

## Waveform Archetype Examples

# Waveform Archetypes

Pre-Fix



Pre-Faults observed during Pre-Fix field trials and/or matching IEEE PES-TR73 report templates

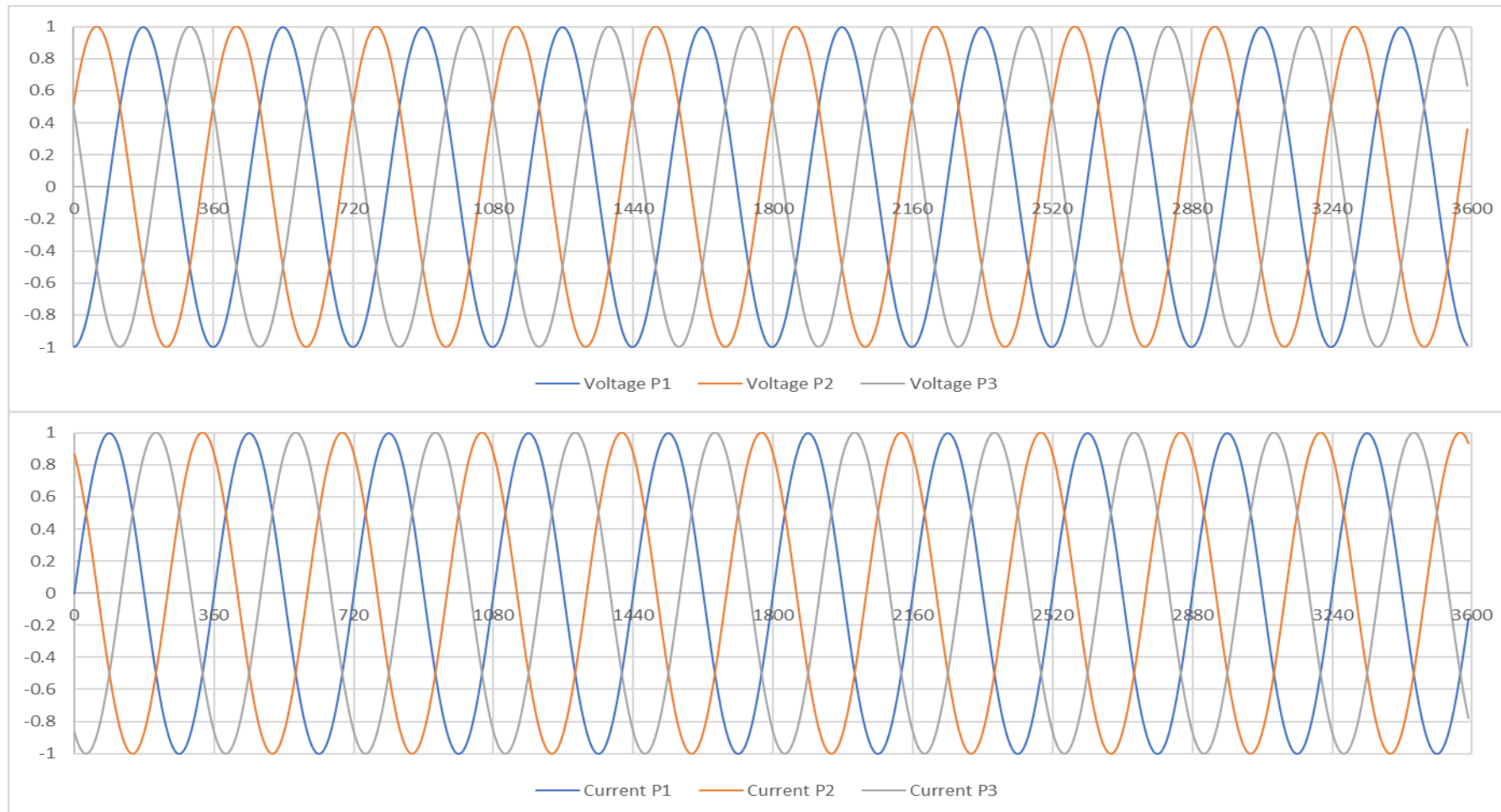
# Waveform Archetypes

Pre-Fix



Asset: None

Fault: No Fault

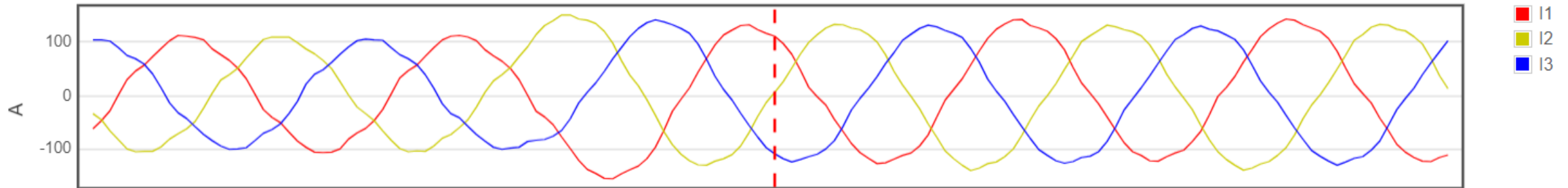


# Waveform Archetypes

Pre-Fix

Asset: Unknown/Possible LV

Fault: 3-Phase Swell

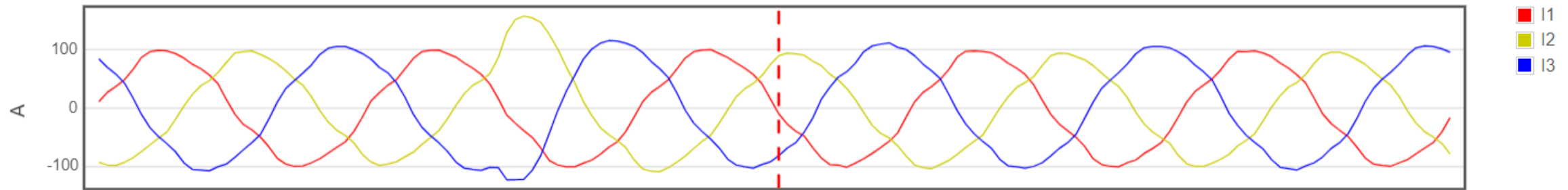


# Waveform Archetypes

Pre-Fix

Asset: Cable Joint

Fault: Incipient Cable Joint



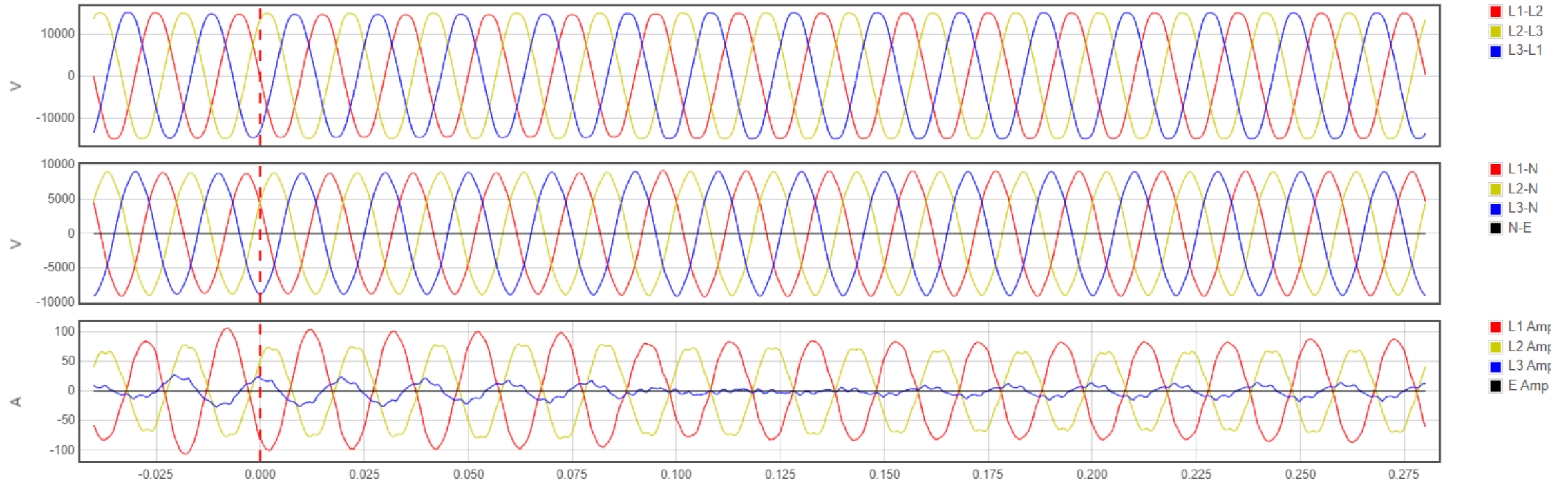
# Waveform Archetypes

Pre-Fix



Asset: Disc Insulator (Suspected)

Fault: Cracked Disc Insulator 1 (Suspected)

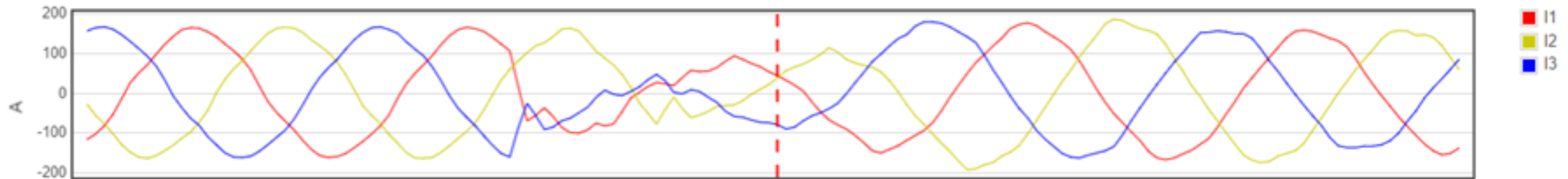


# Waveform Archetypes

Pre-Fix

Asset: Disc Insulator (Suspected)

Fault: Cracked Disc Insulator 2 (Suspected)

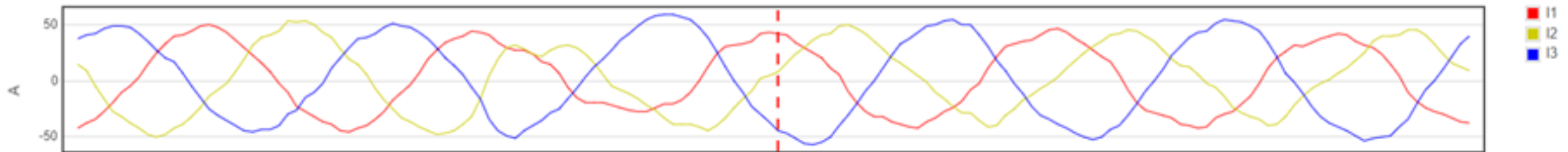


# Waveform Archetypes

Pre-Fix

Asset: Disc Insulator (Suspected)

Fault: Cracked Disc Insulator 3 (Suspected)





