

# Product manual

## Control unit

### M-1000

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## PLYMOVENT®

Thank you for buying a PlymoVent product.  
Before you unpack and begin installation please read  
this product manual, and follow the instructions.

**THIS MANUAL SHOULD BE DELIVERED  
TO AND MAINTAINED IN THE SERVICE  
DEPARTMENT AFTER THE INSTALLATION!**

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### Control Unit M-1000

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# Control Unit M-1000

The PlymoVent Control Unit, M-1000, is intended for use on systems where several extractors are connected to one central extraction fan. Together with PlymoVent's Energy Savers, ES-90, or Automatic Dampers, ICE-LC, it controls the central fan in a system with a maximum of ten extractors. As soon as welding starts, a signal is sent from the automatic damper or the energy saver to the M-1000.

This, in turn, starts the central extraction fan. The fan stops automatically when extraction is not necessary any longer. To remove residual after-fume, there is an adjustable overrun of 7 sec - 6 min. A two-wire low voltage cable (10-12V) links the electrical control unit with the automatic dampers/energy savers.

Power supply 115/208/230/460/575 VAC for controlling a central extraction fan (when using ICE-LC) or a low pressure fan (when using separate fans and ES-90). Relevant motor overload protection for the central extraction fan is required (not included).

### Delivery

The M-1000 is delivered complete and ready for connection.

### Advantages

- Reduced operation costs – the central fan is only operational during arc-time.
- Fully automatic start/stop of the fan when work begins/stops at any work station.
- Less noise.
- Stops the fan automatically during breaks and at the end of the working day.
- Simple installation – low initial cost.

## Technical data

**Matning:** 230/400 V, 3 ~ (kontaktör för fläkt upp till 4,0 kW är inbyggd). Skall kombineras med relevant motorskydd (ingår ej).

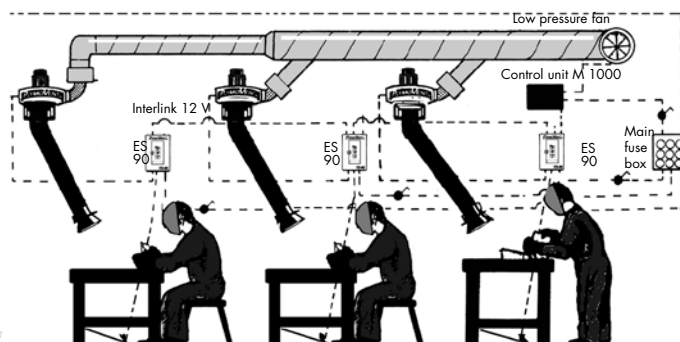
**Utgång:** 400 volt 3 ~ utgång till fläkten. Fungerar även för 1 ~ fläktar. Matas då med 230 volt, 1 ~.

**Automatik:** Inställbar efterloppstid 7 sek. - 6 Min.

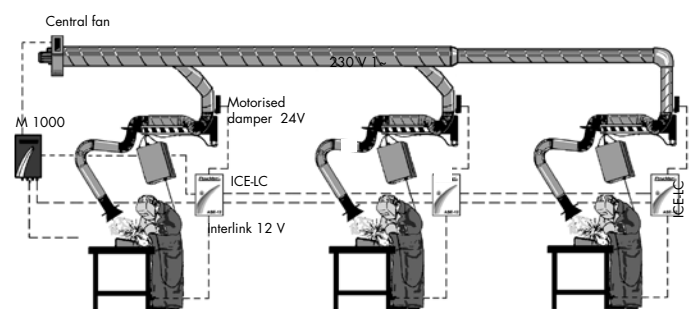
Table for choice of motor overload for M-1000

Fan	Motor	kW V	Amp	Prod. no:
FUA-1300	0,37	3~400 V	0,9	MS-0.9/1.3
FUA-1301	0,37	1~230 V	3	MS-2.3/3.2
FUA-1800	0,55	3~400 V	1,3	MS-0.9/1.3
FUA-2100	0,75	3~400 V	1,75	MS-1.4/2.0
FUA-2101	0,75	1~230 V	5	MS-4.5/6.3
FUA-3000	1,1	3~400 V	2,4	MS-2.3/3.2
FUA-4700	2,2	3~400 V	4,6	MS-4.5/6.3

## Installation alternatives



Central system: 3 X LM-2 with separate fans and energy savers, connected to control unit M-1000 for control of the low pressure fan.

