

Product User Manual

DCV-Controller

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PLYMOVENT®

Thank you for buying a PlymoVent product.
Before you unpack and put it into operation
please read this product manual, and follow the instructions.

**THIS MANUAL SHOULD BE HANDED OVER
AND KEPT BY THE SERVICE DEPARTMENT
AFTER THE INSTALLATION!**



PLYMVENT [®]	TECHNICAL DESCRIPTION	BSAB no: U0.14 Ser.no: DCV Date: Nov -07 Replace: June -03
		DCV-Controller
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DCV-Controller

TO ACHIEVE OPTIMUM PERFORMANCE AND SAFETY, PLEASE READ THE MANUAL CAREFULLY!

1 Technical data

1.1 Frequency Inverter

Model	VLT-HVAC
Enclosure	IP55
Vibration test	0.7g RMS (IEC-68-2-34/35/36)
Ambient temperature	max. 50°C min. 0°C (full operation) min. -10°C (reduced operation)
Temp. storage/transport	-25 °C to 65 °C
Max. altitude above sea	1000 m
Max. relative humidity	93% +2% -3% (storage/transport) 95% non-condensing (operation)

For additional details – consult the inverter handbook.



1.2 Pressure Transmitter

Measuring range	0-1600 Pa (TG-1600) 0-2500 Pa (TG-2500) 0-5000 Pa (TG-5000)
Enclosure	IP54
Output signal	4-20 mA
Supply voltage	18 .. 33 VDC
Power Consumption	30 mA
Membrane material	LSR (silicon)
Pressure connection	6 mm
Cable connection	screw terminals
Linearity	< +/- 0.7% fs
Hysteresis	< +/- 1% fs
Ambient temperature	0 – 70 °C
Storage temperature	-10 – 70 °C



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PLYMOVENT ®	SAFETY INFORMATION	
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2 Safety information

- The voltage of the frequency converter is dangerous whenever the equipment is connected to mains. Incorrect installation of the motor or the frequency converter may cause damage to the equipment, serious personal injury or death. Consequently, the instructions in this manual, as well as national and local rules and safety regulations, must be complied with.
- Touching the electrical parts may be fatal - even after disconnection from mains: Using up to 7,5kW wait at least 4 minutes and using 11kW and up wait at least 15 minutes.
- The frequency inverter converter must be disconnected from mains if repair work to be carried out. Check that the mains supply has been disconnected and that the necessary time has passed before removing motor and mains plugs.
- The [OFF/STOP] key on the control panel of the frequency inverter does not disconnect the equipment from mains and is thus not to be used as a safety switch.
- Correct protective earthing of the equipment must be established, the user must be protected against supply voltage, and the motor must be protected against overload in accordance with applicable national and local regulations.
- The earth leakage currents are higher than 3.5 mA.