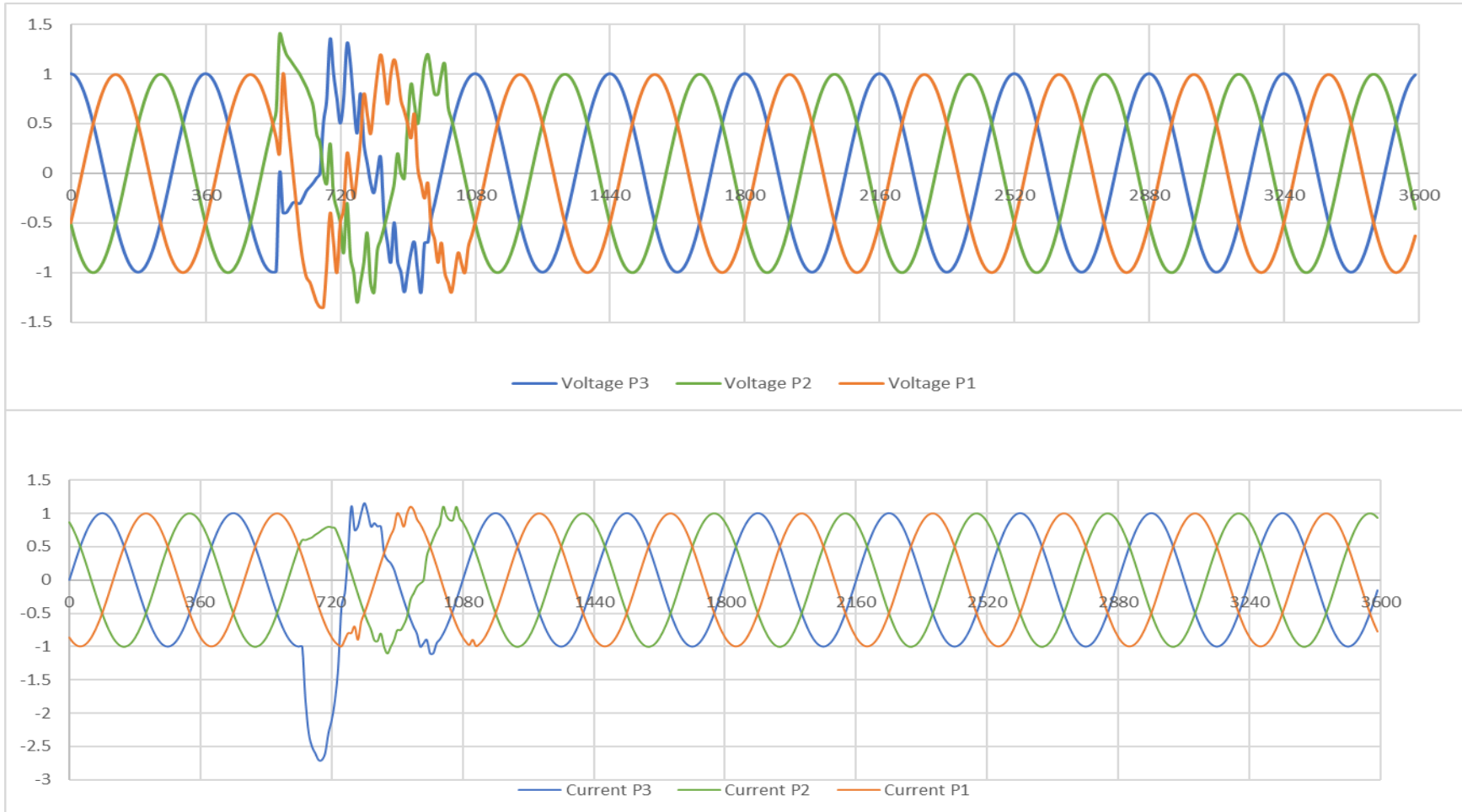
# Waveform Archetypes

Pre-Fix



Asset: Cable

Fault: Incipient Cable



# Waveform Archetypes

Pre-Fix



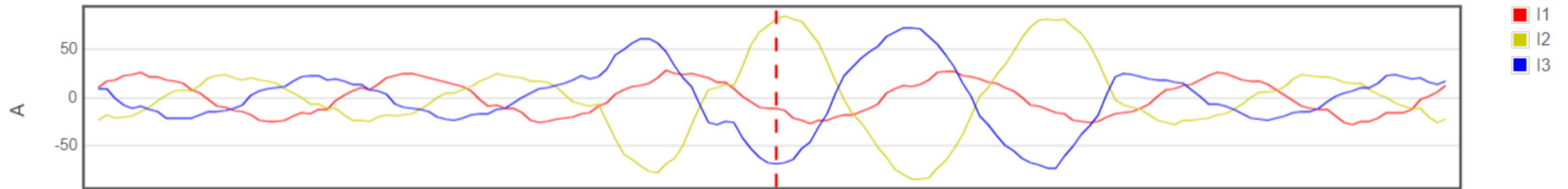
Post-Faults observed during  
Pre-Fix field trials and matching  
IEEE PES-TR73 report templates

# Waveform Archetypes

Pre-Fix

Asset: Cable Joint

Fault: Cable Joint Failure



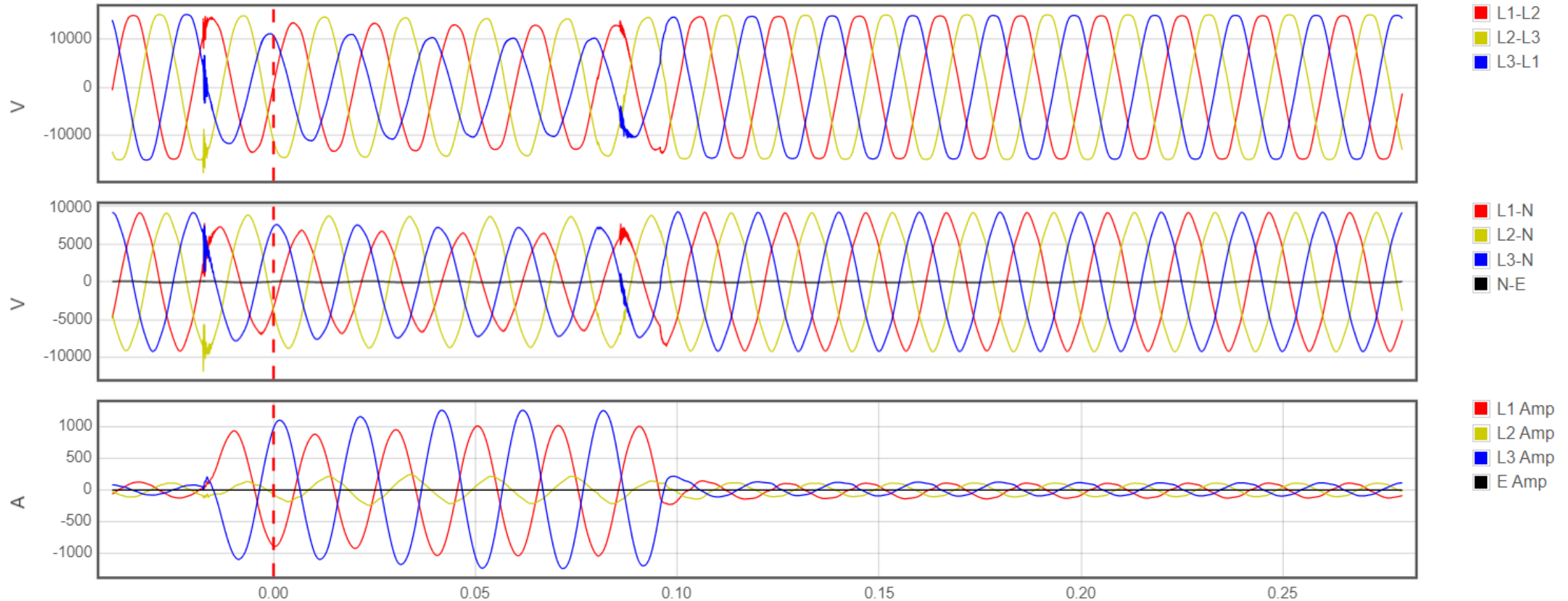
# Waveform Archetypes

Pre-Fix



Asset: Pole Termination

Fault: Pole Termination Failure



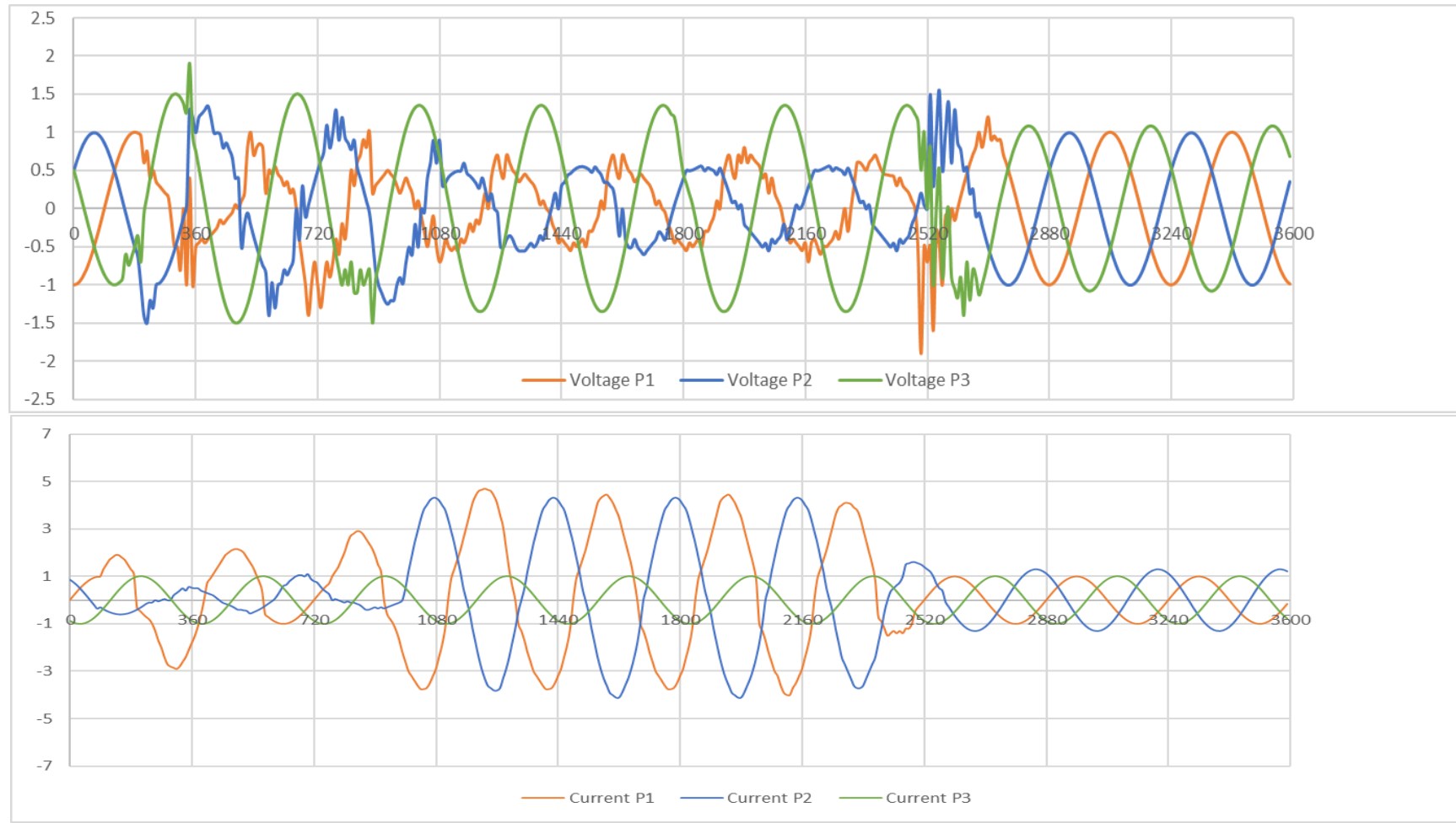
# Waveform Archetypes

Pre-Fix



Asset: Cable

Fault: Evolving Cable Fault



# Waveform Archetypes

Pre-Fix

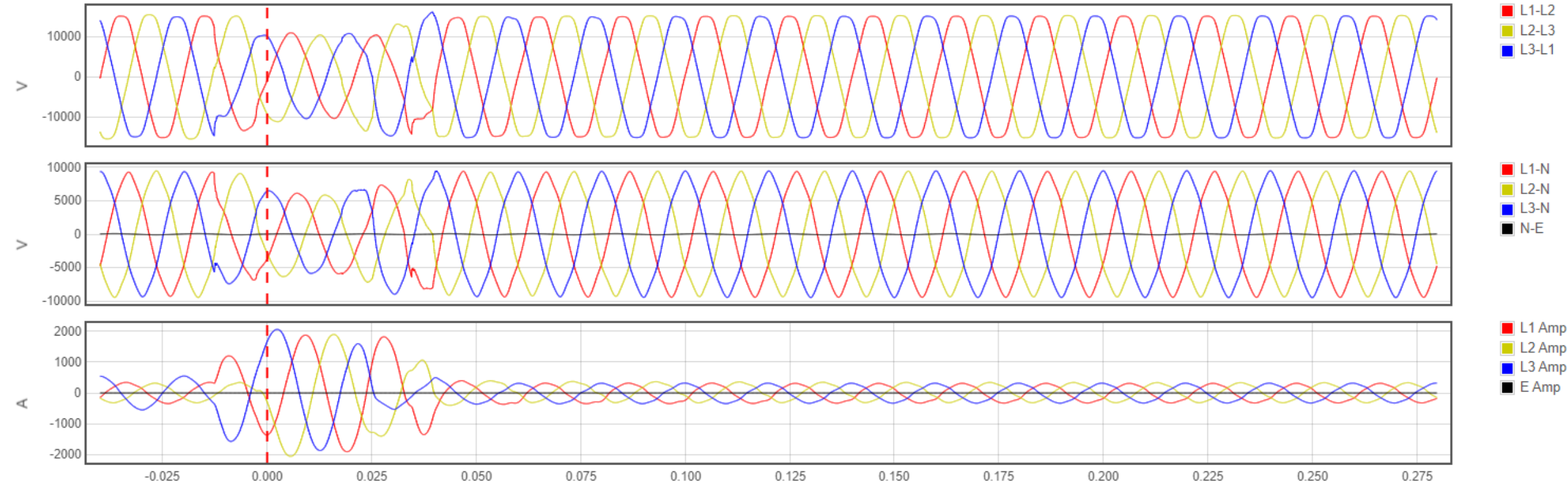


Asset: Overhead Line

Fault: OHL Foreign Contact

(Note: Number of cycles affected very variable for this fault – can be from 1-15+)

