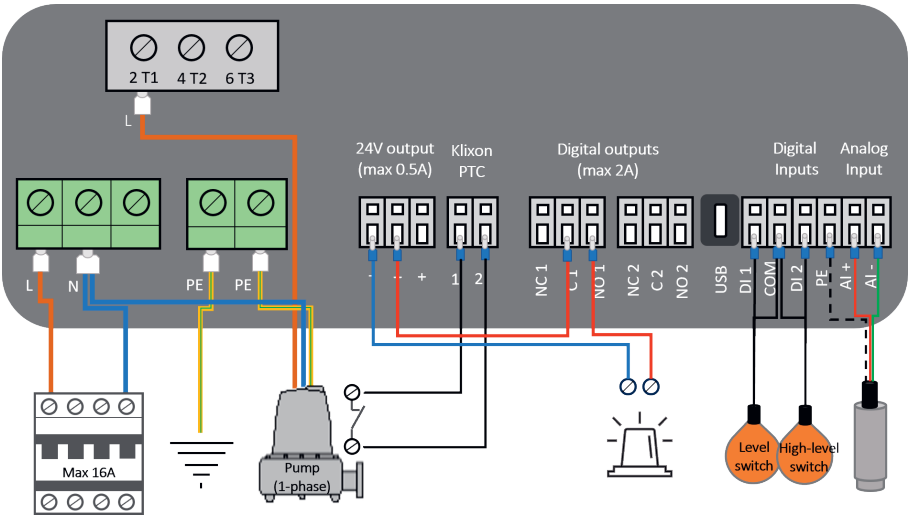
PUMA

Montagevejledning ved brug af 1-faset pumpe. / Installation Guide for use with Single-Phase Pump.

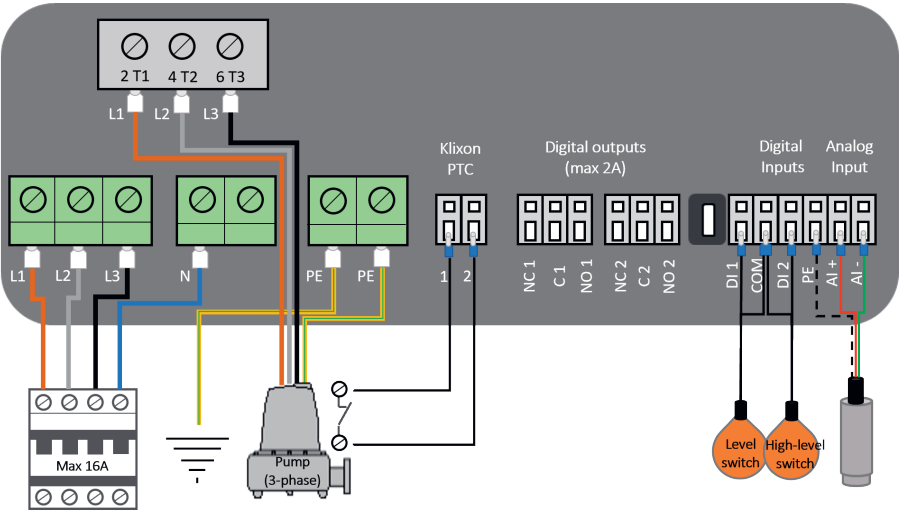


PUMA 400V

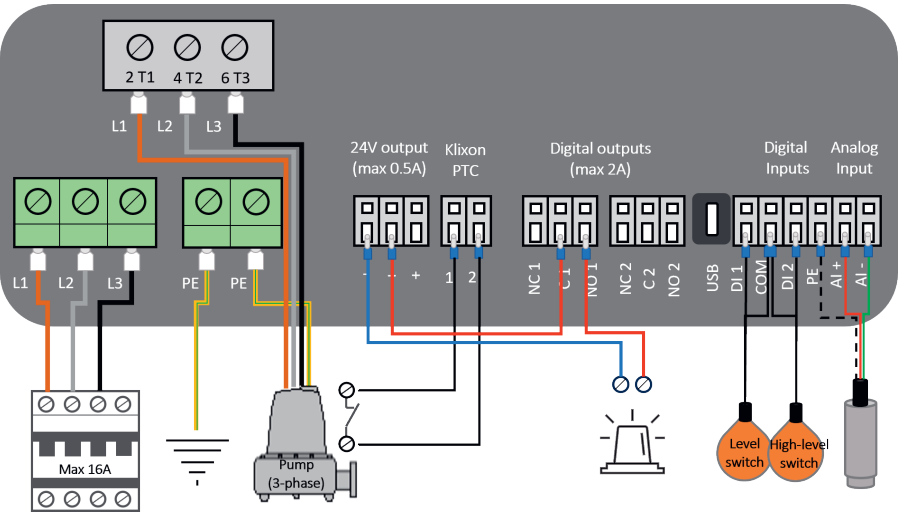
Montagevejledning ved brug af 1-faset pumpe. / Installation Guide for use with Single-Phase Pump.



