



OUR FACTORIES

NERO Endüstri Savunma Sanayi A.Ş. which operates in United States of America, Bulgaria and Turkey at Ankara headquarters, is one of the largest subsystem manufacturers in Defence Industry in Turkey. Our company which is located on a plot of 12.000 m2 in Anatolia Organized Industrial Zone; has been performing hundred percent domestic design, manufacture and provide system solutions since its foundation in 2009. More than 100 engineers are assigned within its staff of 210 people. Besides, it imports 29 different countries in the world. While our group companies operate in Space Aviation field, Defence Industry, it also comprises one of the largest test centres of Turkey regarding Defence Industry





Advanced Reliability



By combining design, production, monitoring, control and improvement methods conforming to ISO9001 and AS9100 standards with quality engineering and test infrastructure, it successfully competes with its global competitors and accomplishes outstanding projects together with world leaders of the sector.

Nero Industry has started project designing phase of the factory for the project which is worth 1.6 billion TL together with project-based investment incentive support on Presidential decree published in official gazette on 20th April, 2020 in order to establish Turkey's first semiconductor production factory. Turkey's first semiconductor serial production facility which will be established on 300.000 m2 plot, will bring our country to the level where we will be able to compete with semiconductor companies at global level. Nero Industry, together with its high qualified employees will create first investment phase of Turkey in this field with this project.

Within the scope of designed and qualified systems,

ARES – Fire Suppression Systems,

MARS – CBRN Detection and Filtration Systems,

ARMA – Power Systems,

UMAY – Laser Detection/Warning and Smoke Grenade Launcher Systems are included.



29

NERO INDUSTRY SYSTEMS IMPORT TO 29 COUNTRIES

- Germany
- Israel
- Ukraine
- Brasil
- USA
- Azerbaijan
- Bahrain
- China
- Indonesia
- Koweit
- Malaysia
- Oman
- Pakistan
- Katar
- Singapore
- France
- Spain
- England
- Peru
- Suadi Arabia
- Turkmenistan
- United Arab Emirates
- Canada
- India
- Thailand
- Kazakstan
- Latvia
- Estonia
- Lithuania



ARES WIND TURBINES FIRE EXTINGUISHING SYSTEMS

It is impossible to protect wind turbines against fire with traditional methods used at buildings and industrial equipment. As these turbines are built at areas far from human settlement, fire call and intervention by fire department are impossible during possible fires. Besides being in fire risk group due to thunderbolt risk as they are built on plains, valleys and high hills, wind turbines are also in highest fire risk group because of;

- Capacitor Cabins
- Control Cabins
- Hydraulic Stations
- Converter Cabins they contain.

Thus, **Nero Industry** offers a perfect automatic detection and extinguishing system solution for these turbines. These systems are used where no user is present and automatically detect fire optionally between 3 milliseconds and 20 seconds and extinguish it optionally 250 milliseconds and 10 seconds.

Potential Threats

Factors causing fire in wind turbine;

- Short circuits
- Arc in transformer
- Overloading or overheating of electrical equipment
- Insufficient lubrication between bearing surfaces, causing overheating and sparks
- Generator failure

System General Specifications

» Conformity to NFPA 850 standard

» Capability to record last 500 alarms and errors
» Led lighting indicators

» Automatic and manual activation system

» Sound warning system

» It conforms to IP 67 standards. It has water and dust ingress protection.

» **Detection in 3 milliseconds**

» **Ability to extinguish fire within 5 secs from breaking out time**

» Optional control unit options

» Extinguisher and sensor error debugging

» Built-in test feature (BIT)
» Design suitable for harsh environmental conditions

» Conformant to MIL-STD-461, MIL-STD-810, MIL-STD-1275 military standards

» Easy installation, connection and adjustable

ARES WIND AEROSOL- THERMAL WIRE AUTOMATIC FIRE EXTINGUISHING SYSTEM OPERATION SCHEMATIC



» **1-** The fire is detected by **Linear sensor wire** and the signal is sent to control unit.