Number of phases affected also variable, can be single, two, or three phase)

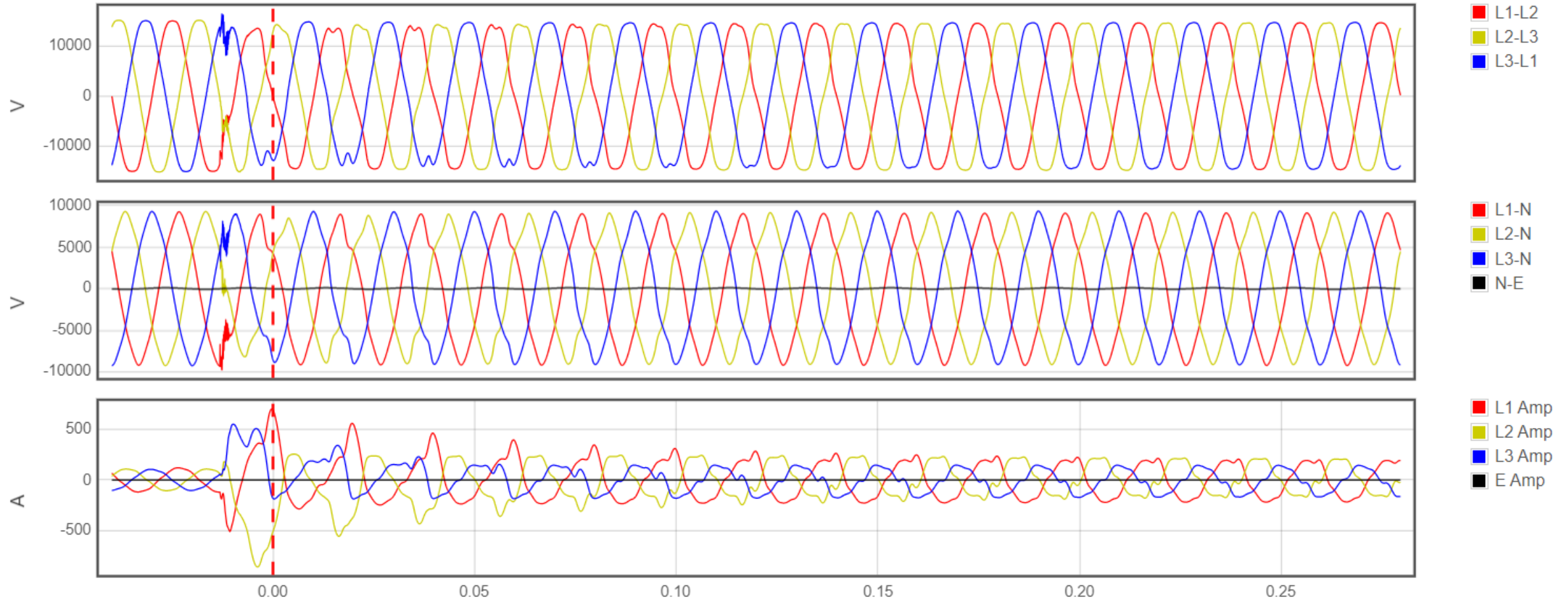


# Waveform Archetypes

Pre-Fix



Asset: Auto-recloser  
Fault: Reclose Activity



New Archetype Captures from  
Coventry (i.e. not in IEEE PES-  
TR73 report)

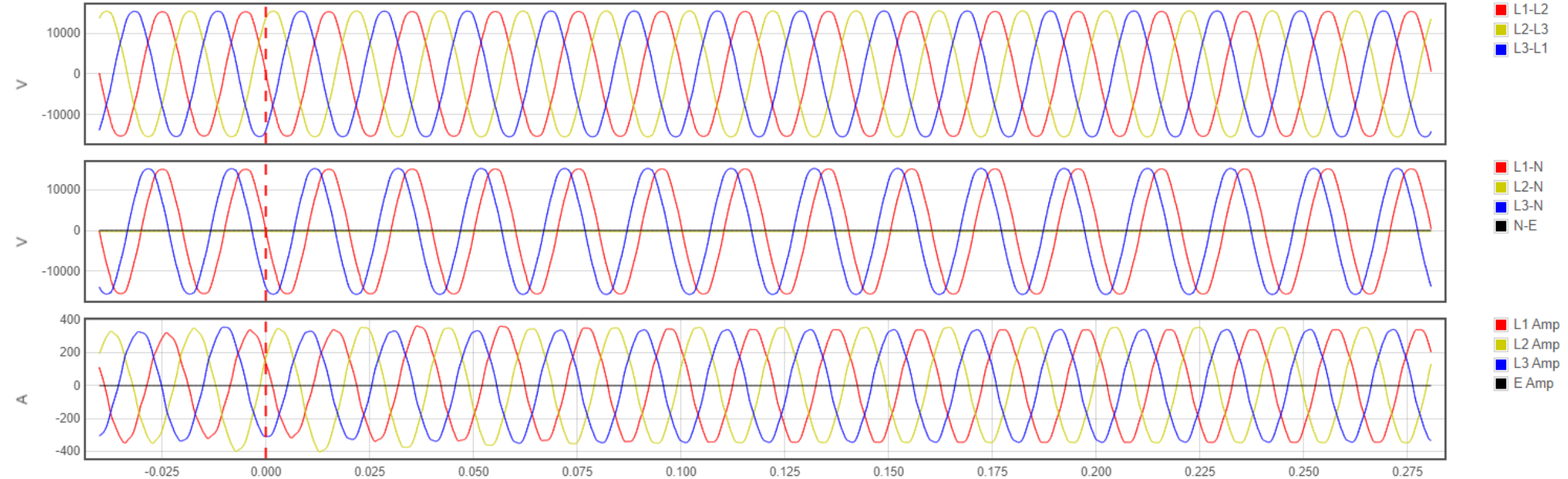


# Waveform Archetypes

Pre-Fix



## Fault: Switching Incident

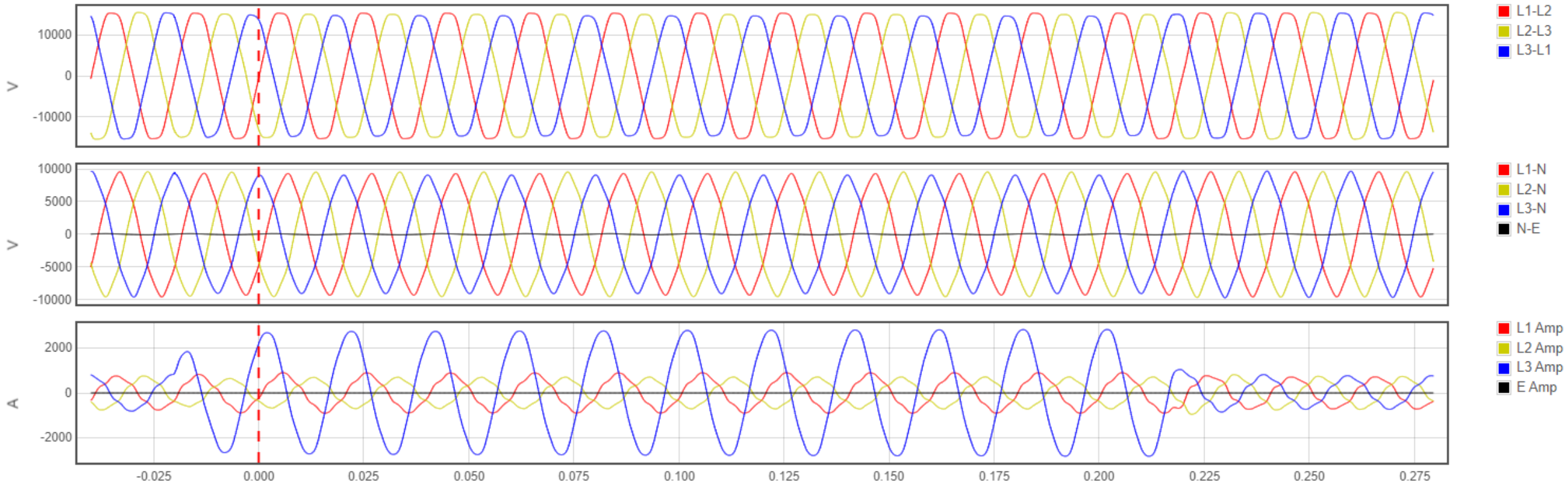


# Waveform Archetypes

Pre-Fix



## Fault: Disc/ABI Failure

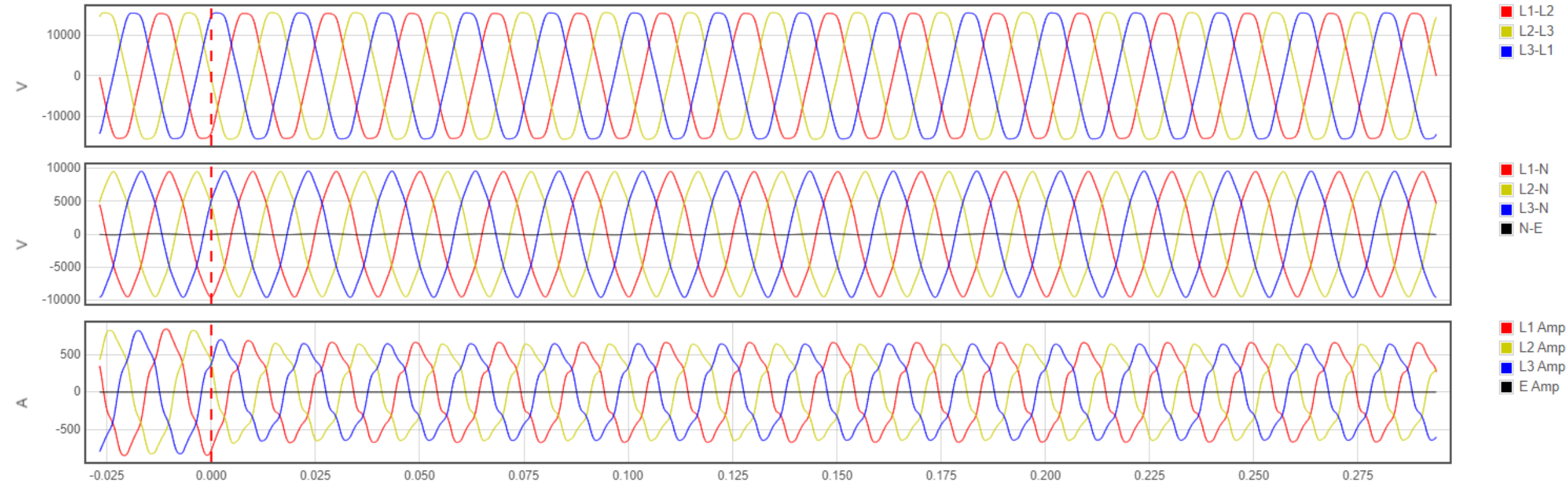


# Waveform Archetypes

Pre-Fix



## Fault: Unplanned Manual Interruption



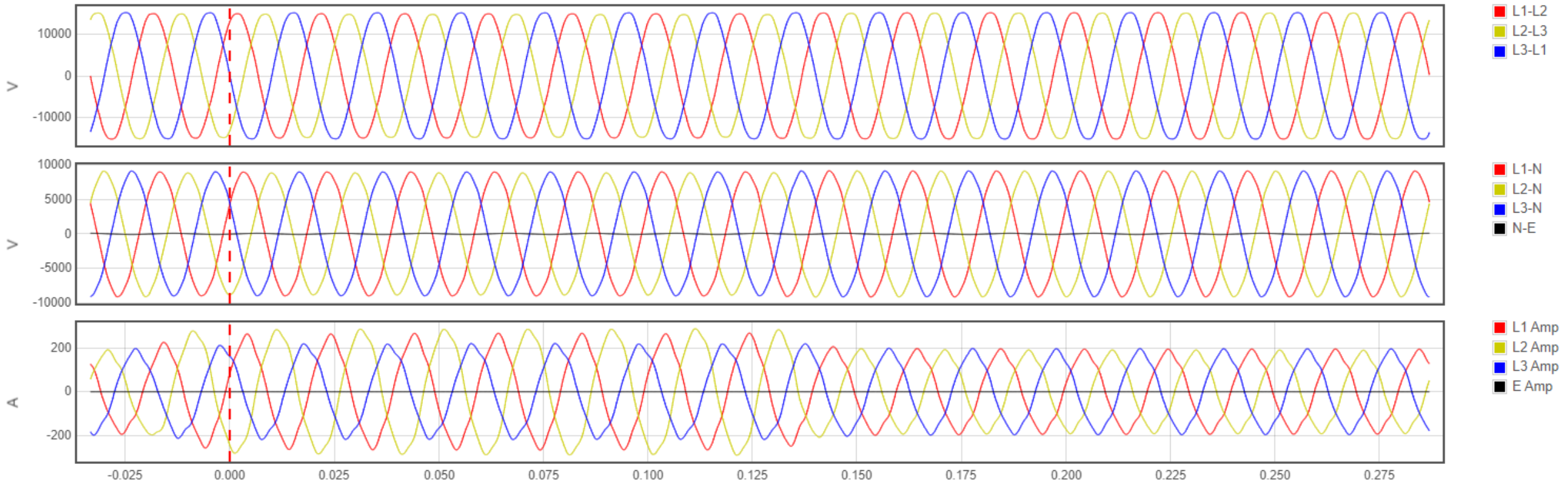
New Archetype Captures from  
Exeter (i.e. not in IEEE PES-TR73  
report)

