D4250IP

1CH / 2CH / 4CH

Class-D Power Amplifier

USER MANUAL

enormPA

English – Combined 1CH / 2CH / 4CH Edition

Document Scope and Revision Notes

This manual covers the EnormPA D4250IP Class-D power amplifier family in 1-channel, 2-channel and 4-channel versions. The amplifier platform, safety principles, front-panel status logic and CANBUS communication concept are common across the family. Model-specific differences are identified wherever channel quantity, rear-panel connectors or output structure differs.

MODEL APPLICABILITY: Unless a paragraph is specifically marked 1CH, 2CH or 4CH, the instruction applies to all D4250IP variants.

Function	D4250IP 1CH	D4250IP 2CH	D4250IP 4CH
Power amplifier channels	1	2	4
Rear speaker output blocks	1	2	4 independent channel outputs
Selectable speaker taps	4Ω / 50V / 70V / 100V	4Ω / 50V / 70V / 100V per channel	70V / 100V selectable per channel
Line inputs	1	2	4
Line outputs	1	2	4
Front/rear gain controls	1	2	4
Relay fault outputs	2 (Amp Fault, General Fault)	2 (Amp Fault, General Fault)	4 (Amp, Mains, Battery, Link fault)
Output-voltage selector	Not used	Not used	4-position selector (CH1-CH4)
CANBUS communication	2 x RJ45	2 x RJ45	2 x RJ45
CANBUS ID switch	4-way	4-way	4-way
Backup supply	48V DC battery input	48V DC battery input	48V DC battery input

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1. Important Notices and Safety

WARNING: To reduce the risk of fire or electric shock, do not expose the equipment to rain, moisture or liquids. Installation and servicing must be performed by qualified personnel.

1.1 Safety precautions

1. Read this manual before installation and keep it with the product for future reference.
2. Disconnect mains and battery power before installing, connecting or disconnecting any cable.
3. Use a properly grounded mains outlet. The metal chassis must remain protectively earthed.
4. Do not crush, stretch, sharply bend or otherwise damage the power cable.
5. Do not open the chassis. There are no user-serviceable parts inside.
6. Prevent foreign objects and liquids from entering the unit or connected speaker lines.
7. Immediately switch off and disconnect the unit if smoke, unusual odour, severe impact or abnormal operation occurs.
8. Use only the specified power sources and connection accessories.
9. Do not cover ventilation openings and do not operate the amplifier continuously under excessive load.

1.2 Positioning and cleaning

- Install the amplifier in a dry, ventilated 19-inch rack or on a stable flat surface.
- Leave clear space around the sides and rear for airflow and cable access.
- Keep the amplifier away from direct sunlight, strong heat sources, heavy vibration and humid environments.
- Clean the exterior with a soft, slightly damp cloth. Do not use benzene, thinner, alcohol, bleach or other volatile / flammable liquids.

2. Device Overview

The EnormPA D4250IP family is a Class-D power amplifier platform designed for EN54 public-address and voice-alarm systems. All versions communicate with the DOC system via CANBUS and support mains and 48V DC backup operation. The family uses efficient SMPS technology to reduce heat loss and weight while providing stable performance and fault supervision.

2.1 Main characteristics

- Front-panel LEDs provide instant visual indication of protection, clip, signal, mains, battery and general fault conditions.
- Fault information is transferred to the DOC control system via CANBUS.
- The family provides low-impedance and line-voltage speaker outputs depending on the installed model.
- Rear-panel gain controls allow direct level adjustment for each available channel.
- Relay fault outputs can be used to forward amplifier status to other control equipment.

2.2 Model-specific overview

- D4250IP 1CH: single-channel version with 1 line input, 1 line output, 1 gain control, 1 speaker output block and 2 relay fault outputs.
- D4250IP 2CH: two-channel version with 2 line inputs, 2 line outputs, 2 gain controls, 2 speaker output blocks and 2 relay fault outputs.
- D4250IP 4CH: four-channel version with 4 line inputs, 4 line outputs, 4 gain controls, 4 independent speaker output channels and a four-position 70V / 100V output-voltage selector for channels 1-4.