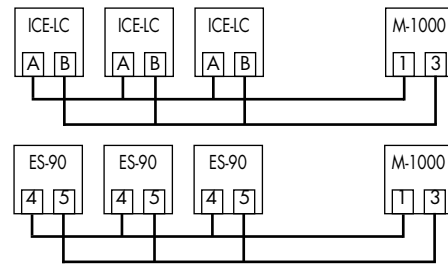


Central system: 3 X FM-1520 with automatic dampers ICE-LC, control unit M-1000 and one central fan FS-3000.

# Parallel connection

When several energy savers (ES-90) or automatic dampers (ICE-LC) and control units (M-1000) are to be linked, a low voltage cable is used. This two-wire circuits is connected as follows:

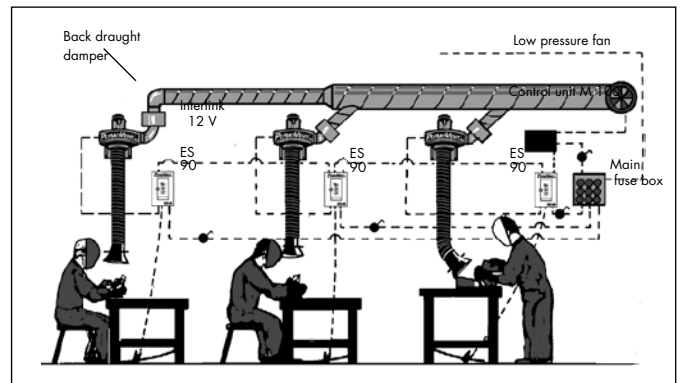
- Connector 1 on the control unit (M-1000) is connected to connector 4 on the energy savers (ES-90) or automatic dampers (ICE-LC).
- Connector 3 on the control unit (M-1000) is connected to connector 5 on the energy savers (ES-90) or automatic dampers (ICE-LC).



# Complementary products and accessories

## ES-90

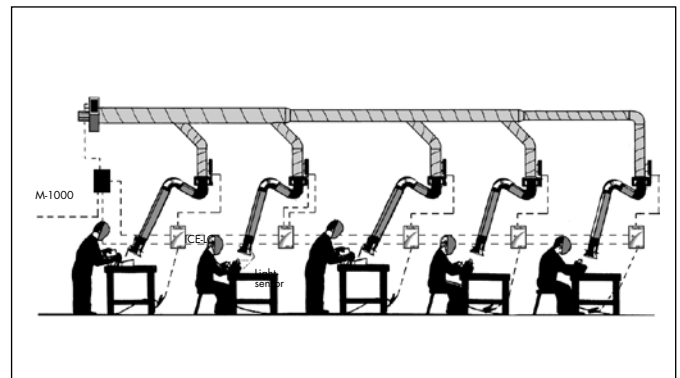
Separate fans and energy savers are good solutions even if you only want to connect the extractors to central ducting. The direction of the airflow is then governed by a low pressure central fan. The energy savers are connected in series to the M-1000 control unit which starts/stops the low pressure fan at the same time as the extraction fans are started/stopped. The system also requires back draft dampers on each subduct to prevent forward air flow down the arms not in use. The advantage with a separate fan is that one is always sure to get an even and strong extraction rate in every extractor, regardless of how many are in use at the same time.