# Waveform Archetypes

Pre-Fix



## Fault: Oil Fuse Switch Operation

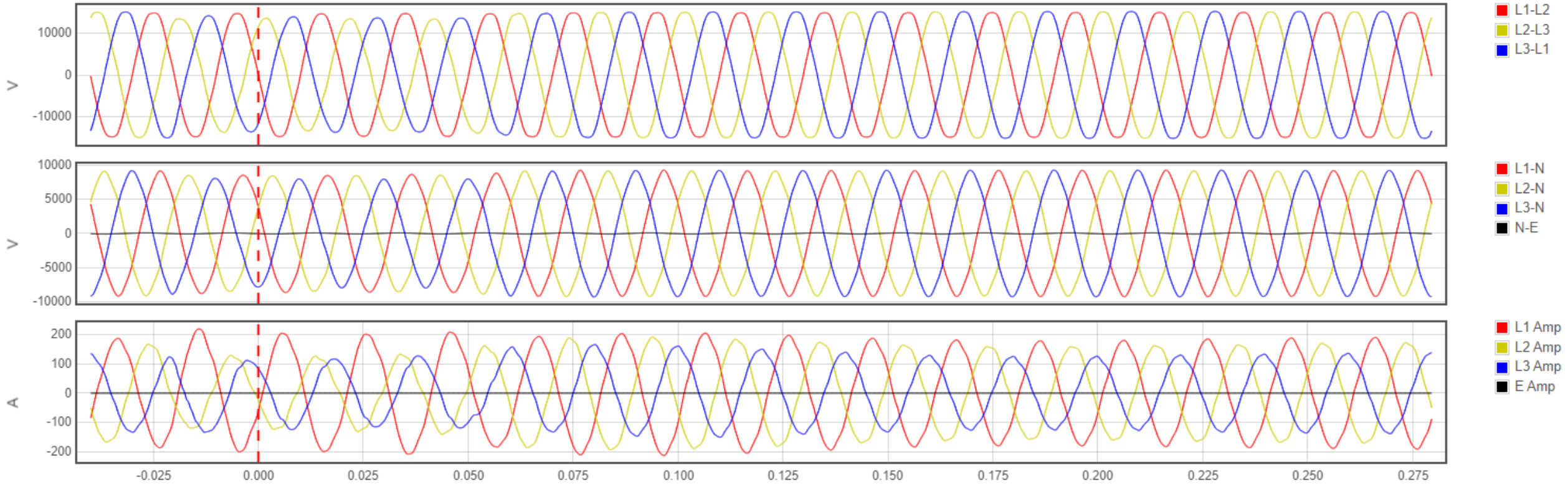


# Waveform Archetypes

Pre-Fix



## Fault: Broken Fuse Unit

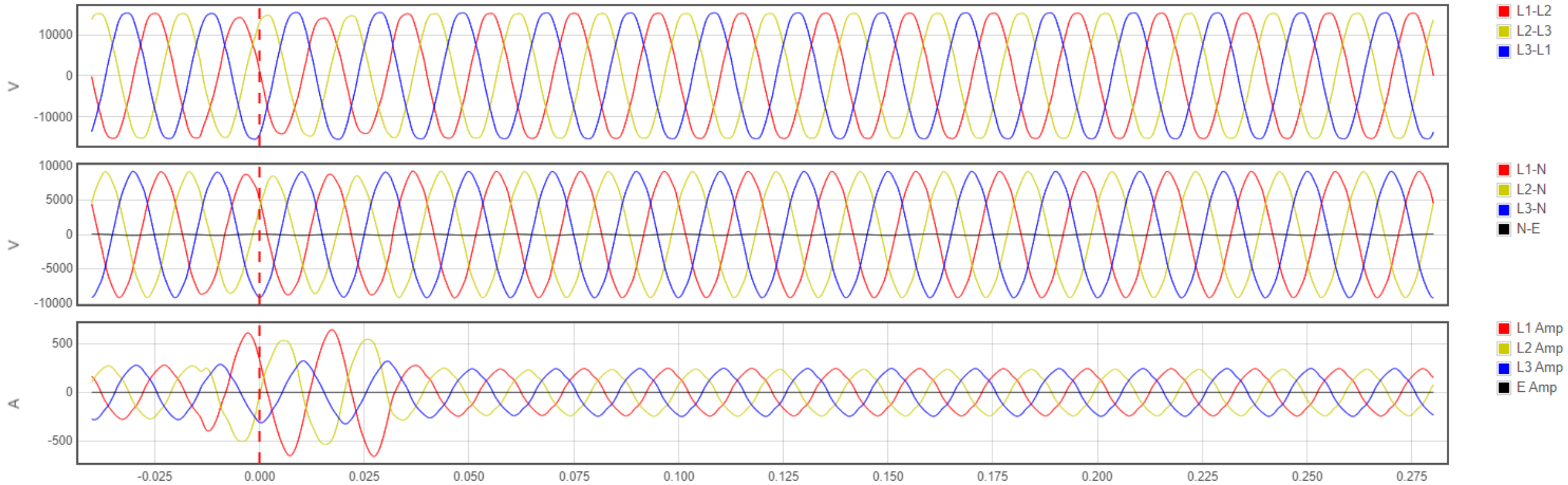


# Waveform Archetypes

Pre-Fix



## Fault: Conductors Down

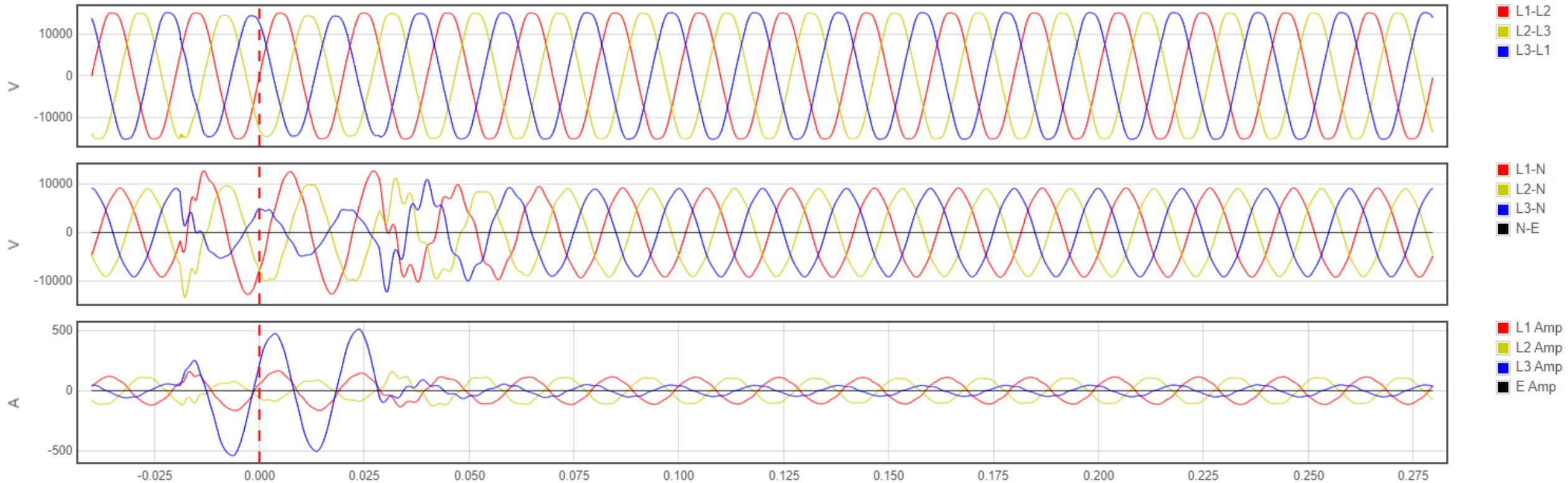


# Waveform Archetypes

Pre-Fix



## Fault: Faulty Insulator



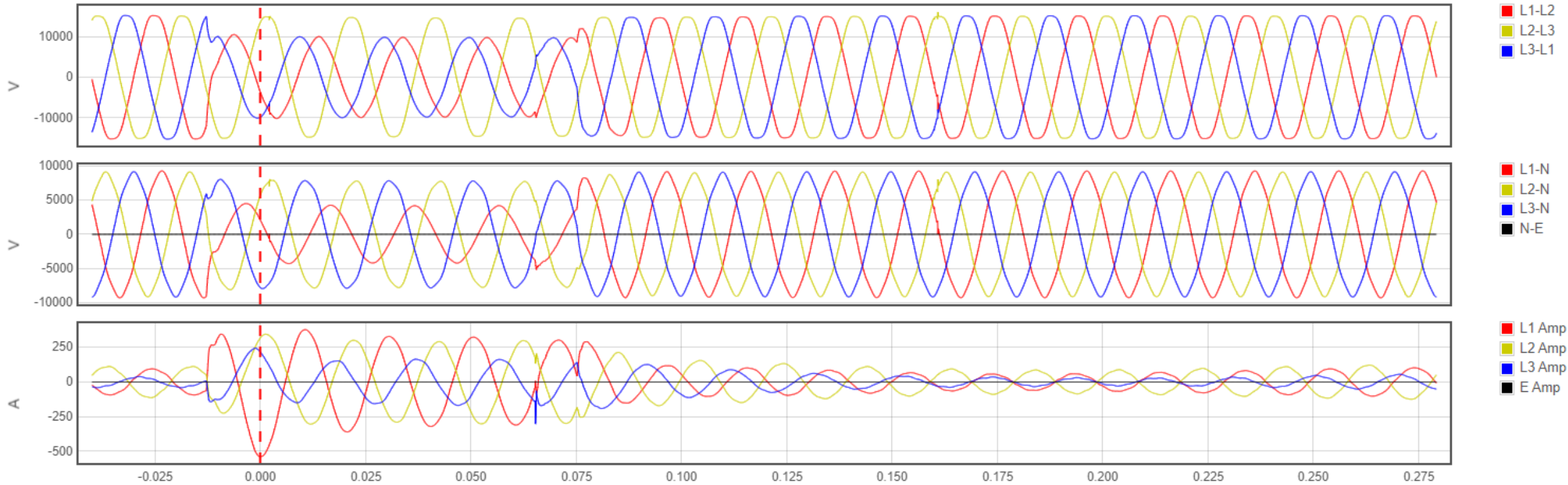


# Waveform Archetypes

Pre-Fix



## Fault: Protection Maloperation

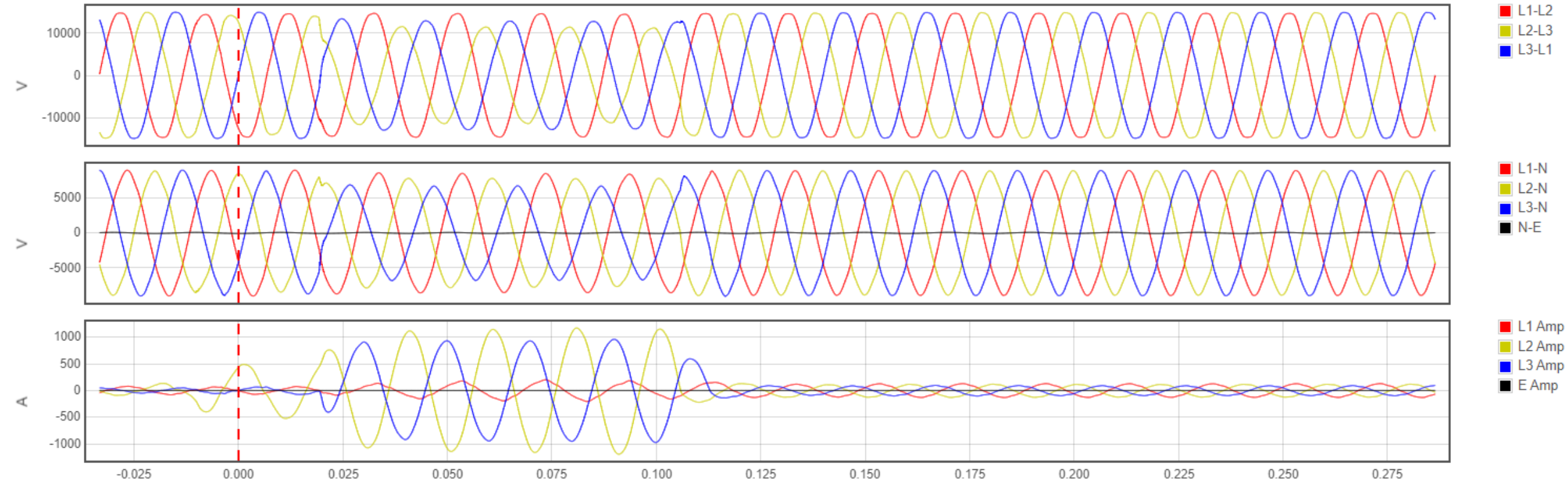