3. Controls, Connectors and Indicators

3.1 Front Panel

The front-panel logic is common across the family. The 1CH and 2CH versions use the same indicator concept with fewer channel LED groups, while the 4CH version provides four channel groups.

No.	Front-panel indicator	Function
1	Protection	Flashes to show amplifier or speaker-line related fault on the respective channel. Disconnect the relevant speaker line to determine whether the problem is external wiring/load or the amplifier itself.
2	Clip	Indicates output clipping. If clipping is continuous or the LED remains on steadily, reduce the gain of the respective channel.
3	Signal	Shows the presence of audio signal on the respective channel.
4	General Fault	Turns on when a general fault exists, such as loss of mains or battery supply or another system-level amplifier issue.
5	Battery	Shows that the amplifier is connected to the 48V DC battery supply.
6	Main	Shows that mains voltage is present.

3.2 Rear Panel and Model-specific I/O

IMPORTANT: The rear-panel arrangement differs between the 1CH / 2CH models and the 4CH model. Always wire the installed model exactly according to the labels printed on that unit.

3.2.1 D4250IP 4CH rear panel

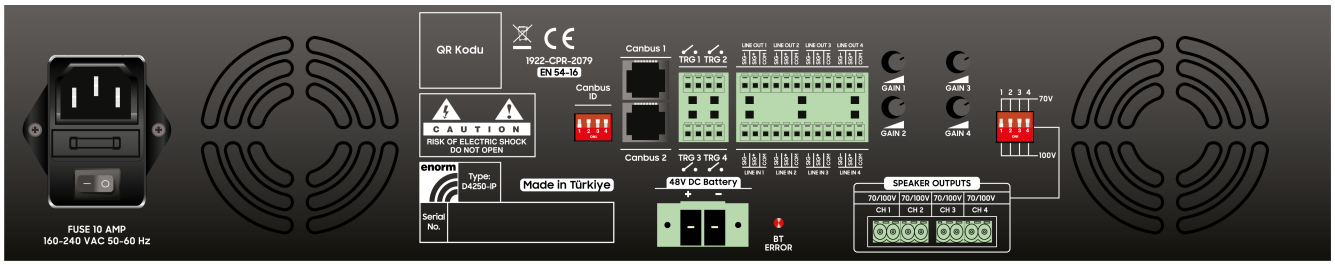


Figure 1 – D4250IP 4CH rear panel

Item	Description
CANBUS ID	4-way ID switch used to address the amplifier in the system.
CANBUS 1 / CANBUS 2	Two RJ45 communication ports for connection to the DOC controller and other amplifiers.
TRG 1…4	Dry-contact fault outputs: amplifier fault, mains fault, battery fault and communication fault.
LINE OUT 1-4 / LINE IN 1-4	Separate balanced signal outputs and inputs for channels 1 to 4.
Gain 1…4	Rear-panel level controls for the four amplifier channels.
70V / 100V selector (1-4)	Four-position selector used to set each output channel (CH1-CH4) individually to 70V or 100V operation.
Speaker Outputs CH1-CH4	Four independent line-voltage outputs. Each channel operates at the voltage selected by its corresponding selector position (70V or 100V).
BT Error LED	Indicates reverse battery polarity or battery-related error condition.
48V DC battery input	Backup supply input.
160-240 VAC input	Mains power inlet, 50/60 Hz, protected by a 10 A fuse.

4CH OUTPUT VOLTAGE SELECTION: Before connecting the loudspeaker lines, set selector positions 1-4 to the required output voltage for CH1-CH4. Each channel can be configured independently for 70V or 100V operation.

3.2.2 D4250IP 2CH rear panel

The D4250IP 2CH rear panel, shown below, uses direct multi-tap output blocks. The updated 4CH version instead uses four independent 70V / 100V outputs with channel-by-channel voltage selection.