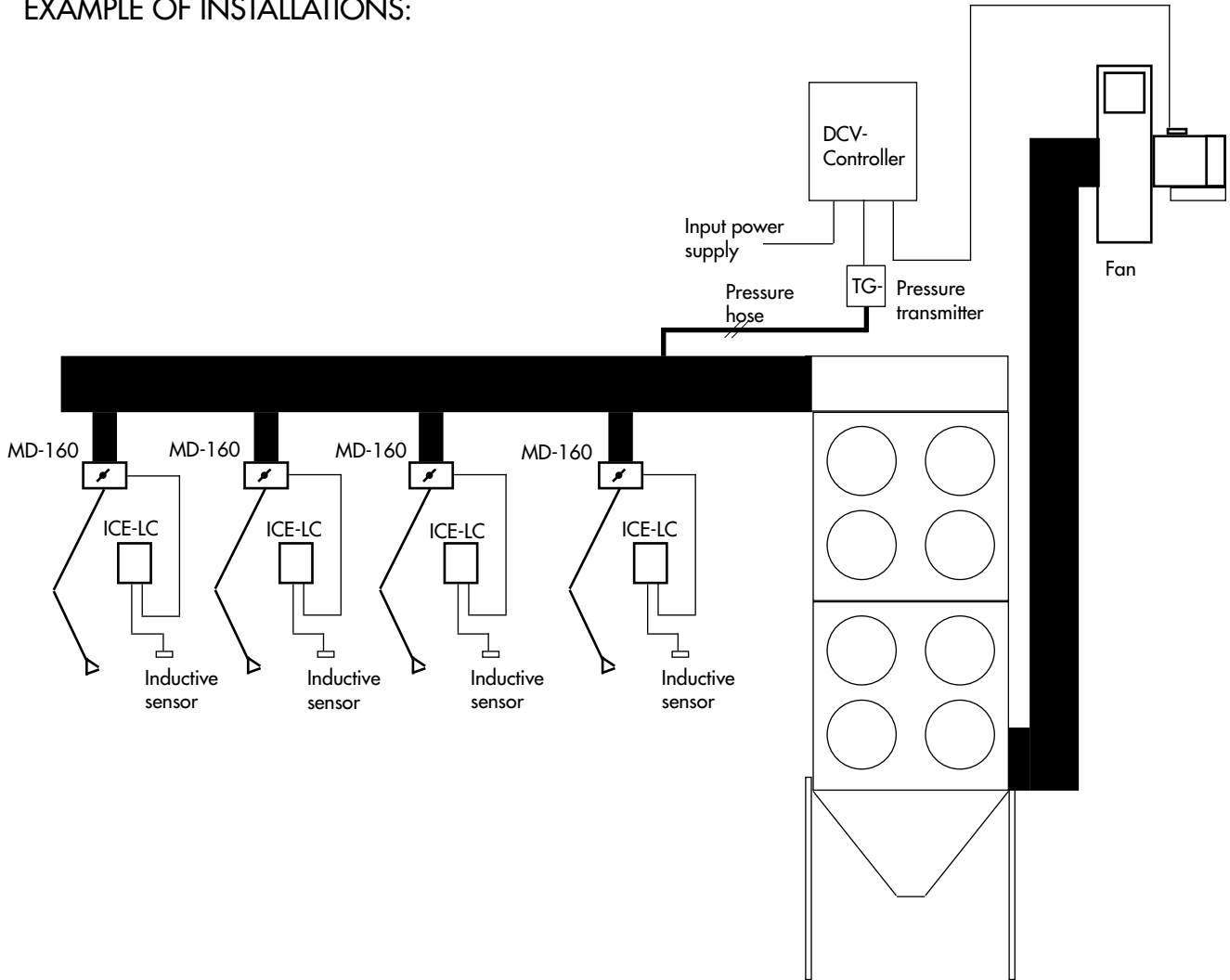
For complete safety information – consult the inverter handbook

3 Function

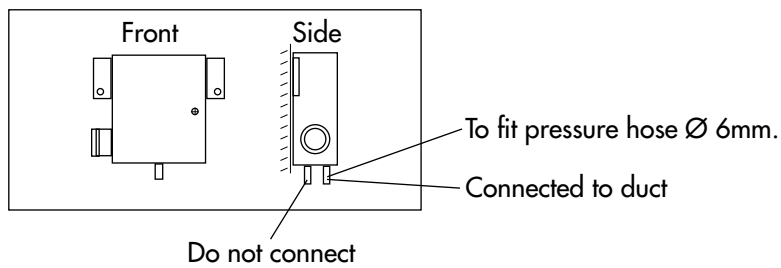
The DVC-Controller will operate your process ventilation by monitoring the air pressure of your system. The DCV-Controller will only run the fans to meet the demand of your production and do it automatically.

