

CONNECTOR

AKIRA FAMILY LETTER

Welcome message

Dear family members,

Seabirds searching for prey do not cross the ocean, ocean waves searching for shore do not cross the coast, we welcome our sailors who are in search of knowledge to travel across the ocean of news.

Our Vision :

“We are the right place for Value Creation.”

We, Akira Controls, acquire the status of “The right place” to create value for our customers in terms of designing, developing, manufacturing and delivering innovative technology-based systems and products.

We: We are responsible to improve all aspects of the people we live and relate with - creating a happy tomorrow than today. We consider ourselves not a leading manufacturer of electronics but feel proud to be one of the leading creators of people with intelligent choices. Thus, **WE** are not simply people but people with specific qualifications and values.

The right place: **WE**, the qualified associates of Akira, are building the organization as “The right place” to create value in terms of designing, developing, manufacturing and delivering electronic systems and solutions that customer values the most.

Value creation: We at Akira Controls are successfully meeting what the customer requires by understanding why he requires it. We deliver customer requirements only at his place, his time, his cost and the way he wants.



we are the right place for value creation

Specialty of April Month

April stands as one of the most vibrant and meaningful months of the year, rich with natural beauty, cultural diversity, and global awareness. One of the most striking features of April is its place in the natural cycle of seasons.

Environmental Awareness

- Earth Day (April 22): A major global event to promote environmental protection and awareness.
- Arbor Day (in some countries): Celebrated in April, it focuses on tree planting and raising awareness about the importance of trees.

Health & Awareness

World Health Day – April 7th. The focus for 2025 is on **maternal and newborn health**, emphasizing the importance of ensuring that every mother and baby not only survives but thrives. The campaign urges governments and health communities to intensify efforts to end preventable maternal and newborn deaths and to prioritize women's long-term health and well-being.

Cultural & Religious Events

- New Year Festivals for various regions in India & Sri Lanka
- Ramadan (in some years): Depending on the lunar calendar, Ramadan often begins or continues into April.
- Easter: This major Christian holiday, commemorating the resurrection of Jesus, often falls in April.
- Passover: A significant Jewish festival celebrating freedom and exodus from Egypt.
- Ambedkar Jayanti (April 14): Celebrates the birth of Dr. B.R. Ambedkar, a key figure in Indian history.
- April Fools' Day (April 1)



World Earth Day:

A Celebration of Our Planet

Every year on **April 22**, people around the world come together to honor something we all share - **the Earth**. **World Earth Day** is more than just a date on the calendar; it's a global reminder of how precious our planet is, and how urgently it needs our care.

The first Earth Day was observed in **1970** in the United States, sparked by growing awareness of environmental issues like pollution, deforestation, and the loss of biodiversity. It was the brainchild of **Senator Gaylord Nelson**, who wanted to create a platform to bring environmental concerns into the national spotlight. Over 20 million people participated in that first event—students, teachers, workers, and citizens—marching, rallying, and demanding a healthier planet. What began as a national movement quickly went global. Today, **over 1 billion people** in more than **190 countries** participate in Earth Day activities each year, making it the **largest civic observance in the world**.

But Earth Day isn't just about one day of action—it's a call to live more sustainably every day. From planting trees and cleaning up beaches to switching to eco-friendly habits and advocating for policy change, people everywhere take part in activities that protect and preserve the environment.

Each year, Earth Day comes with a **theme**. Past themes have included "Restore Our Earth," "Protect Our Species," and "Invest in Our Planet." These themes help guide campaigns, discussions, and educational efforts, focusing attention on urgent environmental challenges such as climate change, plastic pollution, and renewable energy.

Celebrating the Journey



S.Krishnakumari



R.Sandhya



U Sheela



K.Anitha



Mathivanan.R



Jaya S



Umamaheswari R



Girija S

Congratulations...

Welcome message



Saranya S



Sobi



Vijayalakshmi



Selvaeswari



Anandhajothi



Gayathri A



Gayathri P



Vidhya



Saranya M



Pradeepa



Kalavathy



Kaviya



Sivalakshmi



Uma Devi

Happy May Day!

"Let's celebrate the spirit of hard work and the beauty of spring. May your day bloom with happiness and your efforts be always rewarded!"



**HAPPY
MAY
DAY**

Technical Tips

Effect of Harmonics on Earth-to-Neutral Voltage

Understanding Earth-to-Neutral Voltage

The earth-to-neutral (E-N) voltage is the potential difference between the neutral conductor and earth (ground). In a balanced and ideal system, the E-N voltage should be close to zero (typically <1V). However, in real-world electrical systems, especially in buildings and industrial setups, harmonics can cause a significant rise in E-N voltage.

How Harmonics affect Earth-to-Neutral Voltage

Harmonics are high-frequency distortions in the electrical supply caused by nonlinear loads such as:

Computers, LED lights, and UPS systems.

Variable frequency drives (VFDs) and rectifiers.

Transformers and industrial machinery.

Reasons

3.1. Triplen Harmonics (3rd, 9th, 15th, etc.) and Neutral Voltage

Triplen harmonics (multiples of 3rd harmonic) do not cancel out in the neutral conductor. Instead, they accumulate in the neutral wire, increasing neutral-to-earth voltage significantly.

Example:

In a balanced system with fundamental frequency (50Hz or 60Hz), neutral current is minimal. But with harmonics (150Hz, 300Hz, etc.), the neutral current increases drastically, causing a voltage rise between neutral and earth.

3.2. Increased Neutral Current and Voltage Drop

Higher neutral current from harmonics leads to a voltage drop along the neutral conductor. The voltage difference between neutral and earth increases due to Ohm's Law:
 $V_N - E = I_N \times R_N$

where:

- $V_N - E$: Voltage between neutral and earth
- I_N : Neutral current (includes fundamental and harmonic components)
- R_N : Resistance of the neutral conductor
- As harmonic content increases, so does I_N , which in turn increases $V_N - E$.
- This voltage rise can cause equipment malfunction, inaccurate readings, or even safety hazards.

C. Ground Loop Issues

Harmonics induce voltages in grounding conductors, creating ground loops. This can cause unexpected currents to flow, leading to voltage fluctuations between neutral and earth.

3. Effects of High Earth-to-Neutral Voltage (ENV)

1. Unstable Equipment Operation

1.1 Sensitive electronics malfunction due to higher noise levels.

1.2 Data loss in IT equipment and erratic operation of PLCs (Programmable Logic Controllers).

2. Overheating of Neutral Conductors

Excessive harmonic currents cause neutral wires to overheat, leading to insulation damage and fire hazards.

3. Voltage Fluctuations and Electrical Noise

The fluctuating E-N voltage can cause flickering lights, buzzing noises, and power instability.

4. Increased Leakage Currents

Harmonic voltages induce leakage currents through earthing systems, triggering RCD (Residual Current Device) trips.

5. Incorrect Operation of Protective Devices

Circuit breakers and protective relays may fail to trip correctly due to distorted voltage readings.

4. How to Reduce Harmonic Effects on E-N Voltage

- A. Improve Neutral Conductor Sizing - Use oversized neutral conductors to reduce voltage drop due to harmonic currents.
- B. Install Harmonic Filters - Passive or active harmonic filters can block triplen harmonics and reduce neutral current buildup.
- C. Use Isolation Transformers - Delta-Wye transformers block triplen harmonics in the neutral conductor.
- D. Improve Grounding System - Ensure low-resistance grounding to provide an alternate path for leakage currents. Use dedicated grounding for sensitive equipment.
- E. Use Zig-Zag Transformers - Zig-Zag transformers can cancel out triplen harmonics, reducing neutral current and voltage rise.