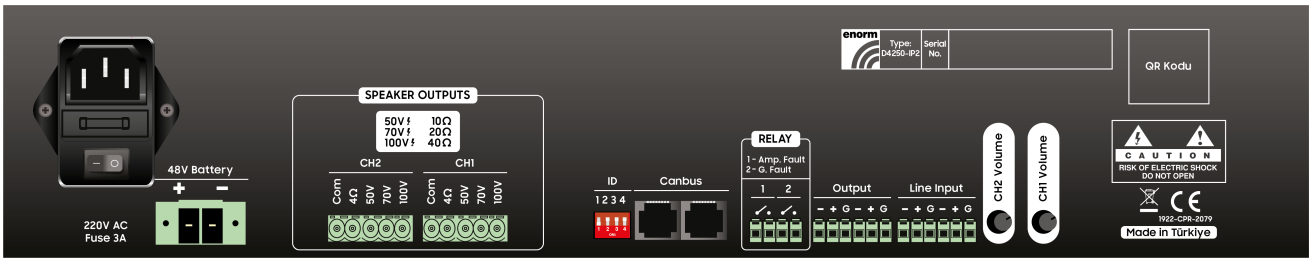


Figure 2 – D4250IP 2CH rear panel

Item	Description
AC power inlet / switch	220 VAC mains input with fuse protection and power switch.
48V Battery	Backup DC supply input.
Speaker Outputs CH1 / CH2	Direct output terminals for each channel: COM, 4Ω, 50V, 70V and 100V. Printed load references on the unit: 50V / 10Ω, 70V / 20Ω, 100V / 40Ω.
ID switch	4-way amplifier address selector for CANBUS networking.
CANBUS	2 x RJ45 connectors for communication with the DOC system / other amplifiers.
Relay	2 dry-contact outputs: 1 = Amp Fault, 2 = General Fault.
Output	2 line outputs on a balanced connector block.
Line Input	2 line inputs on a balanced connector block.
CH1 / CH2 Volume	Individual rear-panel gain controls for each channel.

3.2.3 D4250IP 1CH rear panel

The D4250IP 1CH rear panel is the simplified single-channel version of the same amplifier family.

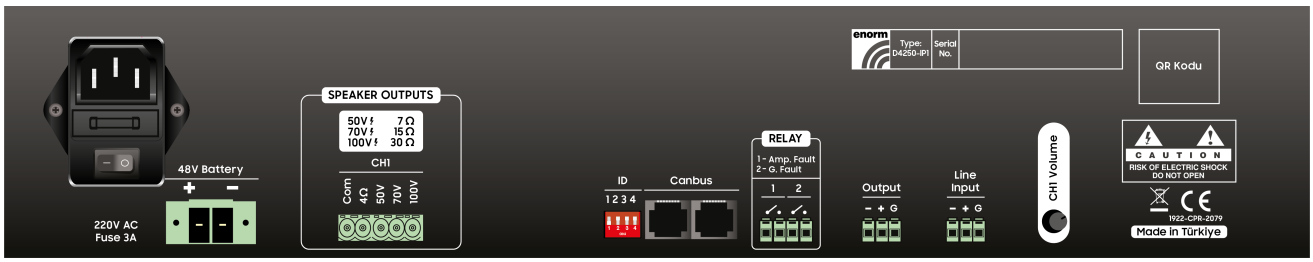


Figure 3 – D4250IP 1CH rear panel

Item	Description
AC power inlet / switch	220 VAC mains input with fuse protection and power switch.
48V Battery	Backup DC supply input.
Speaker Output CH1	Direct output terminals for the single channel: COM, 4Ω, 50V, 70V and 100V. Printed load references on the unit: 50V / 7Ω, 70V / 15Ω, 100V / 30Ω.
ID switch	4-way amplifier address selector for CANBUS networking.
CANBUS	2 x RJ45 connectors for communication with the DOC system / other amplifiers.
Relay	2 dry-contact outputs: 1 = Amp Fault, 2 = General Fault.
Output	1 balanced line output.
Line Input	1 balanced line input.
CH1 Volume	Single rear-panel gain control for the channel.

4. Installation and Basic Operation

The D4250IP amplifier family is suitable for 19-inch rack installation or placement on a stable flat surface. Ensure that the ventilation openings remain unobstructed and that adequate airflow is available around the unit.