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EXAMPLE OF INSTALLATIONS:



Pressure transmitter, TG-



PLYMVENT [®]	INSTALLATION	
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4 Installation – Mechanical

- The frequency inverter must be installed vertically.
- The frequency inverter is cooled by means of air circulation. For the unit to be able to release its cooling air, the minimum distance over and below the unit must be as shown in the handbook.
- The frequency inverter must be mounted on a vibration free surface.
- The pressure transmitter should be mounted with the pressure connectors downwards.

For complete mechanical installation information – consult the inverter handbook

5 Installation – Electrical

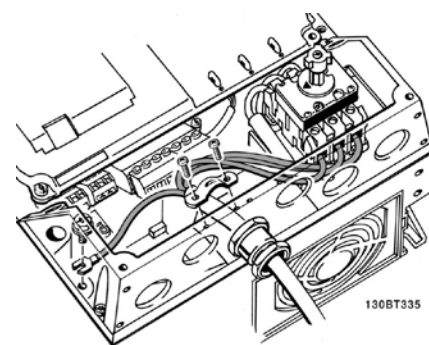
5.1 Important Information

- Frequency inverter & pressure transmitter may not be installed in an explosive environment.
- Always check that main power is turned off prior to installation of the unit.
- Installation should be conducted by a qualified electrician.
- Check all electrical configurations prior to running the system.

For additional electrical installation information – consult the inverter handbook

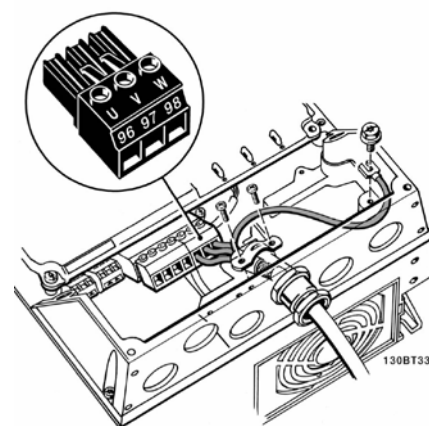
5.2 Mains connections

- Mains should be connected to terminals T1, T2 and T3 (L1, L2 & L3) on main switch.
Check that the mains voltage fits the mains voltage of the frequency in inverter, which can be seen from the nameplate.



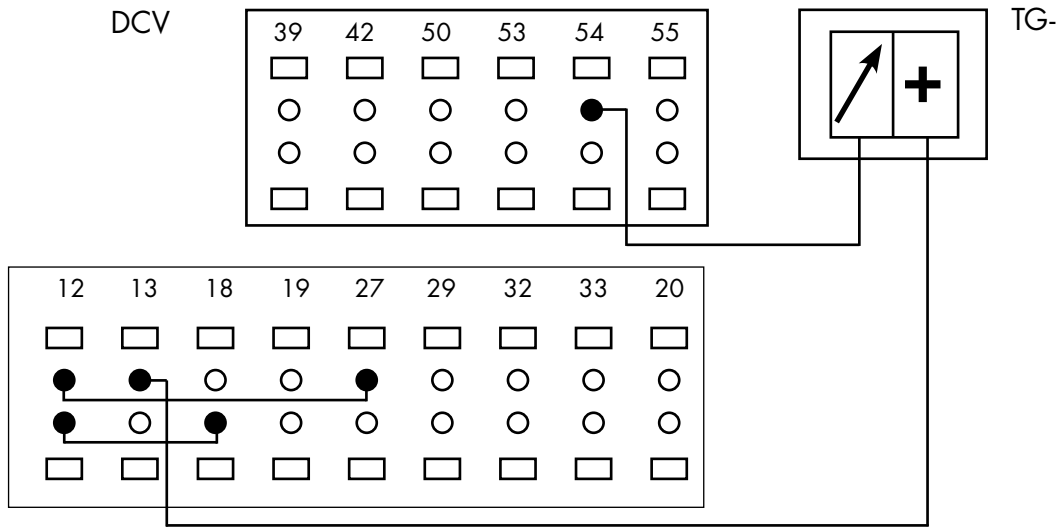
5.3 Motor connections

- The motor must be connected to terminals 96, 97, 98 (U, V & W).
Earth to terminals 94/95/99. All types of three-phase asynchronous standard motors can be used with a VLT HVAC unit.
The direction of rotation should be changed by switching two phases in the motor cable.
Do not use the frequency inverter REVERSE function to accomplish this.

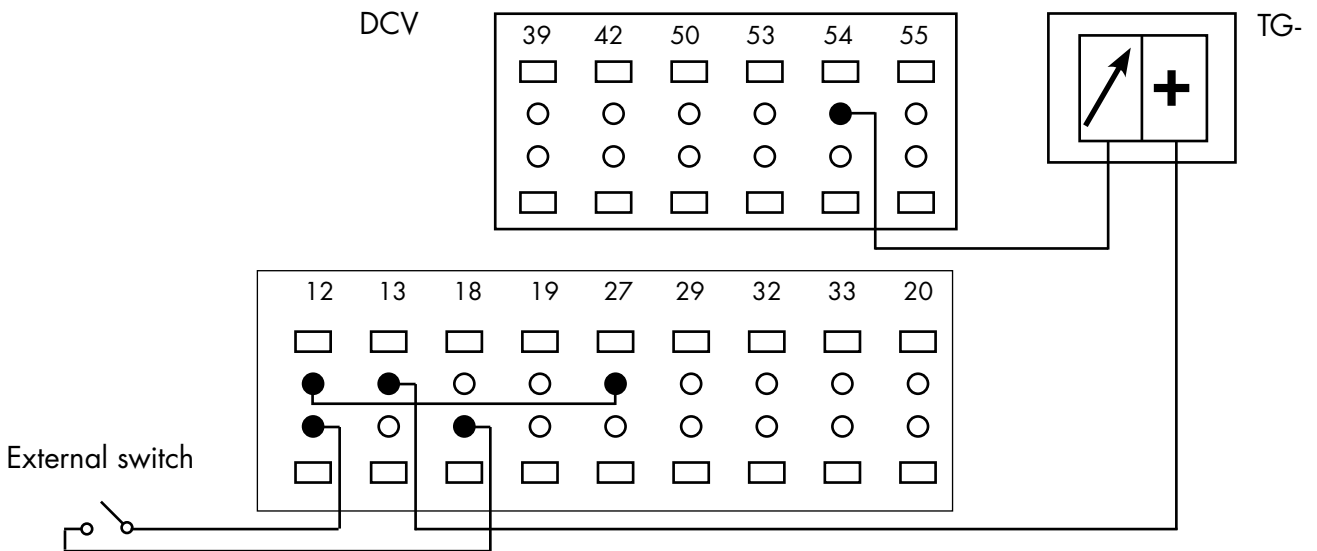


5.4 Control cables, jumpers and pressure transmitter TG-

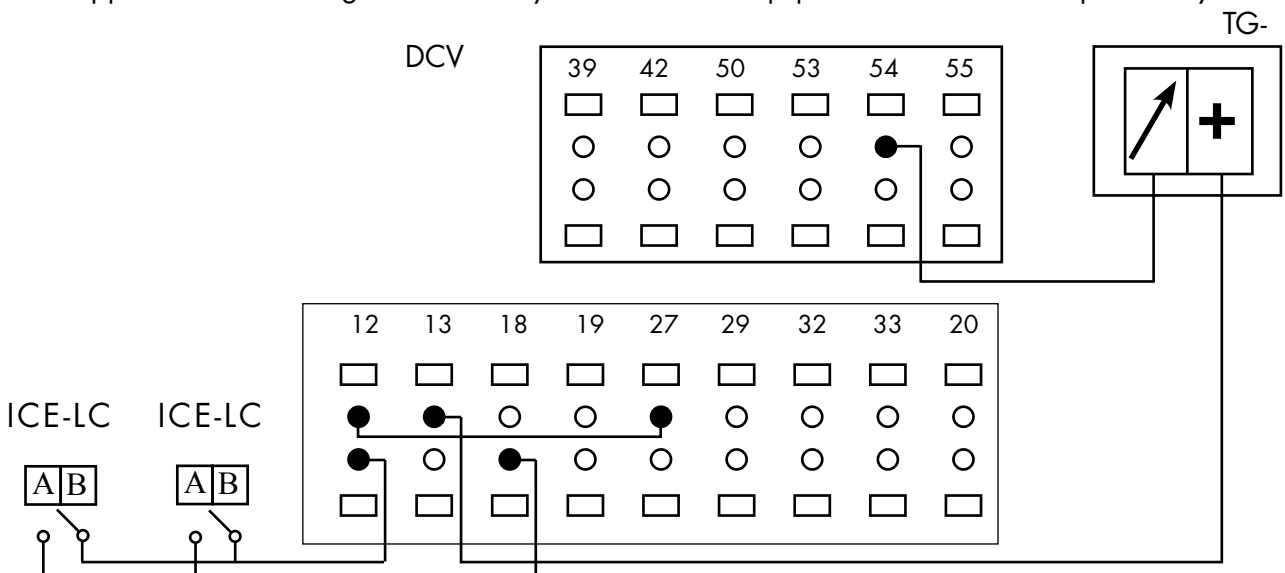
5.4.1 Application with start/stop using the frequency inverter panel (continuous running).



5.4.2 Application with start/stop using an external NO (normally open) switch.



5.4.3 Applications with integrations with PlymoVent control equipment for start and stop of the system.



PLYMOVENT ®	CONFIGURATION	
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6 Configuration

6.1 Control Keys

The control keys are divided into functions:

STATUS	is used for selecting the indications mode of the display or returning to the display mode from either the Quick menu or the Main Menu mode.
QUICK MENU	gives access to the parameters used for the Quick menu.
MAIN MENU	gives access to all parameters.
ALARM LOG	is used to list the latest alarms.
BACK	is used to go one step back at the time.
CANCEL	is used if a change of the selected parameter is not to be carried out.
OK	is used for accessing a parameter and confirm a change of the parameter selected.
ARROW U/D	is used for selecting parameters and for changing a chosen parameter. These keys are also used to change the local reference. In addition, the keys are used in Display mode to switch between operation variable readouts.
ARROW R/L	is used for moving the cursor when changing numerical values.
HAND ON	is used if the frequency inverter is to be controlled via the control unit.
OFF	is used for stopping the connected motor.
AUTO ON	is used if the frequency inverter is to be controlled via the control terminals (pressure transmitter).
RESET	is used for resetting the frequency inverter after an alarm.

6.2 Application specific data

Do not neglect to fill out the values below. They are needed if for some reason the unit lost it's configuration example: after a long term power failure.

Prior to the configuration of the frequency inverter some application data needs to be determined:

6.2.1 Determine the pressure (Set value) that should be used in this application, at the measuring point of the pressure transmitter. (Extraction arm + system normally 800-900Pa).

Value: _____ Pa

6.2.2 Note the lowest measuring value for the pressure transmitter.

Value: _____ Pa (usually 0 Pa)

6.2.3 Note the highest measuring value for the pressure transmitter.

Value: _____ Pa

6.2.4 Note the motor power (rated).

Value: _____ kW

6.2.5 Note the motor voltage.

Value: _____ V

6.2.6 Note the motor nominal frequency (rated.)

Value: _____ Hz (50/60)

6.2.7 Note the motor current (rated).

Value: _____ A

6.2.8 Note the motor rotation speed (rated)

Value: _____ rpm

Ramp up/down time

Please observe that these times are unique for each installation and motor. Please consult an electrician prior to changing or setting this value. General example: a 4kW motor ramp-up time 5 s, ramp-down time 5 s.

6.2.9 Note the motor ramp-up time.

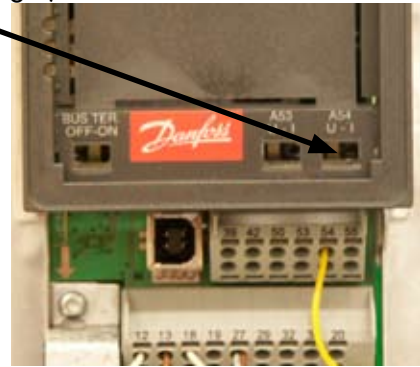
Value: _____ s

6.2.10 Note the motor ramp-down time.

Value: _____ s

6.3 Initiate programming

- !!! Put the switch A54, (under the display), in position I (to the right).
The inverter must be without power.



6.4 Restoring to factory settings

Press MAIN MENU twice

14 Special functions

14.2 Reset functions

14-22 Operation Mode = Initialisation (2).



Important!

After point 6.4 is completed, disconnect power to the frequency inverter and wait until the display goes blank. Re-connect the power and the unit will now be factory programmed.

If you skip the above operation then the factory programming will be executed on the next power break and your data will erased.

6.5 Programming of motor and application data;

Press OFF,

press QUICK MENU,

press S2 Quick Setup,

go down through menus with Arrow Down.

<u>Parameter</u>	<u>Function/value</u>
0-01	Language = English (0)
1-20	Motor Power = See 6.2.4
1-22	Motors Voltage = See 6.2.5
1-23	Motor Frequency = See 6.2.6
1-24	Motor Current = See 6.2.7
1-25	Motor nom. speed = See 6.2.8
3-41	Ramp Up Time = See 6.2.9
3-42	Ramp Down Time = See 6.2.10
4-12	Motor speed low limit
4-14	Motor speed high limit
Push QUICK MENU	
03	Function Setups
03-3	Closed Loop Settings
03-30	Single Zone Int.Set
1-00	Configuration Mode = Closed loop (3)
20-12	Reference/feedb. unit. = Pa (72)
20-14	Max reference/feedback = See 6.2.3 (ex. 000001.600 = 1600Pa)
6-24	Low ref./feedback value = See 6.2.2
6-25	High ref./feedback value = See 6.2.3 (ex. 000001.600 = 1600Pa)

PLYMVENT ®	CONFIGURATION/START-UP	
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20-21 Setpoint 1 = See 6.2.1 (normally 800-900Pa).

20-81 PID Normal/Inverse Contr. = Normal (0)

20-93 PID Proportional Gain = 0.5

20-94 PID integral Time = 5.00

Push MAIN MENU

3-02 Min reference = See 6.2.2 (0)

3-03 Max reference = See 6.2.3 (ex. 000001.600 = 1600Pa).

Push MAIN MENU

0 Operation / Display

0-2 LCP Display

0-20 Display Line 1.1 Small = Feedback 1 (1654)

Push STATUS

7 Start-up

The system is now ready to be activated. Press AUTO ON to put the system in running mode.

When starting up the system, the Setpoint parameter 20-21 must be adjusted.

The Setpoint must be adjusted to ensure correct airflow in each extractor.

After adjustment the TG- pressure transmitter and the DCV-Controller controls the fan speed, (air volume), depending on how many extraction points are open.

With mechanical filters in the system the TG- pressure transmitter and the DCV-Controller will correct the fan speed automatically when the pressure drop increases over the filter.

PLYMVENT®

(GB) EU Declaration of Conformity

We hereby declare that the equipment described below conforms to the relevant fundamental safety and health requirements of the appropriate EU Directives, both in its basic design and construction as well as in the version marketed by us. This declaration will cease to be valid if any modifications are made to the machine without our express approval.

Appropriate internal measures have been taken to ensure that series-production units conform at all times to the requirements of current EU Directives and relevant standards. The signatories are empowered to represent and act on behalf of the company management.

(D) EG Konformitätserklärung

Hiermit erklären wir, daß die nachfolgend bezeichnete Maschine aufgrund ihrer Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung der Maschine verliert diese Erklärung ihre Gültigkeit.

Es ist durch interne Maßnahmen sichergestellt, daß die Seriengeräte immer den Anforderungen der aktuellen EG-Richtlinien und den angewandten Normen entsprechen. Die Unterzeichnenden handeln im Auftrag und mit Vollmacht der Geschäftsführung.

(F) Déclaration de conformité européenne

Par la présente, nous déclarons que la machine ci-après répond, de par sa conception et sa construction ainsi que de par le modèle que nous avons mis sur le marché, aux exigences de sécurité et d'hygiène en vigueur de la directive européenne. En cas de modification de la machine effectuée sans notre accord, cette déclaration sera caduque. La conformité permanente des appareils de série avec les exigences consignées dans les directives actuelles de la CE et avec les normes appliquées est garantie par des mesures internes. Les soussignés agissent par ordre et avec les pleins pouvoirs de la Direction commerciale.

(I) Dichiarazione di conformità CE

Dichiariamo con la presente, che la macchina qui di seguito indicata, in base alla sua concezione e al tipo di costruzione, e nella versione da noi introdotta sul mercato, è conforme ai relativi requisiti fondamentali di sicurezza e di sanità delle direttive della CE. In caso di modifica apporrate alla macchina senza il nostro accordo, questa dichiarazione perde la sua validità.

Mediante accorgimenti interni, è stato assicurato che gli apparecchi di serie siano sempre conformi ai requisiti delle attuali direttive CE e alle norme applicate. I firmatari agiscono su incarico e con i poteri dell'Amministrazione.

(NL) EU-conformiteitsverklaring

Hiermee verklaren wij dat de hierna vermelde machine op grond van haar concipiëring en constructie en in de door ons in omloop gebrachte uitvoering beantwoordt aan de desbetreffende veiligheids- en gezondheidsvoorschriften van de EG-richtlijnen. Na een wijziging aan de machine die niet in overleg met ons wordt uitgevoerd, verliest deze verklaring haar geldigheid.

Door interne maatregelen is er voor gezorgd dat de standaard-apparaten altijd beantwoorden aan de eisen van de actuele richtlijnen en de toegepaste normen. De ondergetekenden handelen in opdracht en op volmacht van de bedrijfsleiding.

(E) Declaración de conformidad de la Unión Europea

Por la presente declaramos los abajo firmantes que la máquina designada a continuación cumple, tanto por su concepción y clase de construcción como por la ejecución que hemos puesto en circulación, las normas fundamentales de seguridad y protección de la salud formuladas en las directivas comunitarias correspondientes. La presente declaración pierde su validez en caso de alteraciones en la máquina efectuadas sin nuestro consentimiento explícito. Mediante una serie de medidas internas, queda asegurado que los aparatos y equipos de serie cumplan siempre las exigencias formuladas en las directivas comunitarias actuales y en las normas correspondientes a aplicar. Los firmantes actúan autorizados y con poder otorgado por la dirección de la empresa.

(P) CE-Declaração de conformidade

Nós declaramos pelo presente instrumento que a máquina abaixo indicada corresponde, na sua concepção, fabricação bem como no tipo por nós comercializado, às exigências básicas de segurança e de saúde da directiva da CE. Se houver uma modificação na máquina sem o nosso consentimento prévio, a presente declaração perderá a sua validade.

Assegura-se, através de medidas internas da empresa, que os aparelhos de série correspondem sempre às exigências das directivas actualizadas da CE e às normas aplicadas. Os abaixo assinados, actuam e representam através de procuração a gerência.