# Waveform Archetypes

Pre-Fix



## Fault: HV Fuse Operation

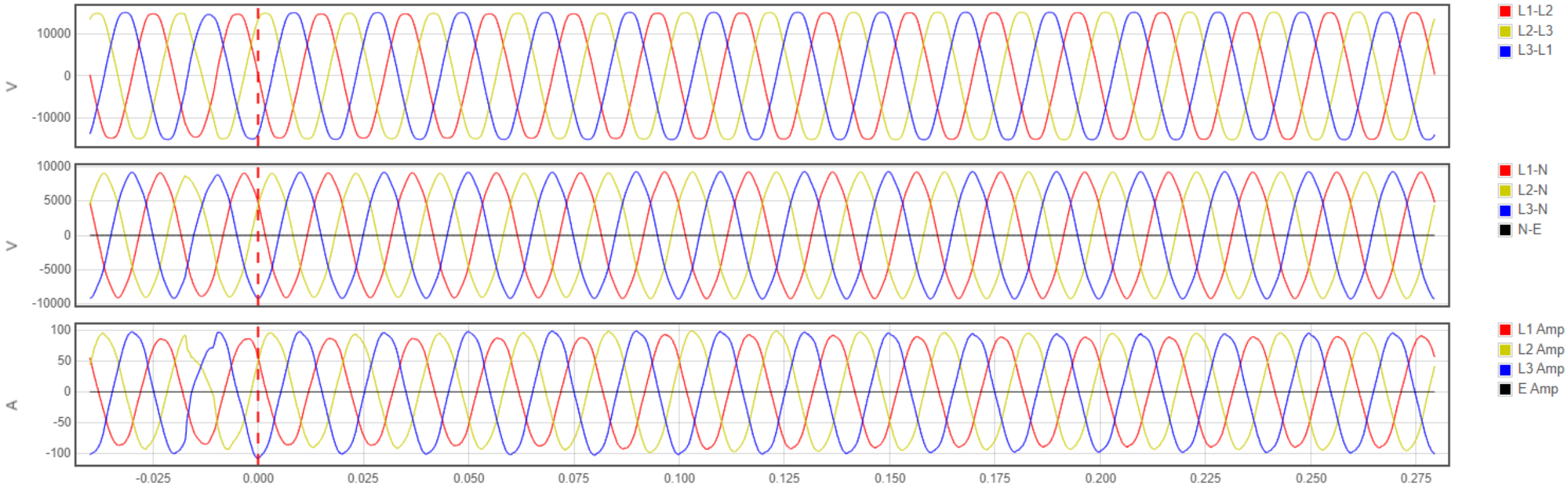


# Waveform Archetypes

Pre-Fix



## Fault: APRS Operation

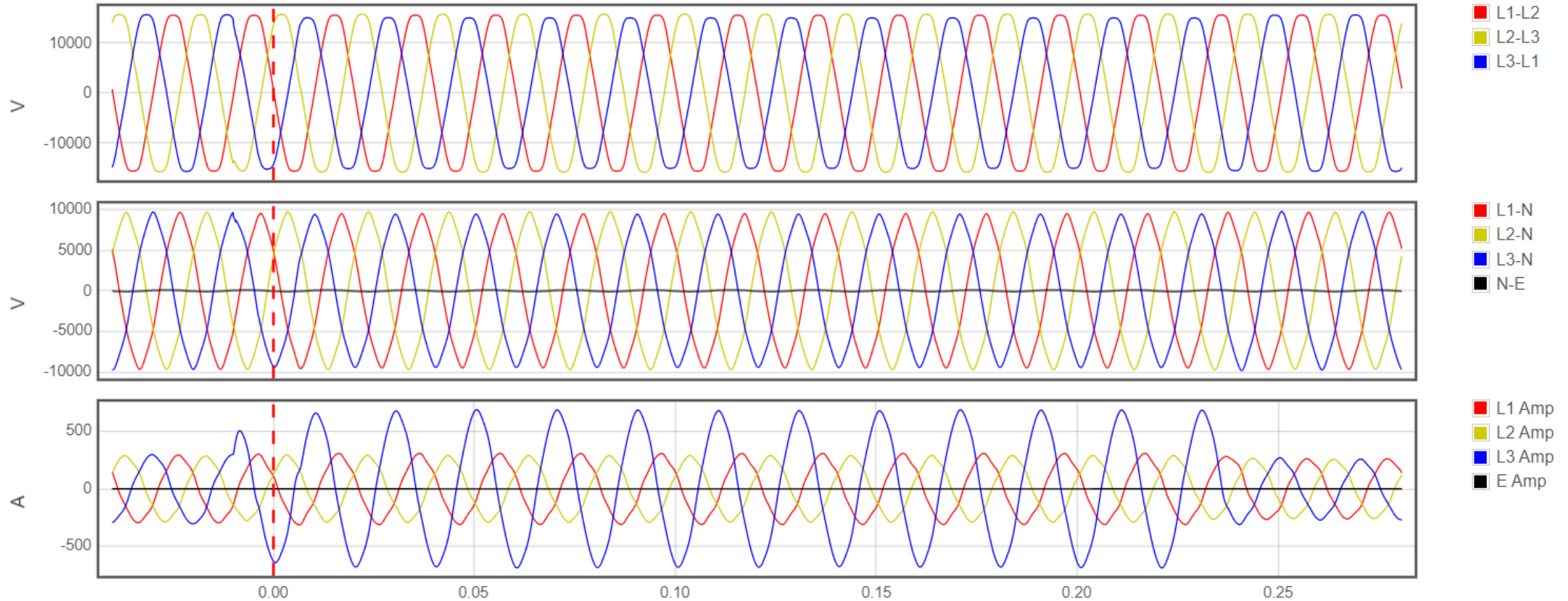


# Waveform Archetypes

Pre-Fix



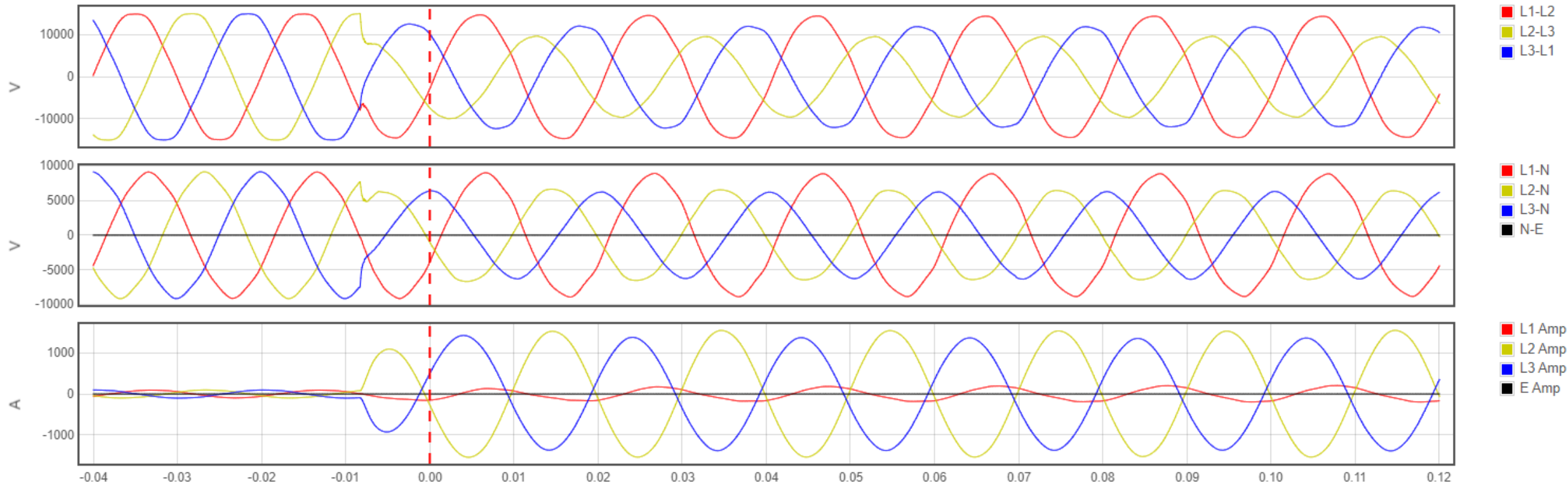
## Fault: Earth Fault



# Waveform Archetypes

Pre-Fix

Fault: Pole Damage (due to Vehicle collision)



IEEE PES-TR73 Post-Fault  
Templates  
(Yet to be observed in Pre-Fix  
field trials)

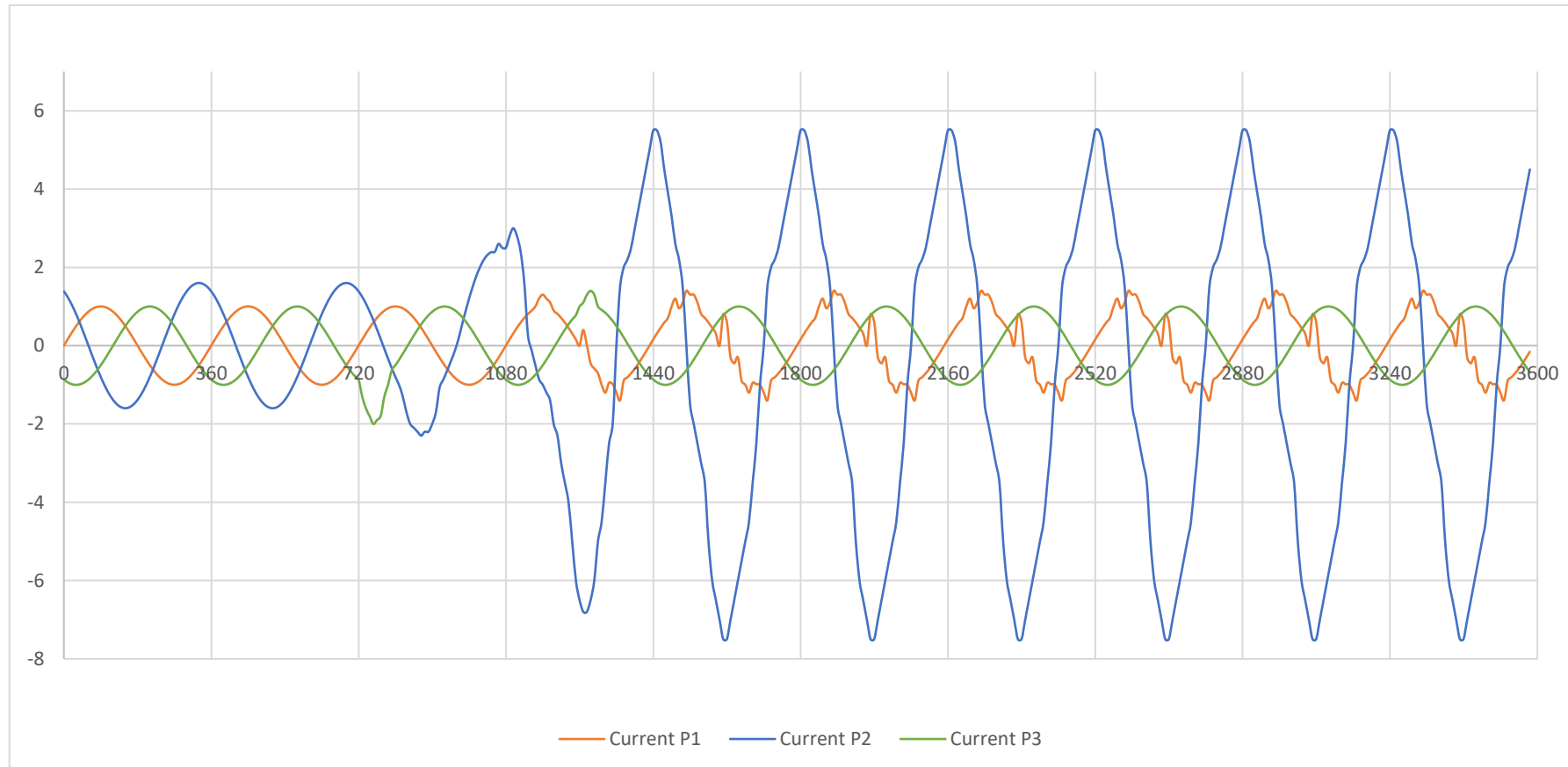
# Waveform Archetypes

Pre-Fix



Asset: Cable

Fault: Underground Cable Failure



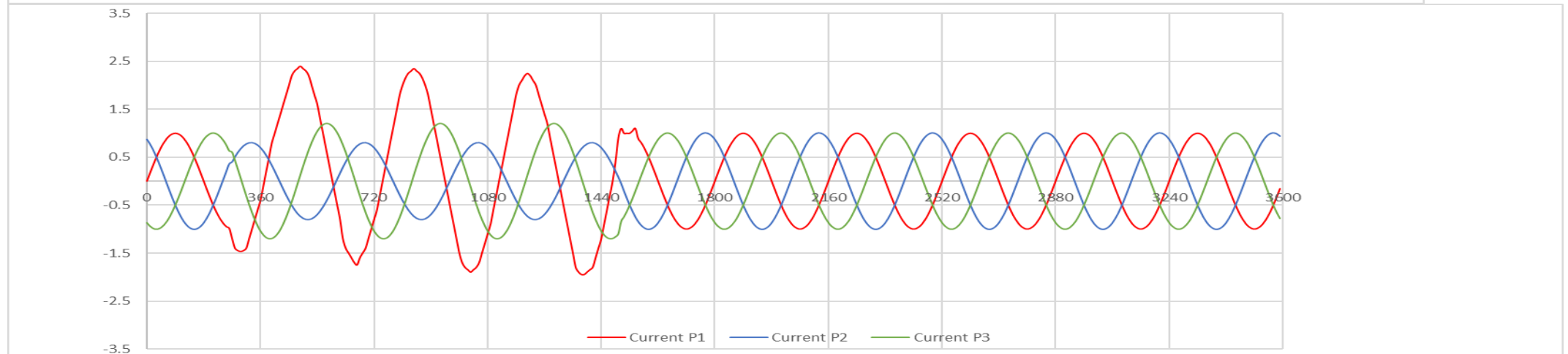
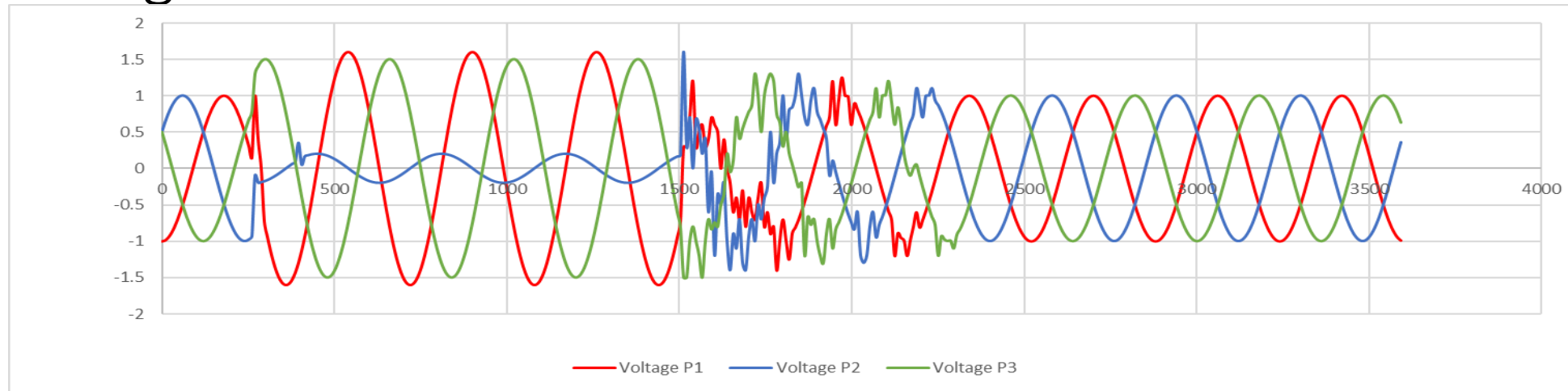
# Waveform Archetypes