Central system: 3 X LM-2 with individual fans and energy savers, connected to M-1000 control unit for control of the low pressure fan.

## ICE-LC/ MD

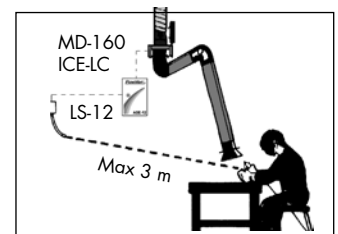
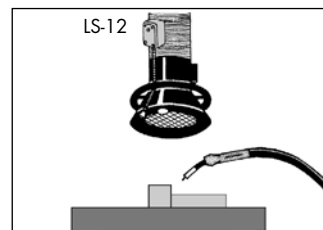
In a system with a central extraction fan, each extractor can be equipped with an automatic damper (ICE-LC). These open and close automatically as each work station starts and stops. The control unit (M-1000) stops the central extraction fan when all the automatic dampers are closed. Extracted air volumes can, in this way, be reduced by more than 50%. The ICE-LC is an excellent addition to an existing system. When more arms are added they will ensure the same extraction rate is maintained at each hood by closing off unused arms.



Central system: 5 X KUA-3 with automatic dampers ICE-LC, control unit M-1000 and one fan FS-3000 or FS-2100. Recommended number of workplaces: FS-2100: 2-4, FS-3000: 3-6, FS-4700: 4-8, FA-6000: 6-10

## LS-12

The LS-12 is intended for use with the energy savers and automatic dampers as an alternative to the inductive sensor. The LS-12 is used when using gas welding or TIG welding with currents below 30A.



The light sensor is mounted on the extractor near the hood. This is connected to the energy saver ES-90 which in turn starts and stops the fan, or is connected to the automatic dampers ICE-LC in a central system.

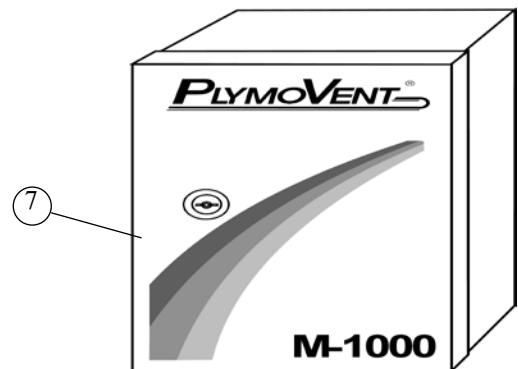
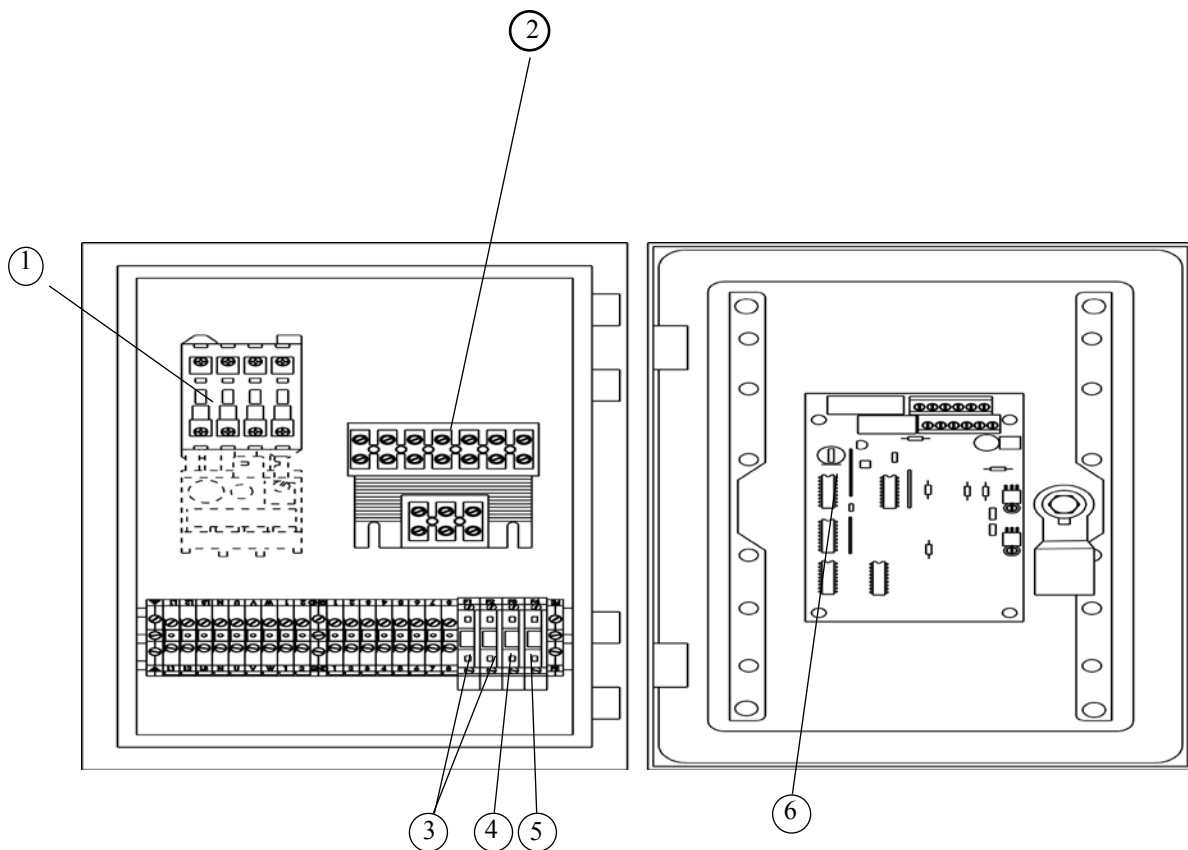
The light sensor LS-12 wall mounted. The maximum distance to the work-piece is about 3 m. The light sensor shown here is connected to an automatic damper ICE-LC, which in turn opens and closes the duct to the central fan. Can also be connected to the ES-90.