Montagevejledning ved brug af 3-faset pumpe. / Installation Guide for use with Three-Phase Pump.



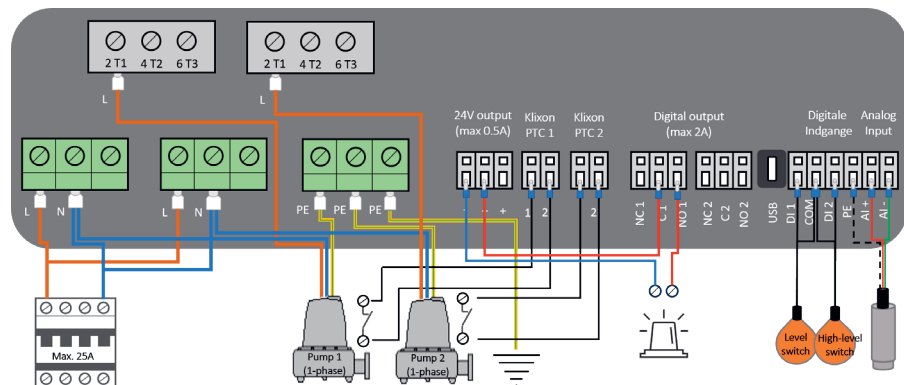
Montagevejledning ved brug af 3-faset pumpe. / Installation Guide for use with Three-Phase Pump.



PUMA TWIN

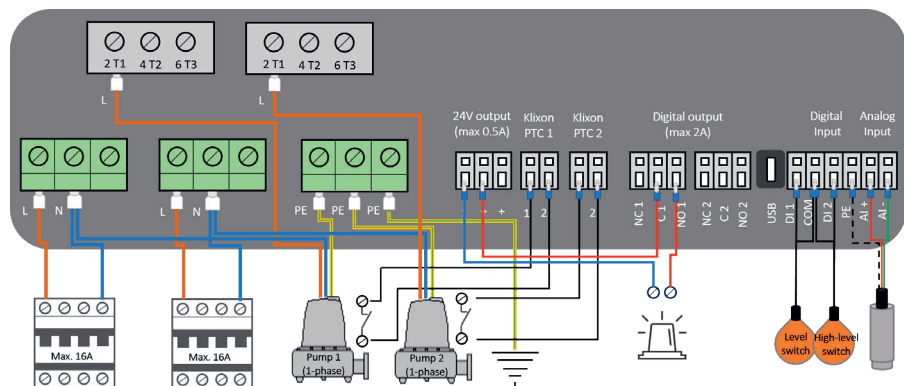
Montagevejledning ved brug af 1-faset pumpe, via 1 gruppeafbryder. Denne installationstype kræver delay på start af P2 på minimum 5 sekunder.

Installation Guide for use with Single-Phase Pump via 1 Circuit Breaker. This type of installation requires a delay of at least 5 seconds before starting P2.



Montagevejledning ved brug af 1-faset pumpe, via 2 gruppeafbrydere.

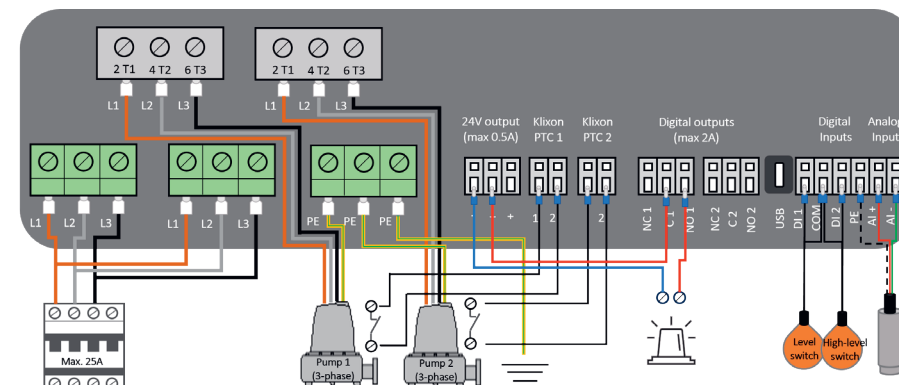
Installation Guide for use with Single-Phase Pump via 2 Circuit Breakers.