Pre-Fix



Asset: Cable Termination

Fault: Underground Cable Termination Failure





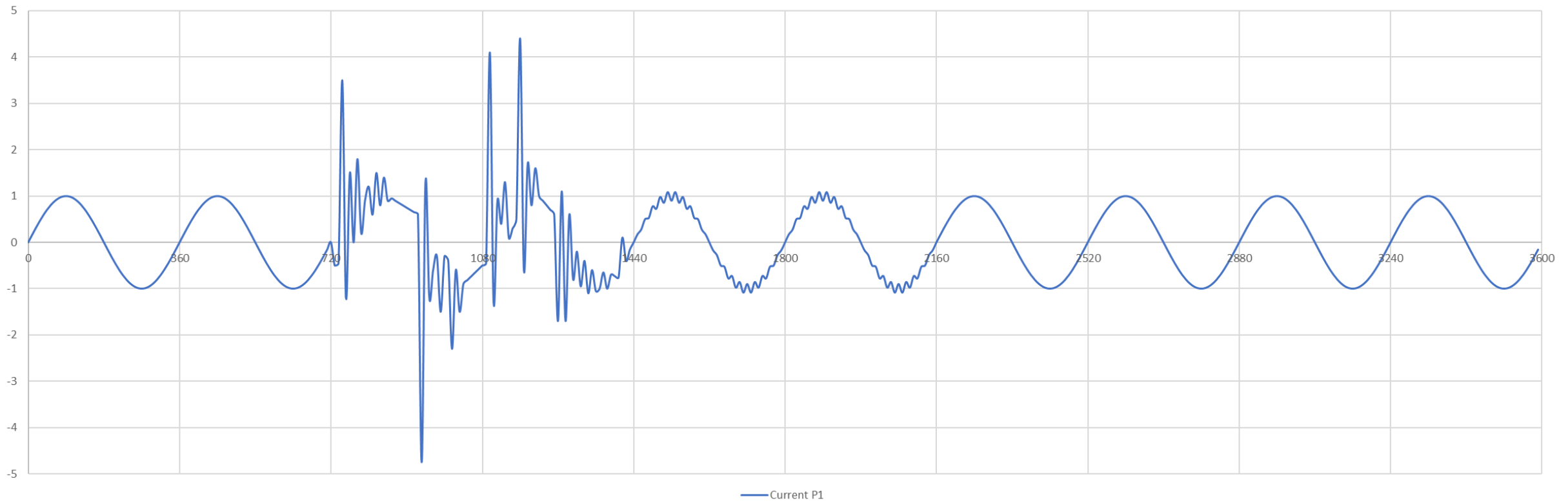
# Waveform Archetypes

Pre-Fix



Asset: Capacitor Bank

Fault: Capacitor Bank Switching



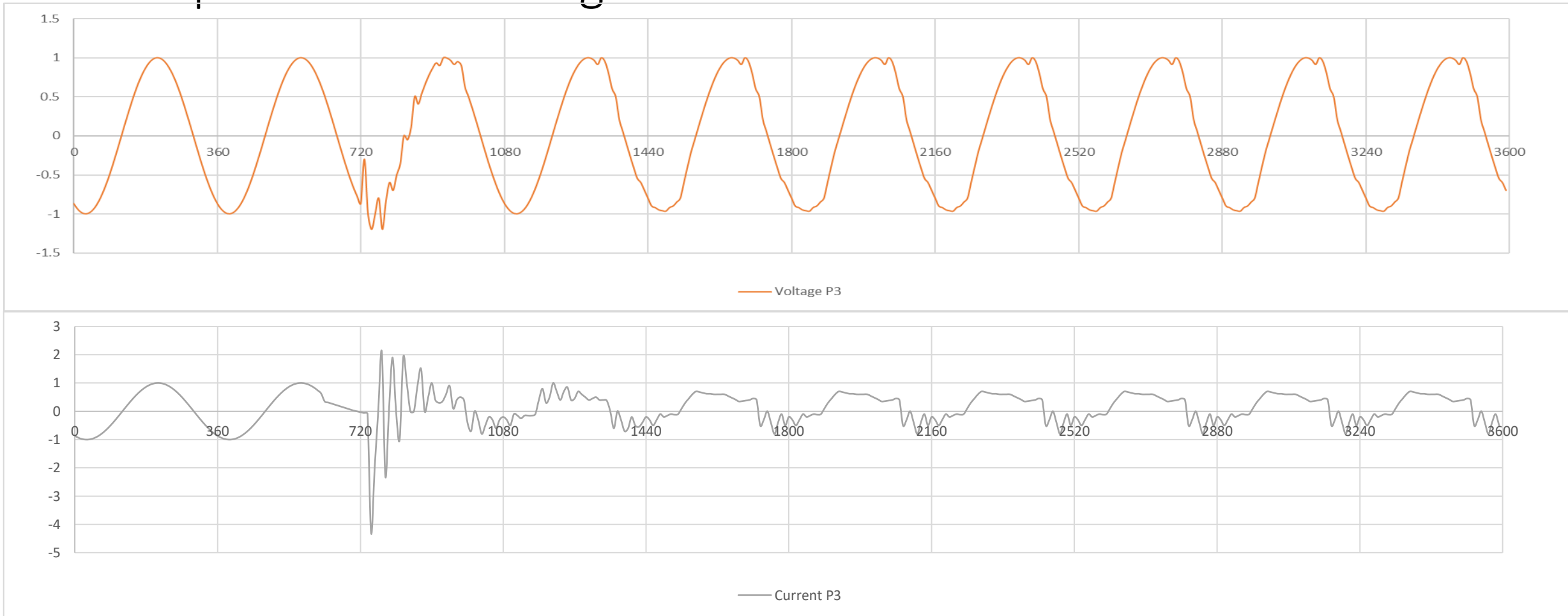
# Waveform Archetypes

Pre-Fix



Asset: Capacitor Bank

Fault: Capacitor Bank Energization



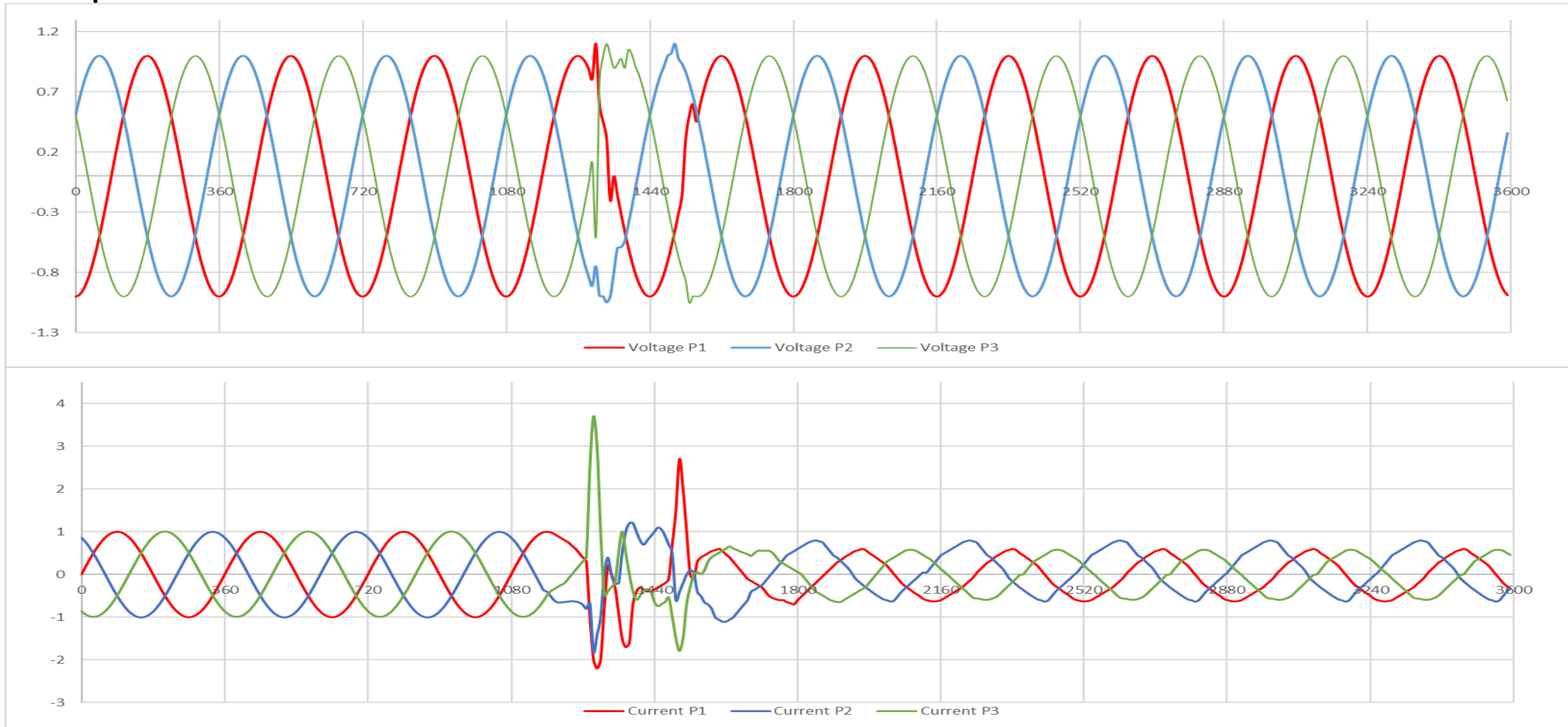
# Waveform Archetypes

Pre-Fix



Asset: Capacitor

Fault: Capacitor Breaker Restrike



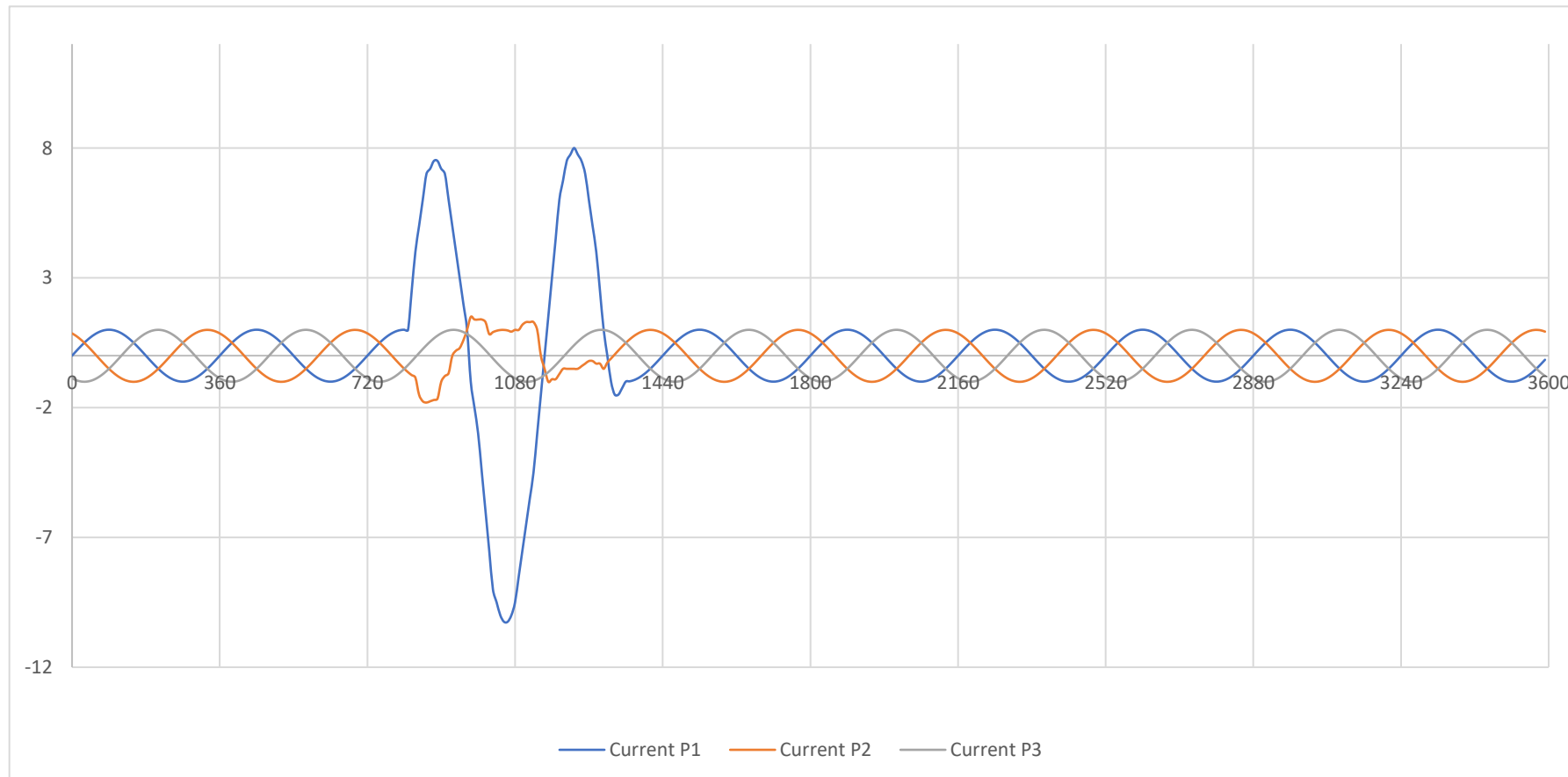
# Waveform Archetypes

Pre-Fix



Asset: Capacitor

Fault: Capacitor Short Circuit

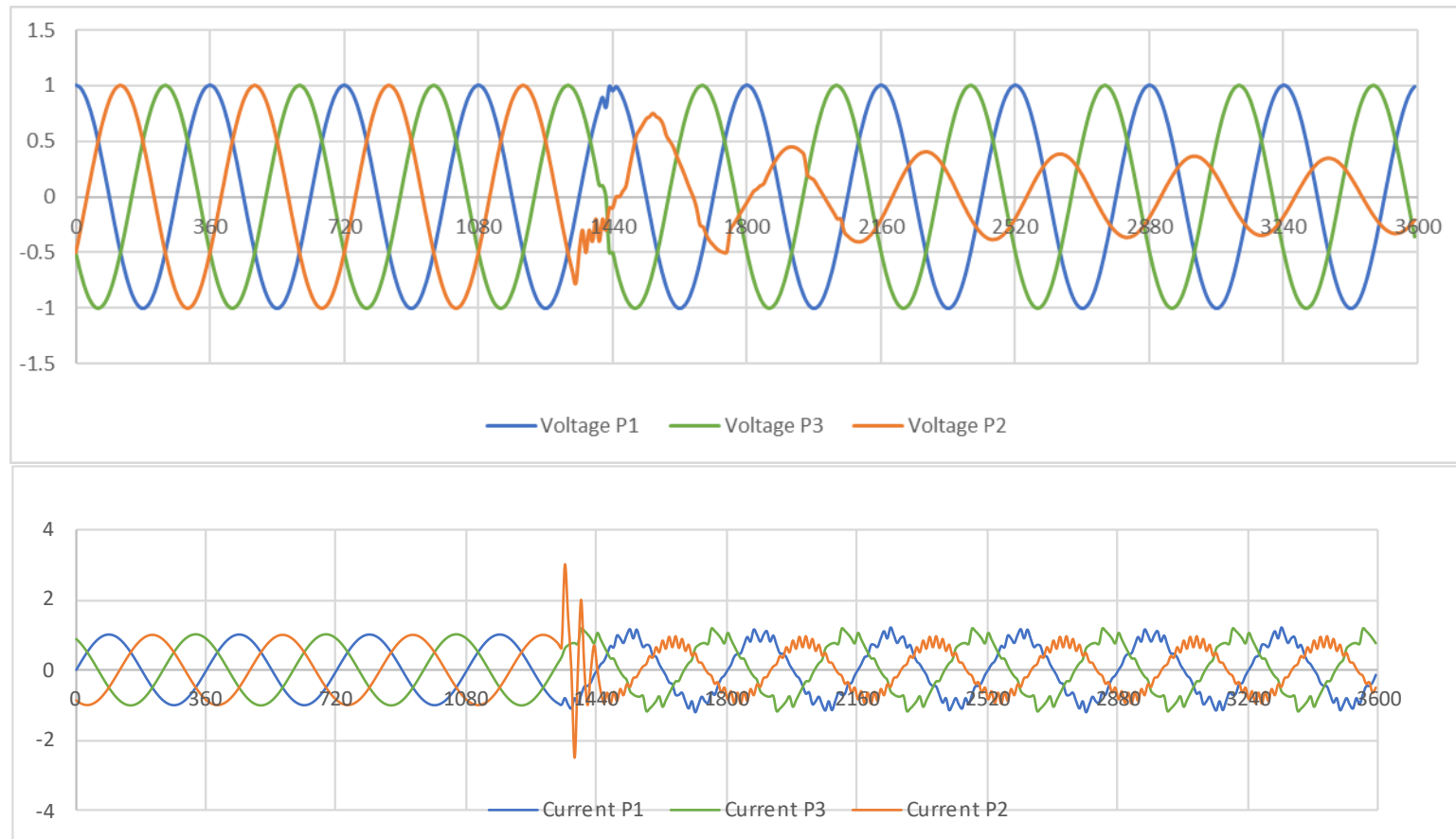


# Waveform Archetypes

Pre-Fix



Asset: Transformer Bushing  
Fault: Transformer Bushing Fault

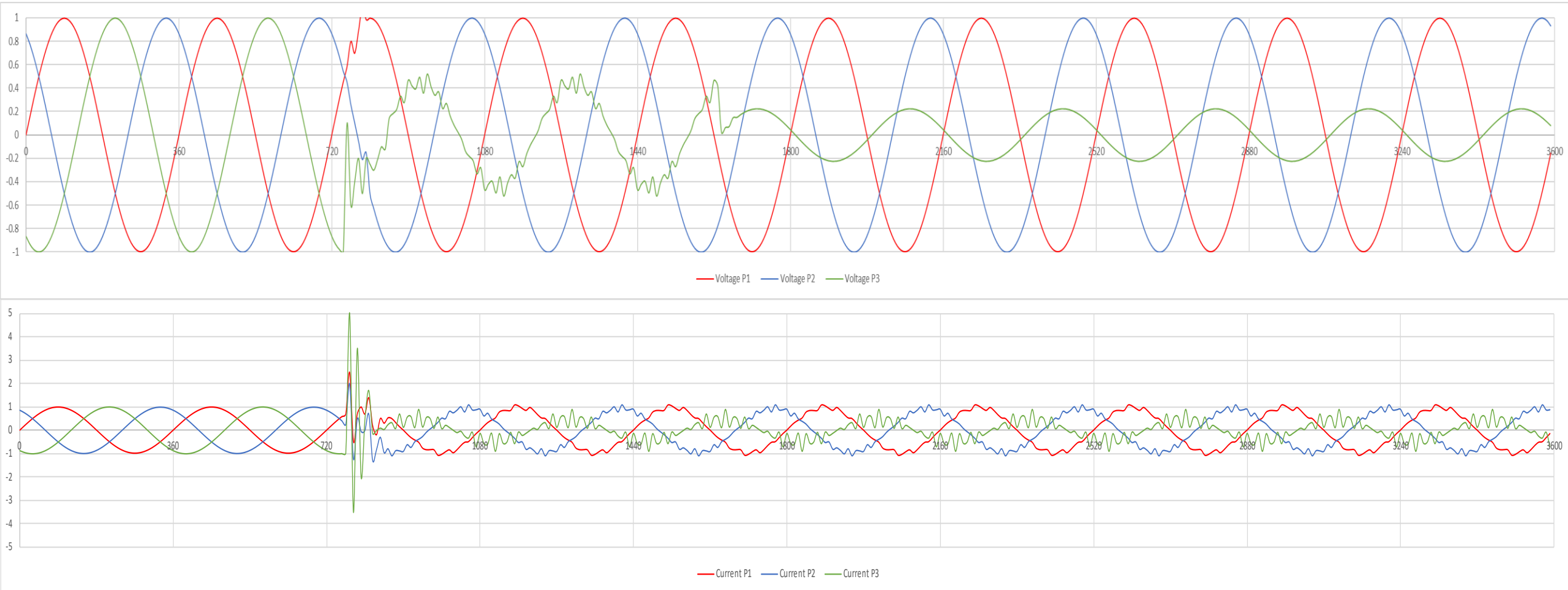


# Waveform Archetypes

Pre-Fix



Asset: Transformer Bushing  
Fault: Transformer Bushing Failure

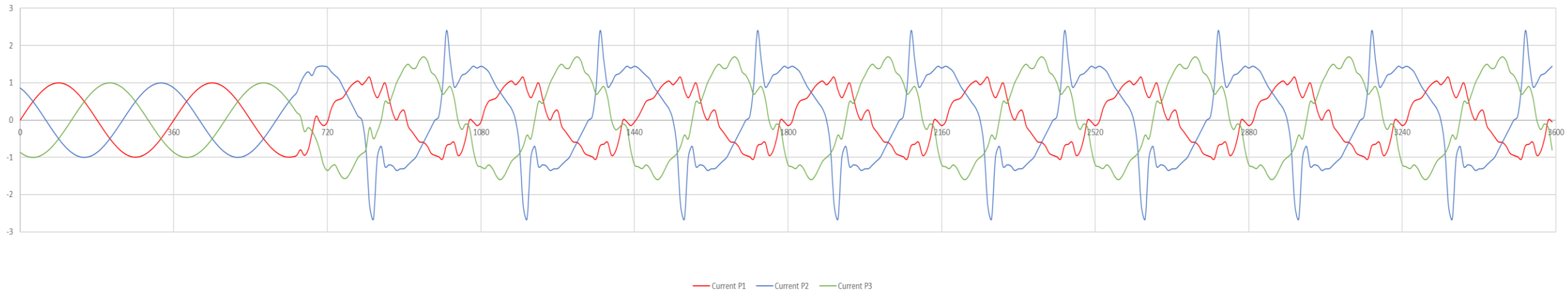
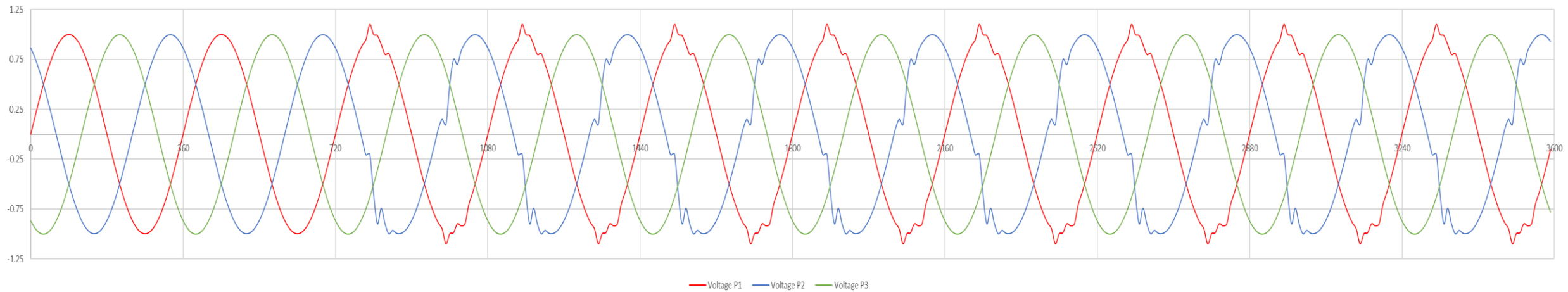


# Waveform Archetypes

Pre-Fix



Asset: Surge Arrester  
Fault: Surge Arrester Failure

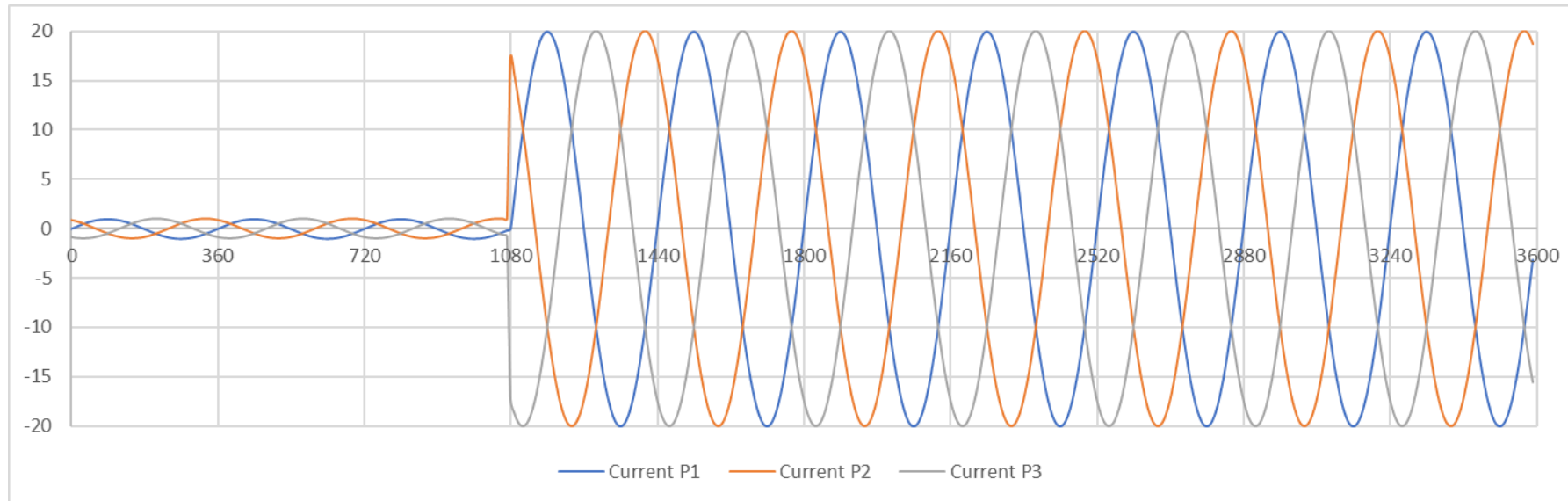


# Waveform Archetypes

Pre-Fix



Asset: Lightning Arrester  
Fault: Lightning Arrester Failure



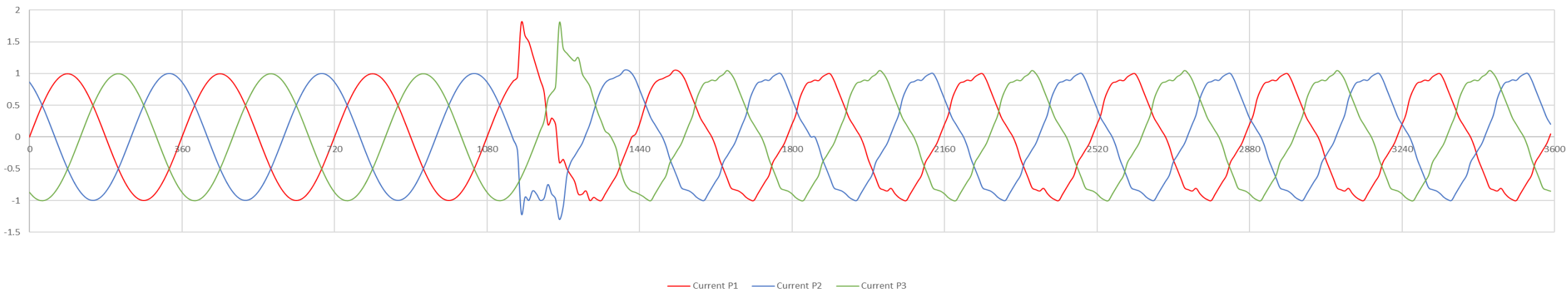
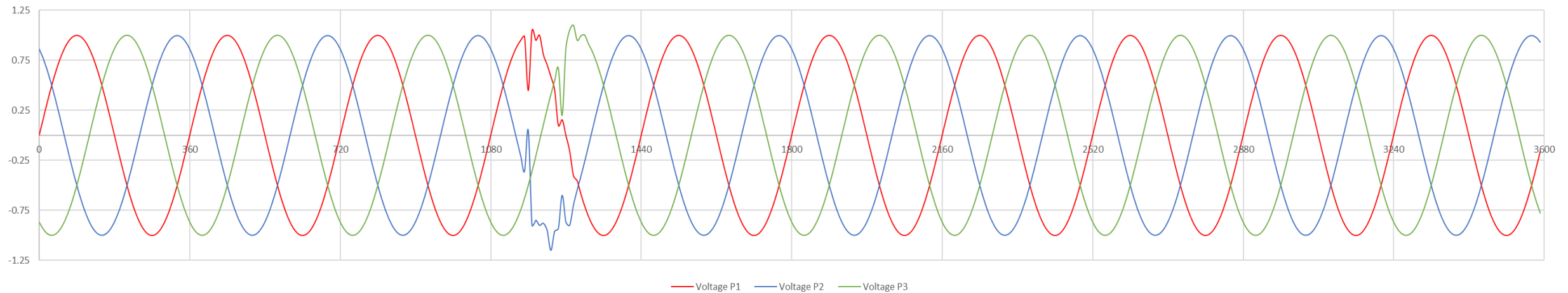


# Waveform Archetypes

Pre-Fix



Asset: Synchronized Closing Control  
Fault: Asynchronous Closing Control

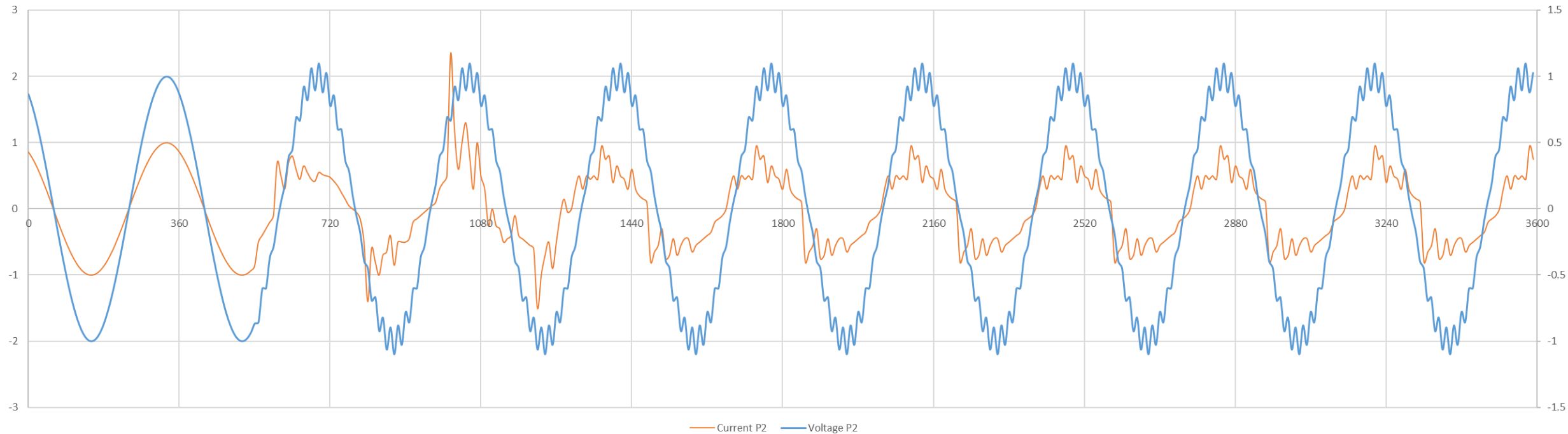


# Waveform Archetypes

Pre-Fix



Asset: Switching  
Fault: Switching Failure



# Waveform Archetypes



Pre-Fix

Asset: Tap Changer

Fault: Tap Changer Failure