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## SPARE PART DRAWING

**CONTROL UNIT**  
M-1000

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<b>PLYMVENT®</b>	<b>SPARE PARTS LIST</b>	BSAB No: T3.1
		Ser. No:M-1000/ RR Date: Nov -07 Replace: Aug -98
<b>CONTROL UNIT</b> M-1000	© Copyright: All right reserved. All information within this printed matter may not be reproduced, handed over, copied, xeroxed or translated into another language, in any form or any means without written permission from PlymoVent AB. PlymoVent AB reserves the right to make design changes.	

Produkt No:		Decription
A	All models	All models of M-1000
B		
C		
D		
E		
F		
G		

**Abbreviations**

X = Order as required, state required length.

Pos	Art. No:	A	B	C	D	E	F	G	Description	Note
1	935 388	1							Contactora A&B K12 24V	
2	939 520	1							Transformer	
3	939 797	2							Fuse 1,6 A	
4	939 801	1							Fuse 3,15 A	
5	939 819	1							Fuse 6,3 A	
6	940 304	1							Printed board circuit	
7	517 813	1							Housing	
8										
9										
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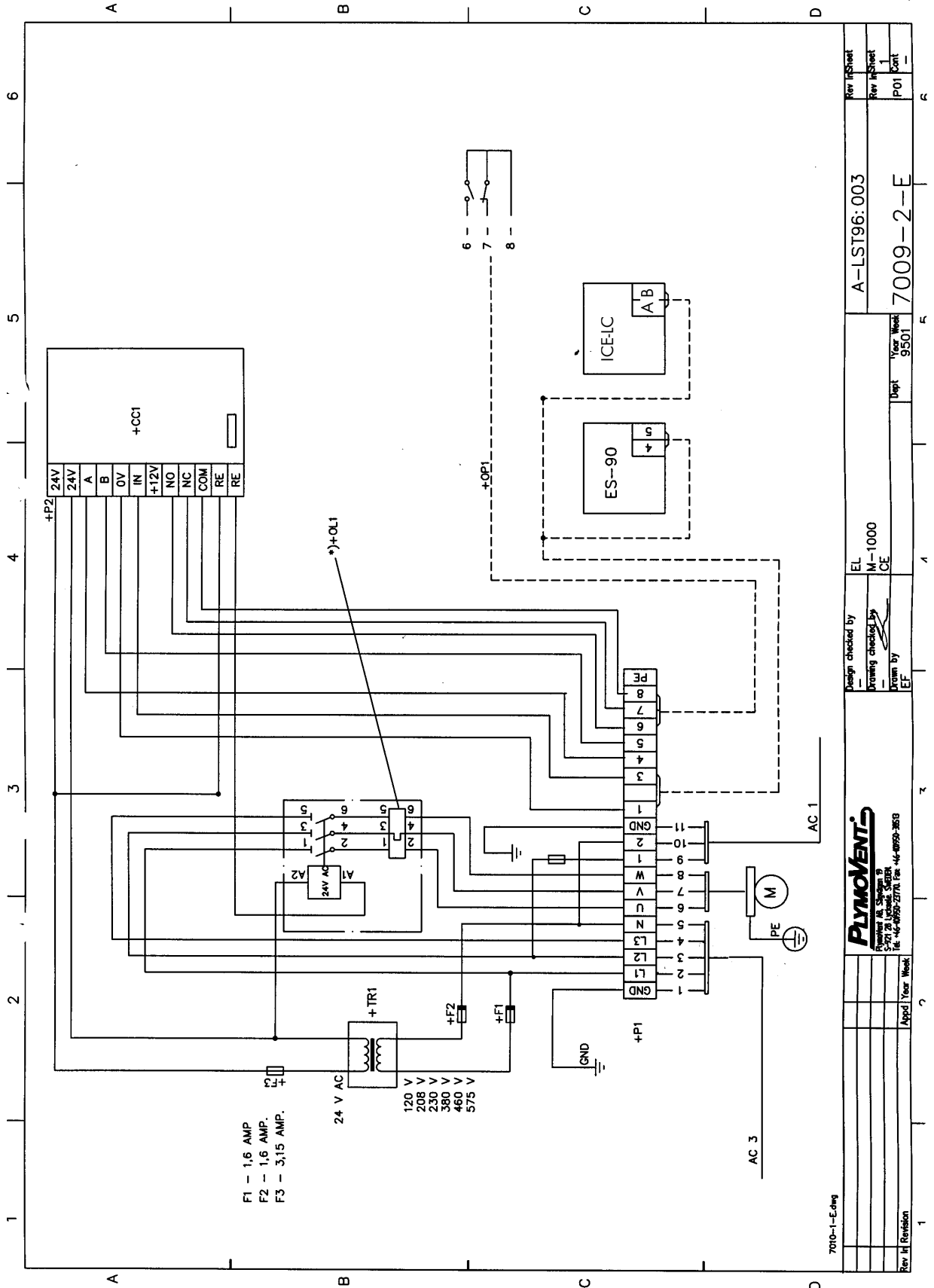
When ordering spare parts please quote:  
•Product No. (see label) • Batch No • Description • Part No • Quantity  
For example: M-1000, 00040, contactor, 935388, 1 pc

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## WIRING DIAGRAM

**CONTROL UNIT**  
M-1000

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# 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 konstruktion og uftørelse 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 tillämpliga 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 sarjatouantolaitteet vastaavat aina voimassaolevien 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

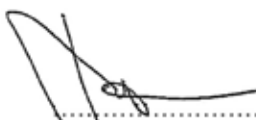
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**73/23/EEC, 93/68/EEC**

EN 60204-1

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