2- Control unit analyses the incoming signal in 10 milliseconds and activates the extinguisher tube. Simultaneously, it activates the alarm horn in the vehicle and warns the user by light-voice warning system on the panel.

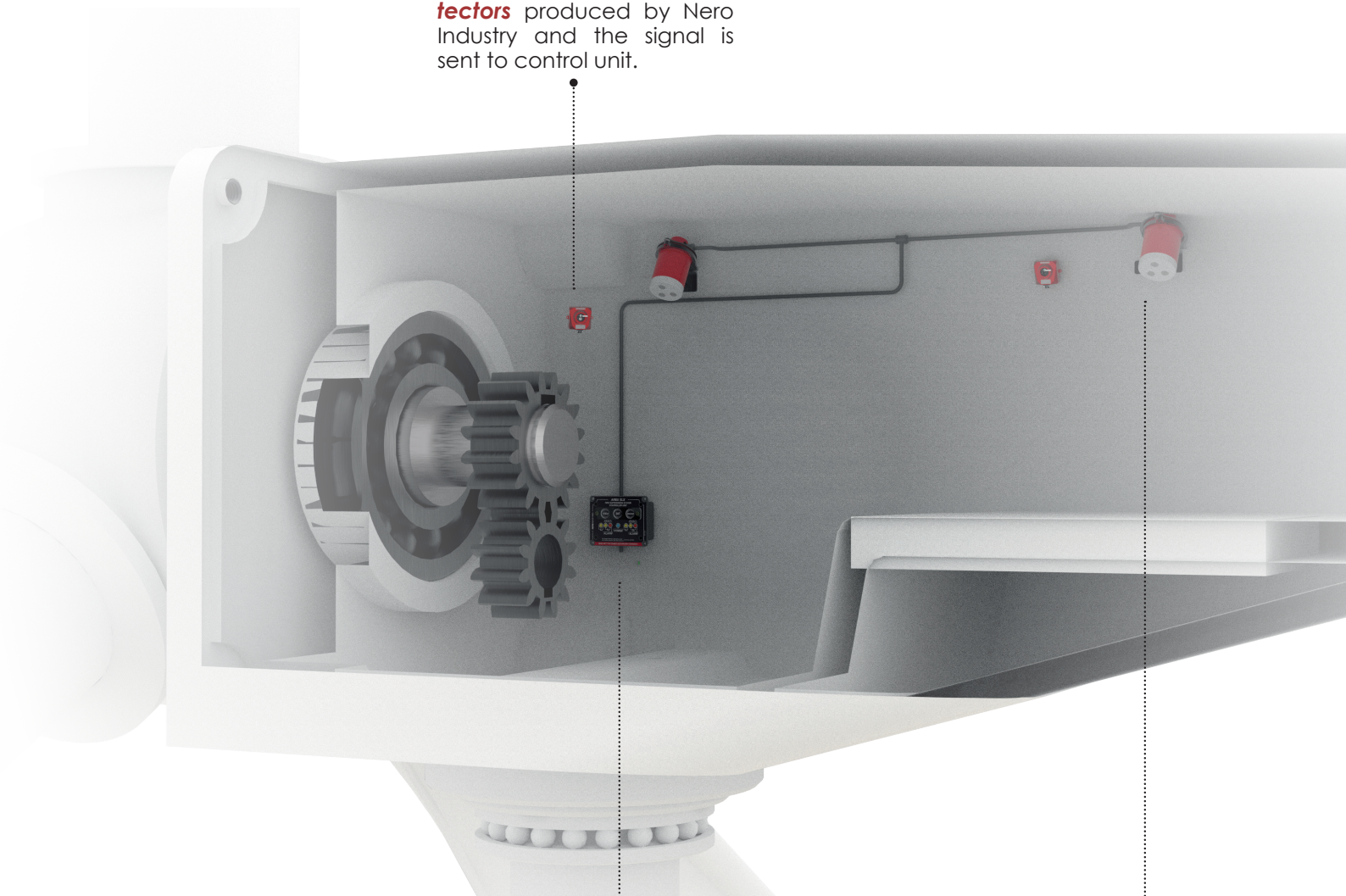
3- The extinguisher tube is activated with the help of the pyrotechnic trigger it has and extinguishing agents are released. The solid NRE-CM agent within the cylinder spreads homogeneously and extinguishes

