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**Digitrip 520V**

Model 520V provides basic Long Delay (L), Short Delay (S), Instantaneous (I), and Ground (G) levels of protection to cover most common applications. Since either the instantaneous or ground elements or both can be disabled, other combinations, such as LS, IL, SL, LI, IG, GL, ILG, SGL, and LG can be set up with the trip unit in the desired configuration. Table 1 illustrates some common and possible configurational setups.

### Table 1: Digitrip 520V Configurations

<table>
<thead>
<tr>
<th>Programmable Adjustment</th>
<th>Protection and Coordination Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Long Delay Current Setting (L)</td>
</tr>
<tr>
<td>2</td>
<td>Long Delay Time Setting</td>
</tr>
<tr>
<td>3</td>
<td>Short Delay Current Setting (S)</td>
</tr>
<tr>
<td>4</td>
<td>Short Delay Time Setting</td>
</tr>
<tr>
<td>5</td>
<td>Instantaneous Current Setting (I)</td>
</tr>
<tr>
<td>6</td>
<td>Ground Fault Current Setting (G)</td>
</tr>
<tr>
<td>7</td>
<td>Ground Fault Time Setting</td>
</tr>
</tbody>
</table>

The standard ground current input is derived from the vector sum of the three-phase currents, sometimes called the ‘residual’ current. However, the trip unit can easily accept external ground current inputs via alternate ground fault sensing schemes, when installation requirements dictate. In addition, Zone Selective Interlocking is available for Short Delay and Ground Fault protection functions to minimize fault clearing times, when the location of the fault is clear.

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**Time-Current Curve Example**

- **Buyers Guide**: A comprehensive guide to understanding and implementing medium voltage vacuum circuit breakers and associated protective devices.
- **Digitrip 1150V**: For comprehensive information on Eaton's high-performance, fault-level protective devices.
- **Digitrip 520V**: For detailed specifications and application information on Eaton's medium voltage vacuum circuit breakers and integral protective relays.

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**Digitrip 1150V**

Model 1150V provides advanced five phase and two ground curve-shaping features, with adjustable settings for high quality protection. The protection settings are adjustable, and different curve slope selections are possible with short delay and ground fault-time adjustable for either flat or I2t responses. A visual representation is provided for the selected protective function, and the applicable time-current curves for the protected load are shown on the face of the trip unit.

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**Digitrip 520V**

A visual representation of the applicable time-current curves for the selected protective function is provided on the face of the trip unit.

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**Protection and Coordination**

- **Digitrip 1150V**: For comprehensive information on Eaton’s high-performance, fault-level protective devices.
- **Digitrip 520V**: For detailed specifications and application information on Eaton’s medium voltage vacuum circuit breakers and integral protective relays.

---

**Time-Current Curve Example**

- **As buys guide**: A comprehensive guide to understanding and implementing medium voltage vacuum circuit breakers and associated protective devices.
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- **Digitrip 520V**: For detailed specifications and application information on Eaton’s medium voltage vacuum circuit breakers and integral protective relays.
Digitrip Family

- Available on fixed and drawout breakers
- Two levels of protection: short delay and ground fault
- Two models: Digitrip 1150V and 1150Vi
- Programmable setpoints
- Two levels of protection
- Accurate metered values
- RMS sensing
- LED display
- Tamper proof and self-contained
- Long, short, instantaneous and ground fault optimizes performance while minimizing size
- Trip conditions log with time stamp are programmable via a keypad on the front of the trip unit
- Communications with a remote system diagnostic tool can be used with either FLAT or I²t responses
- Functional faceplates and easy-to-read display
- Zone selective interlocking enables the circuit breaker closest to the fault to clear the fault without any preset time delays, caused by a fault and serial undervoltage and costly downtime
- Zone selective interlocking is compatible for improved coordination with local or remote systems diagnostic tools, such as PowerNet

Digitrip 1150V and 1150Vi

Models 1150V (ANSI) and 1150Vi (IEC) provide all the features of the 520V model plus advanced protection features, expanded communications, extended trip and communications capability, and unique solutions for markets throughout the world, while among time and money.