4.1 Installation recommendations

1. Mount the amplifier securely in a ventilated rack. Use mounting rails where necessary to prevent mechanical strain on the front panel.
2. Before making any connection, make sure mains power is switched off and the 48V battery supply is disconnected.
3. Set the CANBUS ID switch according to the project design before connecting the amplifier to the DOC system.
4. Connect the line input(s) from the relevant source or DOC controller outputs.
5. Connect the line output(s) if signal forwarding to another amplifier or device is required.
6. Connect the loudspeaker wiring only to the terminals specified for the installed model. Direct speaker lines will be connected to the DOC controller. For the 4CH version, set selector positions 1-4 to match the required 70V or 100V loudspeaker-line voltage before wiring CH1-CH4.
7. Connect relay fault outputs if external fault monitoring is required.
8. Connect the CANBUS cable(s) between the amplifier and the DOC controller / other amplifiers.
9. Connect the 48V DC battery input if standby supply is required by the project.
10. Connect the mains power cord, switch the unit on, and verify that the Main LED lights. If a battery is connected, verify that the Battery LED also lights.

4.2 Start-up checks

- General Fault LED should remain off during normal operation.
- Signal LEDs should follow incoming audio activity on the active channels.
- Clip LEDs should not remain continuously on; reduce channel gain if required.
- If a Protection LED indicates fault, isolate the relevant loudspeaker line to distinguish wiring/load problems from an internal amplifier condition.

CONNECTION REFERENCE: System interconnection between the DOC controller and the D4250IP family must follow the approved project wiring scheme. In DOC systems, CANBUS and audio line routing should be checked during commissioning.

5. Technical Specifications

5.1 Common specifications

Parameter	Value
Main power supply	160-240 VAC, 50/60 Hz switching power supply
Mains fuse	10 A
Battery power supply	44–57 V DC
Communication	CANBUS via 2 x RJ45 ports
Frequency response	20 Hz – 20 kHz (-3 dB / +1 dB)
SNR	> 75 dB
THD	< 0.3% at 1 kHz, rated output
Operating temperature	0°C to +40°C
Relative humidity	35% to 80% (non-condensing)
Installation format	19-inch rackmount chassis
Chassis finish	Steel metal chassis, RAL7016 / dark grey family finish