ARES WIND AEROSOL-UV-IR DETECTOR AUTOMATIC FIRE EXTINGUISHING SYSTEM OPERATION SCHEMATIC



DETECTION IN 3 MILLISECONDS

1- The fire is detected within 3 milliseconds by **UV-IR Detectors** produced by Nero Industry and the signal is sent to control unit.



2- **Control unit** analyses the incoming signal in 10 milliseconds and activates the extinguisher tube. Simultaneously, it activates the alarm horn in the vehicle and warns the user by light-voice warning system on the panel.

3- **The extinguisher tube** is activated with the help of the pyrotechnic trigger it has and extinguishing agents are released. The solid NRE-CM agent within the cylinder spreads homogeneously and extinguishes the fire within five seconds.

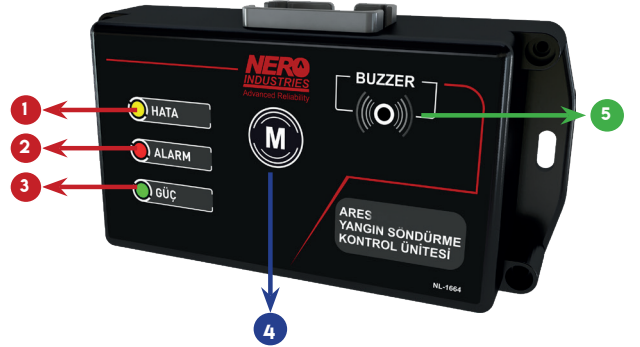
AW-01 Control Unit



- IM-06B control unit which is designed and developed by Nero Industry as a completely domestic product, is the unit section where warning, detection and fault status of the system are monitored by power leds belonging to each tube and detector. IM-06B Control unit which operates flexibly, complying with system configurations and operating logic, controls fire extinguishing and fire suppression system.
- By means of smart control unit, system verifications and logical operations could be performed. It has features of testing the system, manual activation and automatic activation. It has water and dust protection at IP 67 level. Error, alarm and other data regarding fire suppression and fire extinguishing system are transmitted to vehicle main computer by CANBUS communication infrastructure.

SPECIFICATIONS	EXPLANATION
CAN Bus	Available (J-1939 Protocol) Conformity
Supply Voltage	24 Vdc nominal (16-32 Vdc)
Power Consumption	450 mA @ 24 Vdc (In number of components used in the system it differs ± 100 mA.)
Operating Temperature	-32°C +71°C
Storage Temperature	-50°C +71°C
Weight	480 \pm 50 gr
Dimensions (Width X Height X Width)	85 x 49 x 100 \pm 5 mm
Impermeability	IP-65
Detector Reading Number	1 linear thermal detector or thermal wire
Extinguisher Reading Number	1 tube pyrotechnic
Military Test Standards It Conforms	AS 5062, UNECE R107, R10, MIL-STD-461, MIL-STD-810, MIL-STD-1275
Detector and tube error indicator	Available

BUTTON SPECIFICATIONS



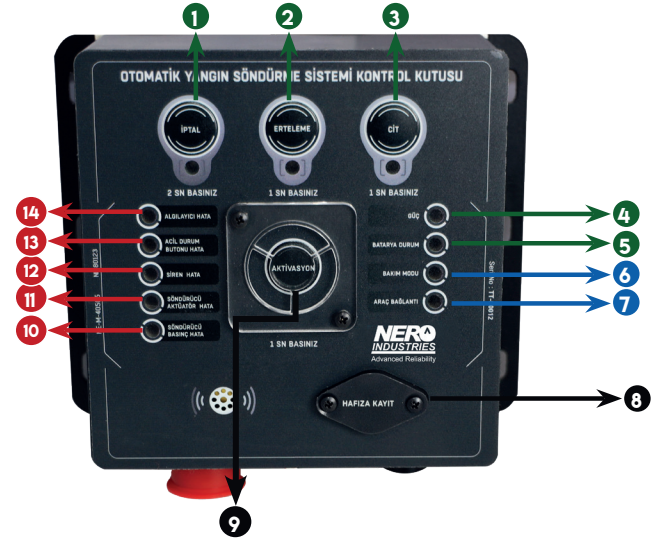
1	ERROR STATUS LED
2	ALARM STATUS LED
3	POWER ACTIVE LED
4	MANUAL ACTIVATION
5	ALARM STATUS INDICATOR

AW-02 Control Unit



- IM-06A control unit which is designed and developed by Nero Industry completely as a completely domestic product, controls fire extinguishing and fire suppression system and it is the unit section where warning, detection and fault status of the system are monitored by power leds belonging to each tube and detector. This smart control unit which has a many-chambered compact structure, receives the detection signals for power group, body, tire, engine, crew and other compartments to be protected and activates the system.
- It has features of testing the system, manual activation and automatic activation. It has water and dust protection at IP 67 level. Error, alarm and other data regarding fire suppression and fire extinguishing system are transmitted to vehicle main computer by CANBUS communication infrastructure. IM-06A Control unit has successfully passed military test standards such as MIL-STD-810 G, MIL-STD-461F, MIL-STD-1275E standards and it has 800 hours salt fog test resistance against corrosion.

BUTTON SPECIFICATIONS



1	ACTIVATION CANCEL BUTTON	9	SYSTEM ACTIVATION BUTTON
2	ACTIVATION SUSPENSE BUTTON	10	EXTINGUISHER PRESSURE ERROR LED
3	BUILT-IN TEST (BIT) BUTTON	11	EXTINGUISHER ACTUATOR ERROR LED
4	CONTROL UNIT POWER INDICATOR LED	12	SYSTEM WARNING LED
5	CONTROL UNIT BATTERY STATUS LED	13	EMERGENCY BUTTON CONNECTION ERROR LED
6	SYSTEM MAINTENANCE MODE LED	14	SENSOR ERROR LED
7	VEHICLE CONNECTION LED	15	INTERNAL BUZZER
8	DATALOGGER AND SOFTWARE SOCKET		

SPECIFICATIONS	EXPLANATION
Reaction Time	Cancellation and suspense in 10 seconds
Alarm Recording Feature	After alarm is detected, until energy is cut from the system or BIT is completed.
CAN Bus	Available (J-1939 Protocol) Conformity
Supply Voltage	24 Vdc nominal (16-32 Vdc)
Power Consumption	450 mA @ 24 Vdc (In number of components used in the system it differs ± 100 mA.)
Operating Temperature	-40°C +71°C
Storage Temperature	-50°C +85°C
Weight	1860 \pm 100 gr
Dimensions (Width X Height X Width)	180 x 150 x 75 \pm 5 mm
Military Test Standards It Conforms	AS 5062, UNECE R107, R10, MIL-STD-461, MIL-STD-810, MIL-STD-1275
Manual Activation	Available
Sound Warning	Available

Nafeg Aerosol Fire Extinguisher Tube

- NAFEG Aerosol Extinguisher is designed to extinguish and defuse type A (solid fuel), B (liquid fuel), C (gas fuel) fires and type E (electrical) fires in enclosed volumes.
- After the extinguishing agent concentration required for each type of fire and volume to be protected is calculated, the solid NRE- CM agent content in the NAFEG cylinder and total number of NAFEG cylinders at the area to be protected are determined. NAFEG-125, is designed to produce powdered aerosol to extinguish a fire in a 1,25 m³ enclosed volume.