PUMA TWIN

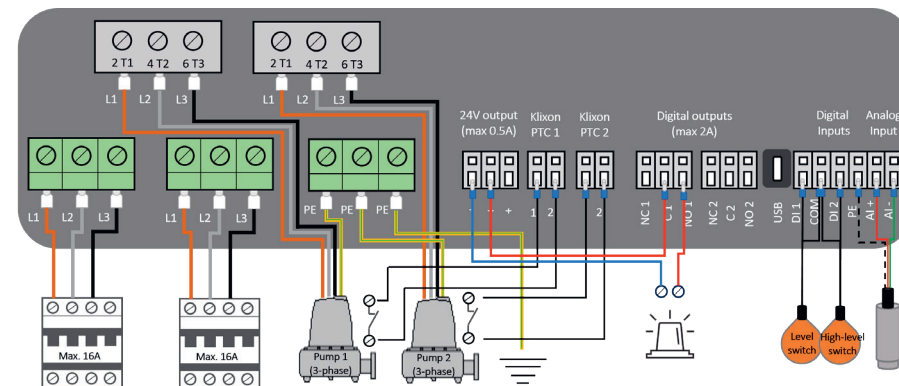
Montagevejledning ved brug af 3-faset pumpe, 1 gruppeafbryder. Denne installationstype kræver delay på start af P2 på minimum 5 sekunder.

Installation Guide for use with Single-Phase Pump via 1 Circuit Breaker. This type of installation requires a delay of at least 5 seconds before starting P2.

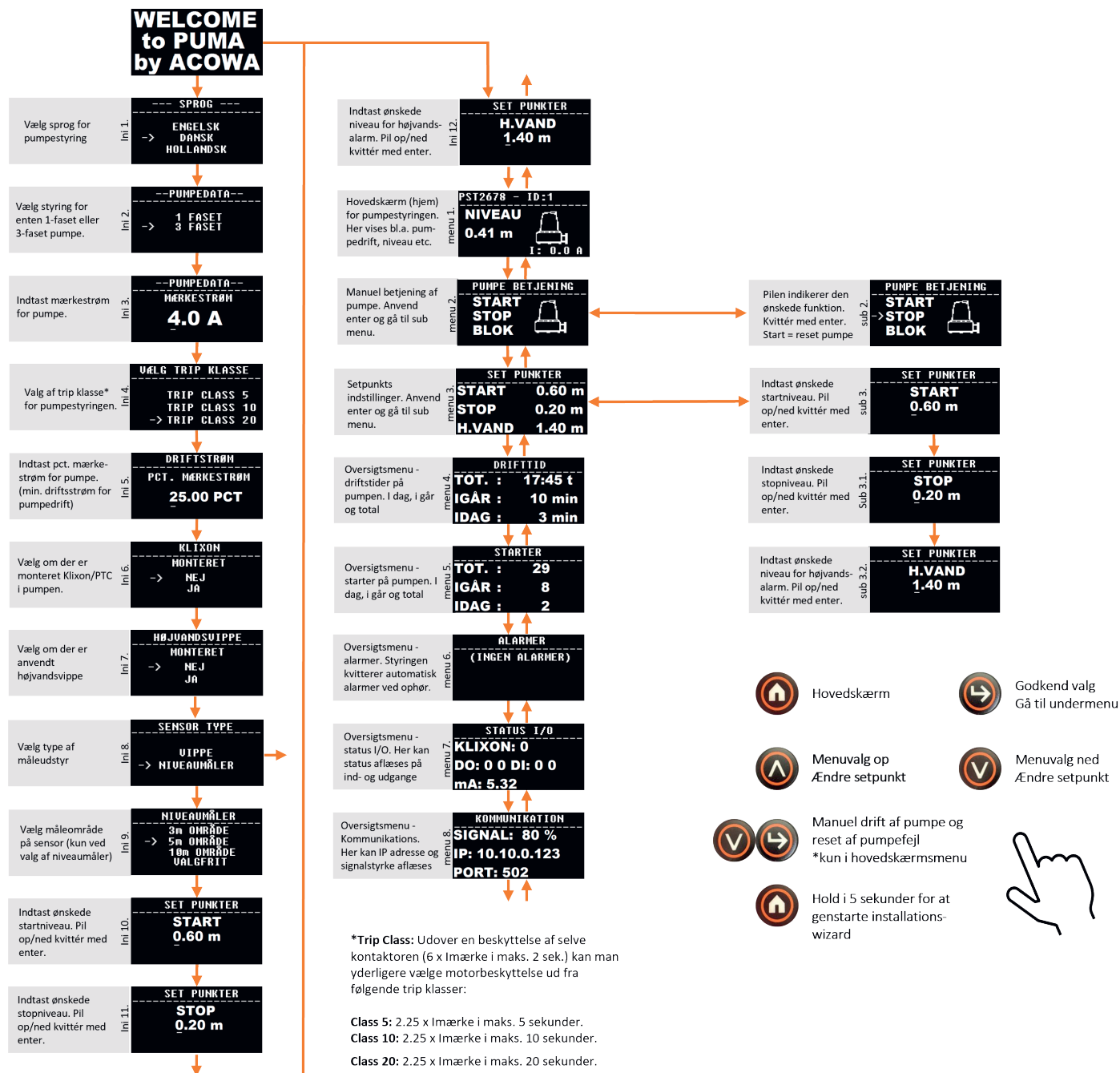


Montagevejledning ved brug af 3-faset pumpe, via 2 gruppeafbrydere.