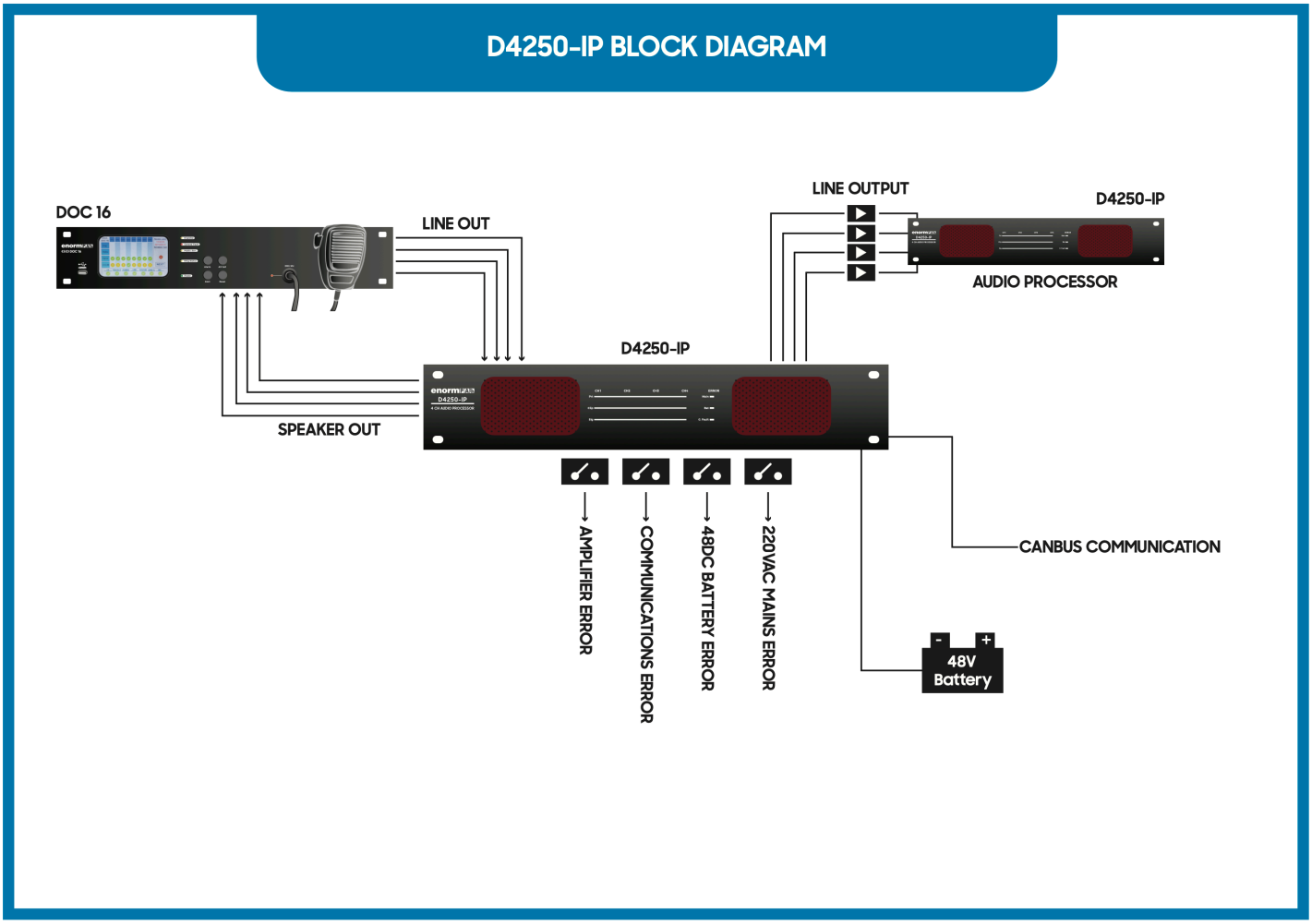
5.2 Model-specific capacities

Specification	D4250IP 1CH	D4250IP 2CH	D4250IP 4CH
Rated amplifier structure	1-channel Class-D	2-channel Class-D	4-channel Class-D
Rated output power	Approx. 1 x 260 W RMS	2 x 260 W RMS	4 x 250 W RMS
Speaker output taps	4Ω / 50V / 70V / 100V	4Ω / 50V / 70V / 100V per channel	70V / 100V selectable per channel
Reference output load values	50V: 7Ω, 70V: 15Ω, 100V: 30Ω	50V: 10Ω, 70V: 20Ω, 100V: 40Ω	Verify against the product rating and project load calculation.
Line inputs	1 balanced input	2 balanced inputs	4 line inputs
Line outputs	1 balanced output	2 balanced outputs	4 line outputs
Rear gain controls	1	2	4
Relay fault outputs	2	2	4
Special rear selector	Not applicable	Not applicable	4-position 70V / 100V selector (CH1-CH4)

SPECIFICATION NOTE: The 1CH and 2CH technical capacities were aligned with the provided product photos / factsheet and the common D4250IP family architecture. Always verify the rating label on the shipped unit before final project documentation or certification submittals. The D4250IP 4CH rear-panel layout and output-voltage information in this revision follow the latest supplied production silkscreen.

6. Block Diagram

The following block diagram illustrates the D4250IP family working principle within a DOC system. The communication, fault-reporting and backup-power concept applies across the family, while the number of amplifier channels varies by model.



7. Declaration of Manufacturer

Declaration of Manufacturer

ISO 9001: 2015

Quality Management System

We herewith declare that we work according to our certified quality management system what assures that delivered goods are in conformity with the order documents.The necessary processes and its verification are described in the quality management handbook

MİKAFON

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Name of Manufacturer: MİKAFON ELEKTRONİK İNŞ.SAN.LTD.ŞTİ.

Şair Ziya Paşa Cad No: 8 34420 Karaköy - ISTANBUL / TURKEY

Standard: ISO 9001:2015
Certificate Register / No: 01 100 1915905
Tüv Rheinland / IAF, DAkkS, TURKAK

Scope: Design, production, planning, sales and technical support for professional sound, light and emergency voice/alarm communication systems

Validity: The certificate is valid from 2019-12-17 until 2022-12-16.