SPECIFICATIONS	EXPLANATION
Extinguishing Volume	1,25 m ³ - 2,5 m ³ - 5 m ³
Activation Mode	Electrical
Discharge Time	4-6 seconds
Discharge Length	2 m
Optional Manual Triggering	Available
Nozzle and Hydraulic Line	Not used
Toxicity	None
Triggering voltage	24 Vdc (10-32 Vdc). It can also be triggered at lower voltages but performance may decrease.
Content	Potassium based dry chemical mixture
Operating temperature	-40°C +120°C
Storage temperature	-32°C +71°C
Weight	1,8 kg



SPECIFICATIONS

- ⚡ No Need Electricity
- 🔍 Include Detection Feature
- 🌬 No Ozone Depletion
- 🌍 No Global Warming
- 🚫 Low Toxicity
- ⚙ Highly Efficient - 100 gr/m³
- ✅ Approved By EPA for SNAP Listing
- 🛡 Small-Safe-Simple
- 📦 For A-B-C-E Class Total Flooding Applications
- 💰 Cost Effective
- 📅 Cool and dry; Max. 10 Years Storage/Shelf Life

APPLICATIONS

- 🏭 CNC-Machines
- 👤 Control Rooms (sub Floor; Above Ceiling)
- 📦 Electrical Cabinets
- 🔧 Engine & Compressors Rooms
- 🔥 Flammable and Combustible Liquids and Gases Storage
- 🎨 Paint Lockers
- 🚢 Marine Applications
- 🖨 Server Rooms
- 📡 Telecommunications Facilities













Fire Detection System Components

UV-IR OPTICAL DETECTOR

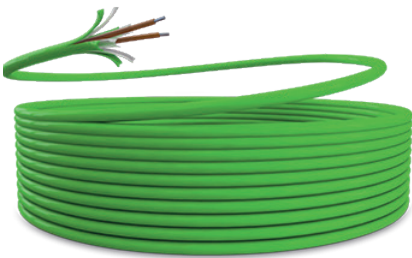


- Optical detectors detect heat and light waves at different frequencies by UV and IR sensors within it, makes required matches and send flame signal to control box. Detectors are genuinely designed by Nero Industry engineers applying to NATO Stanag 4317 and American MIL PRF 62546C standards. UV-IR flame detectors have also successfully passed high temperature, low temperature, humidity, shock-vibration, corrosion and EMI/EMC tests as per MIL-STD-810H and MIL-STD-461F standards.
- Detectors have been specially designed as IP67 and can stay under 1 meters of water for half an hour. The detectors also having protection for false alarms, do not react against false alarms such as sunlight, vehicle headlights, welding beam, infrared heater, cigarette ash.

TECHNICAL SPECIFICATIONS









 Detection in a time period less than 3 ms	 Ultraviolet (UV) and Infrared (IR) Sensor
 Power supply: 24 VDC nominal	 Operating temperature: -51°C / +120°C
 Storage temperature: -55°C / +150°C	 Power consumption: 70 mA @ 24VDC
 Weight: 480g ±50g	 Dimensions: 85x49x100 mm (±5mm)
 140° Blind Detection	 Compatible to CAN-BUS J-1939
 IP 67 Water and Dust Protection	 Advanced Software Algorithm

LINEAR SENSOR WIRE



- Linear sensor thermal wires are used for detecting the fire in the areas they are located in cases of fire. In this system, it is aimed to detect fire by fastening the thermal wire on surfaces in the area desired to be protected from fire. As for detection period, detection can be performed within 10 up to 40 seconds depending on magnitude, class of fire and the area it bursts out. When the ambient temperature reaches to 180 °C, the structure of the wire starts to get damaged and the outer layer melts and the wires inside touch each other and conduct fire alarm to control box.

TECHNICAL SPECIFICATIONS

 Wide detection area	 Operating temperature: -32°C / +121°C
 High reliability	 Storage temperature: -55°C / +71°C
 Operating temperature: -55°C / +150°C	 MTBF Period: 200.000 hours
 Cable diameter : 6 mm	 Maximum Length: 15m