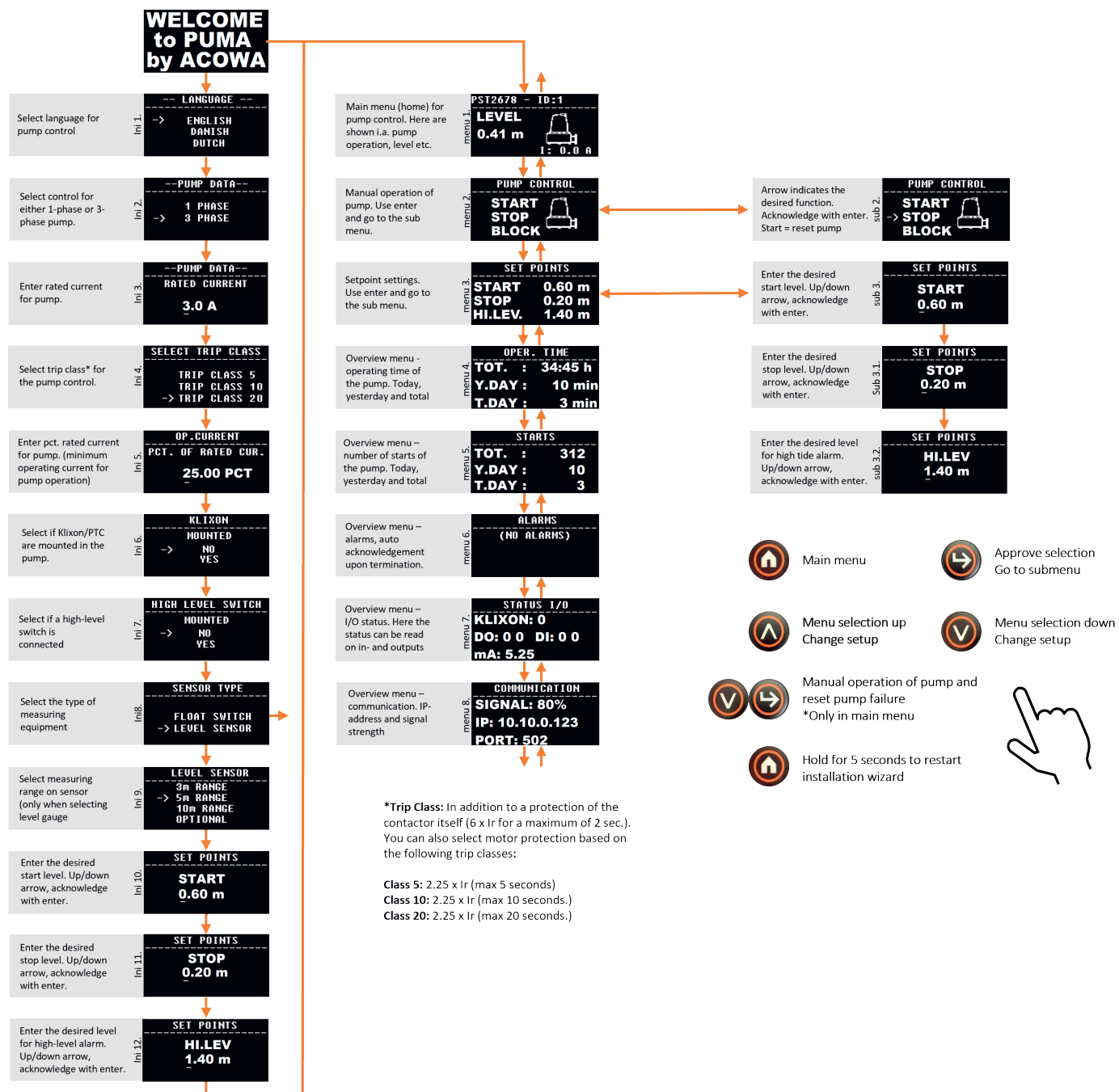
Installation Guide for use with Single-Phase Pump via 2 Circuit Breakers.



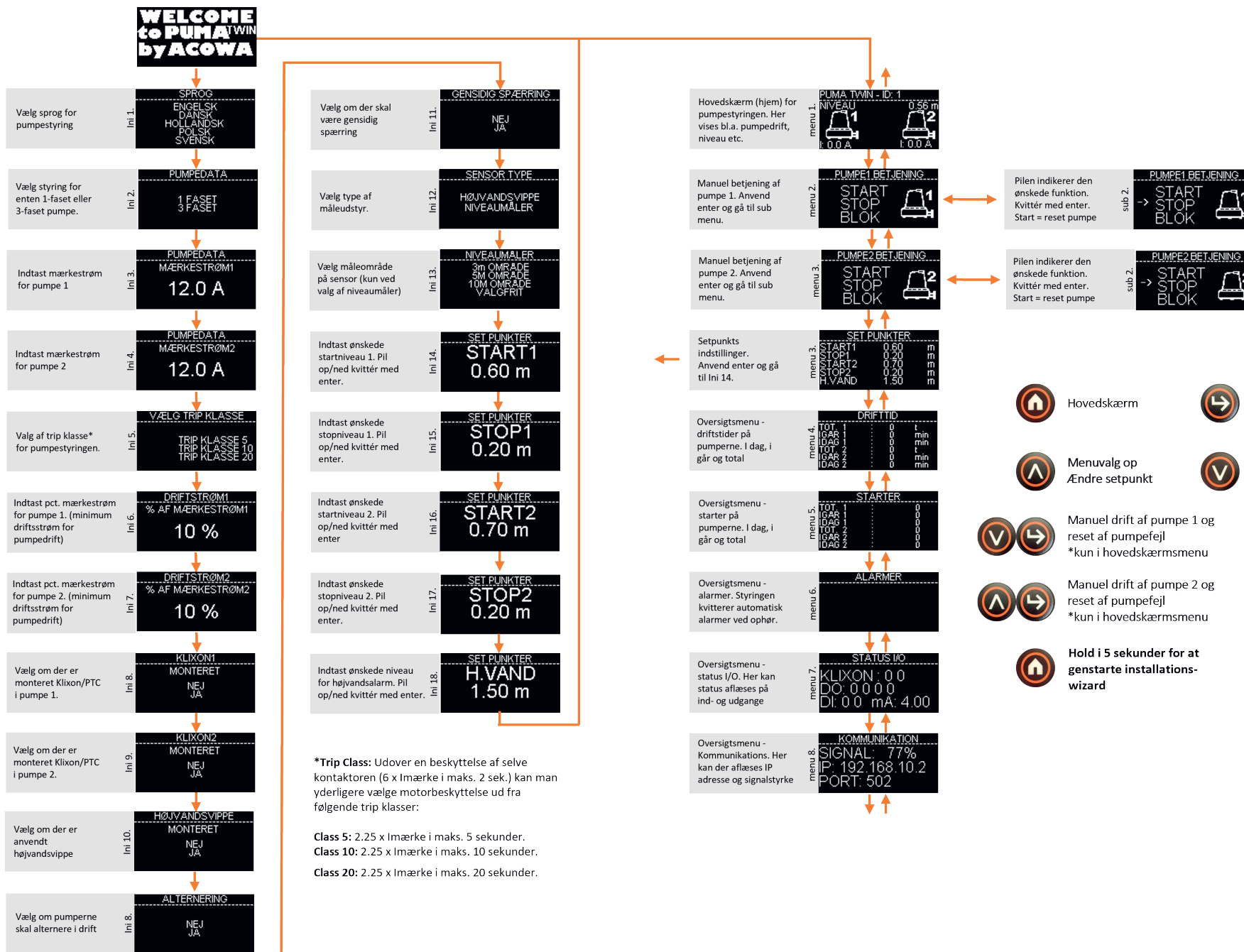
PUMA



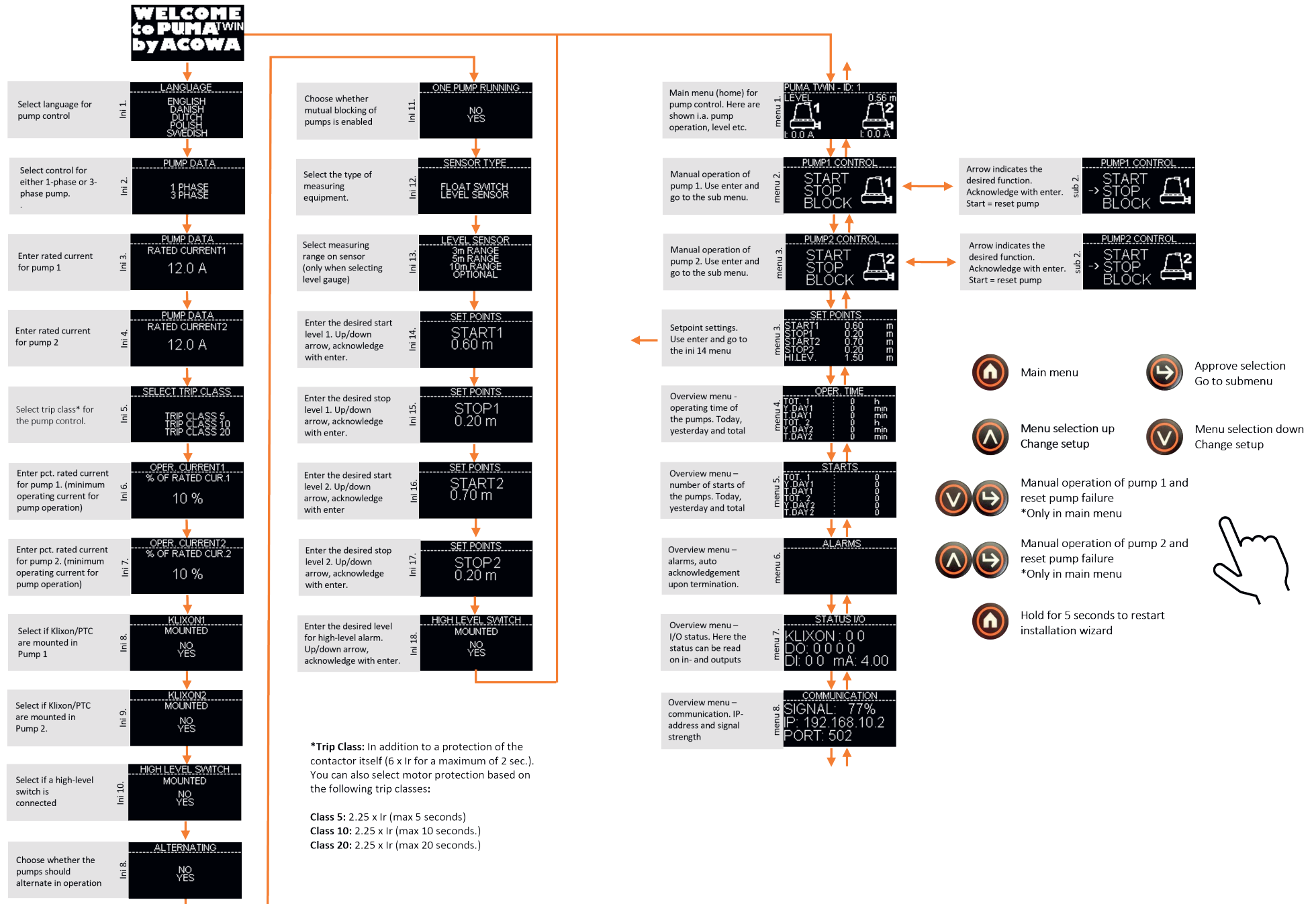
PUMA



PUMA TWIN



PUMA TWIN



Teknisk data PUMA / Technical data PUMA:

Mål / Dimensions	W=237mm x H=248mm x D=98mm
Vægt / Weight	1350 g
Ledningstilslutning / Cable Connection	0,5 – 6 mm ²
Vibration (sinusformet) / Vibration (sine wave)	10-500 Hz, 1G
Frit fald / Free Fall	30 cm
Kapslingsklasse / Enclosure Rating	IP65
Strømforsyning / Power Supply	1x230V AC or 3x400V AC +10%/-20%
Frekvens / Frequency	50/60 Hz
Indgangseffektforbrug / Input Power Consumption	0,004 to 0,06A
Maks. forsikring	25A (Ved 1 fælles forsikring) / 16A (Ved 2 separate forsikringer)
Max. Fuse Rating	25A (When using 1 common power supply) / 16A (When using 2 separate power supplies)
IK max / IK Rating	6kA
System jord / System Grounding	TT
Certifikater / Certifications	CE

Teknisk data / Technical data PUMA TWIN:

Mål / Dimensions	W=325mm x H=255mm x D=98mm
Vægt / Weight	1750 g
Ledningstilslutning / Cable Connection	0,5 – 6 mm ²
Vibration (sinusformet) / Vibration (sine wave)	10-500 Hz, 1G
Frit fald / Free Fall	30 cm
Kapslingsklasse / Enclosure Rating	IP65
Strømforsyning / Power Supply	1x230V AC or 3x400V AC +10%/-20%
Frekvens / Frequency	50/60 Hz
Indgangseffektforbrug / Input Power Consumption	0,004 to 0,06A
Maks. forsikring	25A (Ved 1 fælles forsikring) / 16A (Ved 2 separate forsikringer)
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IK max / IK Rating	6kA
System jord / System Grounding	TT
Certifikater / Certifications	CE



Miljø / Environmental Conditions:

Luftfugtighed / Humidity	10% – 95% ikke-kondenserende luft / non-condensing air
Driftstemperatur / Operating Temperature	-20°C to +50°C
Opbevaringstemperatur / Storage Temperature	-20°C to +60°C
Funktionshøjde / Operating Altitude	Max. 2000 m over havets overflade / above sea level
Samlet opstartstid / Startup Time	10-300 sek. indbygget variabel opstartstid / 10-300 sec. built-in variable startup time

Pumpe / Pump Specifications:

Spænding / Voltage	1-phase 230V AC or 3-phase 400V AC
Motorstørrelse / Motor Size	Max 5,5 kW
Maks Strømforbrug / Max Current Consumption	12A
Motor beskyttelse / Motor Protection	3-faset elektronisk strømmåling / 3-phase electronic current measurement
Kabel/signal længde Cable/Signal Length	Max 10m

Indbygget strømforsyning / Built-in Power Supply (TWIN + 400V-serien):

Udgangsstrøm / Output Current	Max. 500mA
Udgangsspænding / Output Voltage	24V DC
Tolerance	+/- 20%

Digitale indgange / Digital Inputs:

Antal digitale indgange / Number of Digital Inputs	2
Elektrisk isoleret / Electrically Isolated	Nej / No
Digitalt signal / Digital Signal	Lav/Low < 5V / < 1mA, Høj/High > 12V / > 4mA
Signalområde / Signal Range (Min./Max.)	0–30V DC
Kabel-/signallængde / Cable/Signal Length	Max 100m



Analog indgange / Analog Inputs:

Antal analoge mA-indgange / Number of Analog mA Inputs	1
Elektrisk isoleret Electrically Isolated	Nej / No
Måleområde / Measurement Range	0/4–20mA
Indgangsimpedans / Input Impedance	Cirka / Approx. 100 Ω
Målenøjagtighed / Measurement Accuracy	Bedre end / Better than 0.5% of FS
Signalområde / Signal Range	0-24mA
Kabel-/signallængde / Cable/Signal Length	Max 100m

Digitale udgange / Digital Outputs:

Antal analoge mA-indgange / Number of Digital Outputs	2
Elektrisk isoleret / Electrically Isolated	Yes
Måleområde / Isolation Voltage	4 KV
Indgangsimpedans / Relay Type	Relay outputs
Målenøjagtighed / Measurement Accuracy	Bedre end / Better than 0.5% of FS
Kabel-/signallængde / Cable/Signal Length	Max 100m
Konstant belastning / Constant Load	Maks. 2A @ 230Vac – AC1, Maks. 100 W @ 230Vac – AC3, Maks. 1A @ 30 VDC
Minimumsstrøm / Minimum Current	5 mA @ 10 V
Maksimal startstrøm / Max. Inrush Current	6A @ 20ms.
Koblingshastighed / Switching Frequency	Max 10 Hz

Styringerne leveres inklusiv / In the delivery of the pump controller is included:

Antal / Quantity	Beskrivelse / Description
2 stk. / pcs.	Forskruning polyamid, M25 Ø9-18 IP68, sort / Cable gland polyamide M25 Ø9–18 mm IP68, black
2 stk. / pcs.	Forskruning polyamid, M25 Ø7-14 IP68, sort / Cable gland polyamide M25 Ø7–14 mm IP68, black
3 stk. / pcs.	Forskruning polyamid, M16 Ø3,5-10 IP68, sort / Cable gland polyamide M16 Ø3.5–10 mm IP68, black
1 stk. / pcs.	Blindprop M25 polyamid, sort / Blind plug M25 polyamide, black
3 stk. / pcs.	Blindprop M20 polyamid, sort / Blind plug M20 polyamide, black
4 stk. / pcs.	Møtrik ployamid, M25 glasforst, S / Nut polyamide M25, glass-reinforced, S
6 stk. / pcs.	Møtrik ployamid, M16 glasforst, S / Nut polyamide M16, glass-reinforced, S
4 stk. / pcs.	Selvborende skrue, 3,5mm x 25mm / Self-drilling screw, 3.5 mm x 25 mm

PUMA:

Varenummer / Item Number	Beskrivelse / Description
1772-20225000	ACOWA-PUMA-KOMPLET-Uden modem ACOWA-PUMA-COMLETE-Without modem
1772-20225002	ACOWA-PUMA-KOMPLET-NB-IOT-MODEM ACOWA-PUMA- COMPLETE -NB-IoT-MODEM
1772-20225003	ACOWA-PUMA-KOMPLET-ETHERNET ACOWA-PUMA- COMPLETE -ETHERNET
1772-20225042	ACOWA-PUMA-KOMPLET-4G-MODEM ACOWA-PUMA- COMPLETE -4G-MODEM
1772-20220400	ACOWA-PUMA-400V-KOMPLET-U/MODEM ACOWA-PUMA-400V- COMPLETE - Without modem
1772-20220402	ACOWA-PUMA-400V-KOMPLET-NB- IOT -MODEM ACOWA-PUMA-400V- COMPLETE -NB-IOT-MODEM
1772-20220403	ACOWA-PUMA-400V-KOMPLET-ETHERNET-MODUL ACOWA-PUMA-400V- COMPLETE -ETHERNET-MODUL
1772-20220442	ACOWA-PUMA-400V-KOMPLET-4G-MODEM ACOWA-PUMA-400V- COMPLETE -4G-MODEM
1772-20224020	ACOWA-PUMA-4G-Modem
1717-20220002	ACOWA-PUMA-NB-IoT-Modem
1772-20220007	ACOWA-PUMA-Ethernet module

PUMA TWIN:

Varenummer / Item Number	Beskrivelse / Description
1772-20220600	ACOWA-PUMA TWIN-KOMPLET-U/Modem ACOWA-PUMA TWIN-COMLETE-WITHOUT Modem
1772-20220602	ACOWA-PUMA TWIN-KOMPLET-NB-IOT- Modem ACOWA-PUMA TWIN-COMLETE-NB-IOT Modem
1772-20220603	ACOWA-PUMA TWIN-KOMPLET-ETHERNET- Modem ACOWA-PUMA TWIN-COMLETE-ETHERNET Modem
1772-20220642	ACOWA-PUMA TWIN-KOMPLET-4G Modem ACOWA-PUMA TWIN-COMLETE-4G Modem
1772-20224020	ACOWA-PUMA-4G-Modem
1717-20220002	ACOWA-PUMA-NB-IoT-Modem
1772-20220007	ACOWA-PUMA-Ethernet module

TurTle keramisk tryktransmitter:

Varenummer / Product number	Beskrivelse / Description
1772-2202010	TurTle, Keramisk 4 - 20mA niveausensor TurTle, ceramic 4–20 mA level sensor
1772-2201010	Sensorrør for TurTle målecelle med 10 mtr PUR-kabel Sensor tube for TurTle measuring cell with 10 m PUR cable
1772-2201015	Sensorrør for TurTle målecelle med 15 mtr. PUR-kabel Sensor tube for TurTle measuring cell with 15 m PUR cable
1772-2201030	Sensorrør for TurTle målecelle med 30 mtr. PUR-kabel Sensor tube for TurTle measuring cell with 30 m PUR cable
1772-2201050	Sensorrør for TurTle målecelle med 50 mtr. PUR-kabel Sensor tube for TurTle measuring cell with 50 m PUR cable

GoPle keramisk tryktransmitter:

Varenummer / Product number	Beskrivelse / Description
GoPle-3-10	Tryktransmitter 0-3mVs med 10m PUR kabel Pressure transmitter 0–3 mVs with 10 m PUR cable
GoPle-5-10	Tryktransmitter 0-5mVs med 10m PUR kabel Pressure transmitter 0–5 mVs with 10 m PUR cable

DolpHin radar:

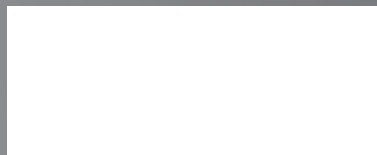
Varenummer / Product number	Beskrivelse / Description
1714-2300100	ACOWA - DolpHin Radar
A5E50507509	1" beslag - 80mm / 1" bracket – 80 mm
A5E50507511	1" beslag - 200mm / 1" bracket – 200 mm
7ML1830-1DR	1" møtrik / 1" nut

FROG niveauvippe:

Varenummer / Product number	Beskrivelse / Description
FROG-10-PUR	FROG-10 Niveau vippe med 10 mtr. PUR-kabel. FROG-10 level float switch with 10 m PUR cable
FROG-20-PUR	FROG-10 Niveau vippe med 20 PUR-kabel FROG-20 level float switch with 20 m PUR cable
Mini FROG	mini-FROG. Niveau vippe (65mm) med 5m PUR-kabel mini-FROG level float switch (65 mm) with 5 m PUR cable
FROG-vægt	Kontravægt for FROG / Counterweight for FROG



Forhandler / agent:



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