Common Features

- Easy-to-read display
- Zone selective interlocking
- Communications with a remote system diagnostic tool can be used with either FLAT or I²t responses
- Functional faceplates and easy-to-read display
- Zone selective interlocking is compatible for improved coordination with local or remote systems diagnostic tools, such as PowerNet

Digitrip 1150V and 1150Bi

- Long, short, instantaneous and ground fault
- Two levels of protection
- Programmable setpoints
- Accurate metered values
- RMS sensing
- LED display
- Tamper proof and self-contained
- Long, short, instantaneous and ground fault optimizes performance while minimizing size
- Trip conditions log with time stamp are programmable via a keypad on the front of the trip unit
- Communications with a remote system diagnostic tool can be used with either FLAT or I²t responses
- Functional faceplates and easy-to-read display
- Zone selective interlocking enables the circuit breaker closest to the fault to clear the fault without any preset time delays, caused by a fault and serial undervoltage and costly downtime
- Zone selective interlocking is compatible for improved coordination with local or remote systems diagnostic tools, such as PowerNet
Digitrip 520V

Model 520V provides basic Long Delay (L), Short Delay (S), Instantaneous (I), and Ground (G) levels of protection to cover most common applications. Since either the instantaneous or ground elements or both can be disabled, other combinations, such as LS and LSI, are possible. The standard ground current input is derived from the vector sum of the three phase currents, sometimes called the "residual" current. However, the trip unit can easily accept external ground current input signals from alternate ground fault sensing schemes, when installation requirements dictate. In addition, Zone Selective Interlocking is available for Short Delay and Ground Fault protection functions to minimize fault clearing times, when the location of the fault is clear.

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Protection and Coordination

- Long Delay Current Setting (Ir)
- Long Delay Time Setting (T)
- Short Delay Current Setting (S)
- Short Delay Time FLAT (F)
- Instantaneous Current Setting (I)
- Ground Fault Current Setting (G)
- Ground Fault Time Delay FLAT (F)
- Ground Fault Time Delay I2t (T)
- Zone Interlocking
- Overtemperature Trip
- Fixed Rating Plug (In)
-Disable Feature

Digitrip 520V

Time-Current Curves Example

<table>
<thead>
<tr>
<th>Current</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Long Delay (L)</td>
</tr>
<tr>
<td>2</td>
<td>Short Delay (S)</td>
</tr>
<tr>
<td>3</td>
<td>Instantaneous (I)</td>
</tr>
<tr>
<td>4</td>
<td>Ground Fault (G)</td>
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<tr>
<td>5</td>
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<td>6</td>
<td>Fixed Rating Plug (In)</td>
</tr>
<tr>
<td>7</td>
<td>Disable Feature</td>
</tr>
</tbody>
</table>

This document contains information on Eaton’s Digitrip 520V Medium Voltage Vacuum Circuit Breaker Integral Protective Relays, which is a product of their Cutler-Hammer business unit. The product provides a variety of protection and coordination options, including Long Delay, Short Delay, Instantaneous, and Ground Fault settings. The document also highlights Eaton’s position as a market leader in various industries and provides contact information for further inquiries.

Eaton Corporation
Cutler-Hammer business unit
1000 Cherrington Parkway
Moon Township, PA 15108
Tel: 1-800-525-2000
www.cutler-hammer.eaton.com
Versatile Medium Voltage Protection

Eaton Corporation introduces a new family of medium voltage Digitrip® trip units designed for retrofitting to conventional vacuum circuit breakers. All trip units are microprocessor-based protective elements providing true RMS current measurement and zone selective interlocking that can be utilized with any of Eaton’s medium voltage fixed and drawout vacuum circuit breakers. All unit models are designed to be installed in any of Eaton’s international medium voltage vacuum circuit breakers. Each unit is self powered, requiring no external power when the circuit breaker is closed, and provides all the features of the 520V model, plus advanced protection features, metering and communications. Models 1150V (ANSI) and 1150Vi (IEC) provide both sophisticated applications. Long time (L), short time (S) and instantaneous (I) current protection as well as Ground fault protection (G) are provided. Since instantaneous or ground or both (Steady State) and ground can be tagged "OFF", other configurable characteristics of protection (S-I and S-G) can be tested. The 1150Vi provides Zone selective interlocking while maintaining the same basic trip unit functions. Zone selective interlocking enables the circuit breaker closest to the fault to clear the fault without any preset time delays. This is accomplished through the use of a non-circular, non-reciprocal high-speed trip trip unit. Zone selective interlocking is accomplished using time-current curves for the selected protection function. Different curve slope selections are possible with short delay and ground fault time delays adjustable for either PLT or PTI operation. A visual representation of the applicable time-current curves for the selected protection function is provided on the face of the trip unit. Zone selective interlocking is accomplished using analytical mathematical techniques, both North American and International Standards for applications around the world, UL, CSA, and CE marks are applied.

Common Features

Easy-to-read display

Functional faceplate and easy-to-read display

Flexible, tamper-proof, plug-in cover on the face of the trip unit.

Information about critical system parameters is provided independent of the battery status.

Functional testing of most of the trip unit’s electronics, circuitry can be performed locally without the need to shut down the circuit. However, if desired, the circuit breaker’s mechanical trip function can be verified locally from the front of the trip unit and as well. This is accomplished through the use of a non-circular, non-reciprocal high-speed trip action can be verified locally from the front of the trip unit and as well. This is accomplished through the use of a non-circular, non-reciprocal high-speed trip action can be verified locally from the front of the trip unit and as well. This is accomplished through the use of a non-circular, non-reciprocal high-speed trip action can be verified locally from the front of the trip unit and as well. This is accomplished through the use of a non-circular, non-reciprocal high-speed trip...
Digitrip® Family

- Available on fixed and drawout circuit breakers
- Two levels of protection: Safety and Performance
- Available in 1150V and 1150V+ Models (including performance with monitoring and communications)
- Fully loaded performance protection: Microprocessor-based, trip and control logic
- Drawout Protection
- Current sensor unit performs independent monitoring of trip unit
- Fixed-rated trip unit and or remote system diagnostic tools, such as PowerNet™ Software
- Easy-to-Read Display
- Functional Faceplate and Easy-to-Read Display

Versatile Medium Voltage Protection

Eaton Corporation introduces a new family of medium voltage Digitrip Trip Units protection range for use with the industry’s most advanced vacuum and medium voltage fixed and drawout vacuum circuit breakers. All trip unit models are microprocessor-based protective devices providing that current sensing, assuring the proper coordination of the various types used and equipment.

The new Digitrip models are 1150V and 1150V+ compact vacuum fixed and thermal circuit breakers. The Digitrip family of these internally mounted digitrip trip units. The trip units can be located inside the circuit breaker or in a trip unit cabinet with trip units located in a trip unit cabinet.

Common Features

- Electronic settings and IEC and IEC curve forming of these internally mounted digitrip trip units.
- Custom settings are available to the customer or the field technician.
- The trip units are self-powered and can be easily replaced in the field.
- All trip units are self-powered. No internal power is required to operate the overcurrent functions. When the circuit breaker is closed, current signals and trip signals are derived from current outputs.
- The current sensing section or output current proportional to the primary current, and provides the trip unit with the intelligence and energy required to trip the circuit breaker. This eliminates the need for “false tripping” to trip the circuit breaker. These costly and unnecessary trips are eliminated, improving performance and revenue rates.

Digitrip 1150V and 1150Vi

- Models 1150Vi (MEG and 1150Vi) provide all the features of the 1150V model plus advanced protection features, except current settings are programmable via a keypad on the front of the trip unit or from a remote location over communications systems.
- Functional Faceplate and Easy-to-Read Display
- Zones selective interlocking enables the circuit breaker closest to the fault to clear the fault without any preset time delays required by the standard circuit breaker. This eliminates the need for “false tripping” to trip the circuit breaker. These costly and unnecessary trips are eliminated, improving performance and revenue rates.

- Easy-to-Read Display
- Functional Faceplate and Easy-to-Read Display

Digitrip 1150V and 1150Vi
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Digitrip 520V

Model 520V provides basic Long Delay S, Short Delay S, Instantaneous (I) and Ground (G) levels of protection to cover most common applications. Since either the instantaneous or ground elements or both can be disabled, other combinations, such as LD, I, G or LD, I, can be used. The unit is not field interchangeable with models 710V or 710Vi.

Five phase and two ground three current curve-shaping adjustments are provided. This protection settings are also adjustable. Different curve slope selections are possible with short delay and ground fault time adjustable for either FLAT or I2t responses. A visual representation of the selected protection curves for the selected protective functions is provided on the face of the trip unit.

The standard ground current input is derived from the vector sum of the three phase currents, sometimes called the “residual” current. However, the trip unit can easily accept external ground current input signals from alternate ground fault sensing schemes, when installation requirements dictate. In addition, Zone Selective Interlocking is available for Short Delay and Ground Fault protection functions to minimize fault clearing times, when the location of the fault is clear.

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Time-Current Curve Example

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Eaton Corporation
1000 Cherrington Parkway
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Cutler-Hammer

Medium Voltage Vacuum Circuit Breaker
Integral Protective Relays

 protection and coordination

LSIG Options (LSI & LS Configurable)
Fixed Rating Plug (In)
Overtemperature Trip
Long Delay
Long Delay Current Setting (Ir)
Protection
Long Delay Time I2t
Long Delay Thermal Memory
Short Delay
Short Delay Current Setting
Protection
Short Delay Time FLAT
Short Delay Time I2t
Zone Interlocking
Instantaneous
Instantaneous Current Setting
Protection
Disable Feature
Ground Fault
Ground Fault Current Setting
Protection
Ground Fault Time Delay FLAT
Ground Fault Time Delay I2t
Disable Feature
Zone Interlocking