(DK) Eu-overensstemmelseserklæring

Hermed erklærer vi at nedenstående maskine på grund af sin udformning og konstruktion i den udførelse, i hvilken den sælges af os, overholder EU-direktivernes relevante, grundlæggende sikkerheds- og sundhedsmæssige krav.

Hvis maskinen ændres uden aftale med os, mister denne attest sin gyldighed.

Interne forholdsregler sikrer, at serieapparaterne altid opfylder kravene fra de aktuelle EU-direktiver og de standarder, der blev anvendt: Underskriverne handler på forretningsledelsens vegne og med dennes fuldmagt.

(N) EU-KONFORMITETSERKLÆRING

Vi erklærer herved at maskinen som er beskrevet nedenfor, i konstruksjon og utførelse tilsvarende markedsførte modell og er i overensstemmelse med de gjeldende og grunnleggende sikkerhets- og helsekrav i EU-direktivet. Denne erklæring mister sin gyldighet dersom maskinen endres uten etter avtale med oss.
Gjennom interne tiltak er det sikret at serieproduserte maskiner alltid er i overensstemmelse med kravene i de aktuelle EU-direktiver og anvendte normer. Undertegnede handler etter oppdrag og med fullmakt fra ledelsen.

(S) Försäkran om överensstämmelse

Härmed försäkras vi att den enligt nedan angivna maskinen till konstruktion, byggnadssätt och i av oss levererat utförande motsvarar tillämpliga baskrav beträffande säkerhet och hälsa enligt EU-direktiven.
Vid ändringar på maskinen som icke avtalats med oss upphör denna försäkran att gälla.
Vi har genom interna åtgärder säkerställt, att serietillverkade maskiner alltid motsvarar aktuella EU-direktiv och tillämplade normer. De undertecknade agerar på uppdrag av och med fullmakt av företagsledningen.

(FIN) EU-vaatimustenmukaisuusvakuutus

Me vakuutamme, että alla mainittu tuote vastaa suunnittelultaan ja rakenteeltaan sekä valmistustavaltaan EU-direktiivien asianomaisia turvallisuus- ja terveysvaatimuksia. Jos koneeseen tehdään muutoksia, joista ei ole sovittu kanssamme, tämä vakuutus ei ole enää voimassa.
Sisäisin toimenpitein varmistetaan, että sarjat tuotantolaitteet vastaavat aina voimassa olevien EU-direktiivien vaatimuksia ja sovellettuja normeja. Allekirjoittaneet toimivat yrityksen johdon toimeksiannosta ja valtuuttamina.

(PL) EU Deklaracja zgodności

Niniejszym deklarujemy, że opisane niżej urządzenia spełniają odpowiednie, zasadnicze wymagania dotyczące bezpieczeństwa i zdrowia obowiązujących Dyrektyw UE, zarówno w swoim podstawowym projekcie i konstrukcji, jak i w wersji sprzedawanej przez naszą firmę. Niniejsza deklaracja traci swą ważność w przypadku jakichkolwiek modyfikacji urządzenia wykonanych bez naszej wyraźnej zgody.
Podjęto odpowiednie środki wewnętrzne w celu zapewnienia stałej zgodności urządzeń produkowanych seryjnie z wymaganiami aktualnych Dyrektyw UE i odpowiednich norm. Podpisujący deklarację są upoważnieni do reprezentowania i podejmowania działań w imieniu kierownictwa firmy.

PRODUCT: CONTROL EQUIPMENT
MODELS: ICE-LC, ES-90, DCV/TG
M-1000, PCU-1000, SA-24, ECMOA

BATCH NO: 04401--XXXXX

EU-DIRECTIVES:

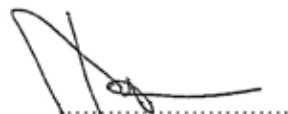
89/336/EEC, 92/31/EEC
EN 61000-6-4
EN 61000-6-2

73/23/EEC, 93/68/EEC
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