MİKAFON ELEKTRONİK İNŞAAT SAN. VE TİC. LTD. ŞTİ. Şair Ziyapaşa Cd. No: 8 Karaköy-İST. Yenikapı V.D. 621 041 6473

Declaration of Manufacturer

Environmental Conditions

EN 54-16 / EN 54-4

Standart: 60721-3-3
Class 3K5

Environmental Parameter	Classification of Climatic Condition
Low Air Temperature	-5°C
High Air Temperature	+45°C
Low Relative Humidity	%5
High Relative Humidity	%95
Low Absolute Humidity	1 G/m³
High Absolute Humidity	29 G/m³
Rate Of Change Of Temperature	0,5°C/min
Low Air Pressure	70 kPa
High Air Pressure	106 kPa
Condensation	No
Wind-Driven Precipitation (Rain, Snow, Hail, Etc.)	No

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Şair Ziya Paşa Cad No: 8 34420 Karaköy - ISTANBUL / TURKEY

MİKAFON ELEKTRONİK
İNŞAAT SAN. VE TİC. LTD. ŞTİ.
Şair Ziyapaşa Cd. No: 8 Karaköy-İST.
Yenikapı V.D. 021 041 643

8. Certification

CE CERTIFICATE OF CONFORMITY

This declaration of conformity is issued under the sole responsibility of the manufacturer:

Manufacturer:
MİKAFON ELEKTRONİK İNŞ. SAN. LTD. ŞTİ.

Address: Şair Ziya Paşa Cad. No: 8, 34420 Beyoğlu - İstanbul, Türkiye

Reference	Brand	Commercial Name	Description
15950448	ENORMPA	ESCO D4250IP	Power Amplifier
15950450	ENORMPA	ESCO D4250IP PA.2x260W	Power Amplifier
15950451	ENORMPA	ESCO D4250IP PA.4x250W	Power Amplifier

is in conformity with Directives:

Reference	Title
2014/35/EU	Low Voltage Directive (LVD)
2014/30/EU	Electromagnetic compatibility (EMC)
2012/19/EU	Waste Electrical and Electronic Equipment (WEEE)
2011/65/EU	Restriction of the use of certain hazardous substances (RoHS 2)

according to the provisions for compliance:

Reference	Date
EN IEC 63000:2022	07.27.2022
EN 50849:2017	31.03.2017
EN 62368-1	01.04.2023
EN 55032:2016	16.03.2016

Signed for and on behalf of the manufacturer by:

Name: Ercan Polat
Position: Chief Executive Officer (CEO)
İstanbul, January - 08/2022

MİKAFON ELEKTRONİK İNŞAAT SAN. VE TİC. LTD. ŞTİ.
Şair Ziyapaşa Cad. No:8 Karaköy-İST.
Yenikapı V.D. 021 011 6413

Datasheets & CE Certificates

MİKAFON®

9. Warranty

WARRANTY
GARANTİ BELGESİ

Bu belgenin kullanılmasına; 4077 sayılı Tüketicinin Korunması Hakkında Kanun ve bu Kanun'a dayanılarak yürürlüğe konulan Garanti Belgesi Uygulama Esaslarına Dair Yönetmelik uyarınca, T.C. Sanayi ve Ticaret Bakanlığı İl Müdürlüğü tarafından izin verilmiştir.

İMALATÇI FİRMANIN

ÜNVANI: MİKAFON ELEKTRONİK İNŞ.SAN.LTD.ŞTİ.
MERKEZ ADRESİ: Şair Ziya Paşa Cad. No: 8/A 34420 Karaköy / İSTANBUL
TELEFON: 0(850) 450 18 63 (Dahili: 210)
FAKS: 0 212 244 5175

MALIN

CİNSİ: POWER AMPLIFIER
MARKASI: enormPA

MODELİ:
SERİ NO:

GARANTİ SÜRESİ: 2 (İKİ) YIL — WARRANTY: 2 (TWO) YEARS VALIDITY
AZAMİ TAMİR SÜRESİ: 30 (OTUZ) İŞ GÜNÜ — MEAN TIME TO REPAIR: 30(THIRTY) WORK DAYS

SATICI FİRMANIN

ÜNVANI: _____
ADRESİ: _____
_____

TELEFONU: _____
FAKSI: _____
FATURA TARİH VE NO: _____ / _____

TARİH-İMZA-KAŞE: