## **DATASHEET - PFR2-1-U**



### Earth-leakage circuit-breaker, 25A, 1A, type U



Part no. PFR2-1-U
Catalog No. 235870
Alternate Catalog PFR2-1-U

No

Similar to illustration

| Dell | very | progr | am |
|------|------|-------|----|
|      |      |       |    |

| Basic function               |                 |    | Residual current relay             |
|------------------------------|-----------------|----|------------------------------------|
| Rated short-circuit strength | I <sub>cn</sub> | kA | 5                                  |
| Rated fault current          | $I_{\Delta N}$  | Α  | 1                                  |
| Туре                         |                 |    | Type U                             |
| Tripping                     |                 | s  | 40 ms delay - selective switch off |
| Product range                |                 |    | PFR2                               |
| Sensitivity                  |                 |    | Pulse-current sensitive            |

# **Technical data**

#### **Electrical**

| Rated operational voltage             | U <sub>e</sub>  | V    |                         |
|---------------------------------------|-----------------|------|-------------------------|
|                                       | U <sub>e</sub>  | V AC |                         |
| Rated operating voltage               | U <sub>e</sub>  | V AC | 230/400                 |
| Rated frequency                       | f               | Hz   | 50                      |
| Limit values of the operating voltage |                 |      |                         |
| Test circuit                          |                 | V AC | 184 - 440               |
| Sensitivity                           |                 |      | Pulse-current sensitive |
| Rated impulse withstand voltage       | $U_{imp}$       | kV   | 4                       |
| Rated short-circuit strength          | I <sub>cn</sub> | kA   | 5                       |
| lifespan                              |                 |      |                         |
| Electrical                            | Operations      |      | ≧ 4000                  |
| Mechanical                            | Operations      |      | ≧ 20000                 |

#### References

| Auxiliary switch for subsequent installation        | Z-HK 248432        |
|---|--------------------|
| Tripping signal contact for subsequent installation | Z-NHK 248434       |
| Compact enclosure                                   | KLV-TC-4 276241    |
| Sealing cover set                                   | Z-RC/AK-4TE 101062 |

| ourning cover out                              |                 | 2 116/7 117 112 10 1002  |
|--|-----------------|--|
| Mechanical                                     |                 |  |
| Standard front dimension                       | mm              | 45   |
| Device height                                  | mm              | 80   |
| Built-in width                                 | mm              | 70 (4TE)   |
| Mounting                                       |                 | Quick attachment with 2 latch positions on top-hat rail IEC/EN 60715 |
| Degree of Protection                           |                 | IP40, IP54 (with moisture-proof enclosure)                           |
| Terminals top and bottom                       |                 | Twin-purpose terminals   |
| Terminal protection                            |                 | finger and hand touch safe, DGUV VS3, EN 50274                       |
| Terminal cross-section                         |                 |  |
| Solid  | mm <sup>2</sup> | 1.5 - 35   |
| Stranded                                       | mm <sup>2</sup> | 2 x 16   |
| Thickness of busbar material                   | mm              | 0.8 - 2  |
| Permissible storage and transport temperatures | °C              | -35 - +60  |
| Climatic proofing                              |                 | 25-55°C/90-95% relative humidity according to IEC 60068-2            |

# Design verification as per IEC/EN 61439

| Technical data for design verification |  |  |  |
|--|--|--|--|
|--|--|--|--|

| Rated operational current for specified heat dissipation   | I <sub>n</sub>    | Α  | 25   |
|--|-------------------|----|--|
| Heat dissipation per pole, current-dependent   | P <sub>vid</sub>  | W  | 0  |
|  |                   |    |  |
| Heat dissipation capacity  | P <sub>diss</sub> | W  | 0  |
| Operating ambient temperature min.   |                   | °C | -25  |
| Operating ambient temperature max.   |                   | °C | 60   |
|  |                   |    | Starting at 40 °C, the max. permissible continuous current decreases by 3% for every 1 °C  |
| IEC/EN 61439 design verification   |                   |    |  |
| 10.2 Strength of materials and parts   |                   |    |  |
| 10.2.2 Corrosion resistance  |                   |    | Meets the product standard's requirements.   |
| 10.2.3.1 Verification of thermal stability of enclosures   |                   |    | Meets the product standard's requirements.   |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat   |                   |    | Meets the product standard's requirements.   |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |                   |    | Meets the product standard's requirements.   |
| 10.2.4 Resistance to ultra-violet (UV) radiation   |                   |    | Meets the product standard's requirements.   |
| 10.2.5 Lifting   |                   |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.6 Mechanical impact   |                   |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.7 Inscriptions  |                   |    | Meets the product standard's requirements.   |
| 10.3 Degree of protection of ASSEMBLIES  |                   |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.4 Clearances and creepage distances   |                   |    | Meets the product standard's requirements.   |
| 10.5 Protection against electric shock   |                   |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.6 Incorporation of switching devices and components   |                   |    | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.7 Internal electrical circuits and connections  |                   |    | Is the panel builder's responsibility.   |
| 10.8 Connections for external conductors   |                   |    | Is the panel builder's responsibility.   |
| 10.9 Insulation properties   |                   |    |  |
| 10.9.2 Power-frequency electric strength   |                   |    | Is the panel builder's responsibility.   |
| 10.9.3 Impulse withstand voltage   |                   |    | Is the panel builder's responsibility.   |
| 10.9.4 Testing of enclosures made of insulating material   |                   |    | Is the panel builder's responsibility.   |
| 10.10 Temperature rise   |                   |    | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating   |                   |    | Is the panel builder's responsibility. The specifications for the switch<br>gear must be observed. $\label{eq:constraint}$       |
| 10.12 Electromagnetic compatibility  |                   |    | Is the panel builder's responsibility. The specifications for the switch<br>gear must be observed. $\label{eq:constraint}$       |
| 10.13 Mechanical function  |                   |    | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

## **Technical data ETIM 7.0**

Circuit breakers and fuses (EG000020) / Residual current circuit breaker (RCCB) (EC000003)

Electric engineering, automation, process control engineering / Electrical installation, device / Residual current protection system / Residual current circuit breaker (RCCB) (eci@ss10.0.1-27-14-22-01 [AAB906014])

| Rated voltage         V         400           Rated current         A         25           Rated fault current         mA         1000           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Mounting method         Leakage current type         A         DIN rail           Selective protection         Yes         No           Short-time delayed tripping         No         No           Short-circuit breaking capacity (lcw)         KA         10           Surge current capacity         KA         5           Frequency         Ves           Additional equipment possible         Yes           With interlocking device         No           Degree of protection (IP)         IP40                                  | (ecl@ss10.0.1-27-14-22-01 [AAB906014]) |            |          |
|--|--|------------|----------|
| Rated current         A         25           Rated fault current         mA         1000           Rated insulation voltage Ui         V         440           Rated impulse withstand voltage Uimp         kV         4           Mounting method         Image: DIN rail         A           Leakage current type         A         Yes           Selective protection         Yes         No           Short-time delayed tripping         KA         10           Short-circuit breaking capacity (Icw)         KA         5           Surge current capacity         KA         5           Frequency         Ves         50 Hz           Additional equipment possible         Yes         No           With interlocking device         No         No           Degree of protection (IP)         IP40         IP40 | Number of poles                        |            | 0        |
| Rated fault current Rated insulation voltage Ui Rated impulse withstand voltage Uimp  Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP)  mA 1000 440 440 440 DIN rail A 4  Ves Ves Ves Ves Ves Vo No Vo Short-circuit breaking capacity (Icw) Short-circuit breaking capacity (Icw) Ves  | Rated voltage                          | V          | V 400    |
| Rated insulation voltage Ui Rated impulse withstand voltage Uimp  Mounting method Leakage current type Selective protection Short-time delayed tripping Short-circuit breaking capacity (Icw) Surge current capacity Frequency Additional equipment possible With interlocking device UV 440  440  A  10  10  10  10  10  10  10  10  10   | Rated current                          | А          | A 25     |
| Rated impulse withstand voltage Uimp  kV 4  Mounting method  Leakage current type  Selective protection  Solective protection  Short-time delayed tripping  Short-circuit breaking capacity (Icw)  Surge current capacity  KA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  kV 4  A  DIN rail  A  A  10  Surge  Yes  Short-circuit breaking capacity (Icw)  KA  5  Hz  Yes  No  IP40  | Rated fault current                    | m <i>A</i> | mA 1000  |
| Mounting method Leakage current type A Selective protection Short-time delayed tripping No Short-circuit breaking capacity (Icw) KA Surge current capacity Frequency Additional equipment possible With interlocking device Degree of protection (IP)  DIN rail  A  A  DIN rail A  A  I  No  Yes  No  No  I  I  I  I  I  I  I  I  I  I  I  I  I  | Rated insulation voltage Ui            | V          | V 440    |
| Leakage current type  Selective protection  Yes  Short-time delayed tripping  No  Short-circuit breaking capacity (Icw)  Surge current capacity  KA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  A  Yes  Yes  No  No  Pes  HA  10  50 Hz  Frequency  No  IP40  | Rated impulse withstand voltage Uimp   | kV         | kV 4     |
| Selective protection  Selective protection  Short-time delayed tripping  No  Short-circuit breaking capacity (Icw)  KA  10  Surge current capacity  KA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  Yes  Yes  Yes  No  IP40  | Mounting method                        |            | DIN rail |
| Short-time delayed tripping  Short-circuit breaking capacity (Icw)  Surge current capacity  KA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  No  No  No  No  No  IP40   | Leakage current type                   |            | A        |
| Short-circuit breaking capacity (Icw)  Surge current capacity  kA  5  Frequency  Additional equipment possible  With interlocking device  Degree of protection (IP)  kA  10  50  Hz  50  Hz  No  IP40  | Selective protection                   |            | Yes      |
| Surge current capacity  kA 5  Frequency  50 Hz  Additional equipment possible  With interlocking device  Degree of protection (IP)  kA 5  No  IP40   | Short-time delayed tripping            |            | No       |
| Frequency 50 Hz Additional equipment possible Yes With interlocking device No Degree of protection (IP) IP40   | Short-circuit breaking capacity (Icw)  | kA         | kA 10    |
| Additional equipment possible  With interlocking device  Degree of protection (IP)  Yes  No  IP40  | Surge current capacity                 | kA         | kA 5     |
| With interlocking device No Degree of protection (IP) IP40   | Frequency                              |            | 50 Hz    |
| Degree of protection (IP)  | Additional equipment possible          |            | Yes      |
|  | With interlocking device               |            | No       |
| Width in number of modular spacings 4  | Degree of protection (IP)              |            | IP40     |
|  | Width in number of modular spacings    |            | 4        |

| Built-in depth                                  | mm  | 69.5     |
|---|-----|----------|
| Ambient temperature during operating            | °C  | -25 - 40 |
| Pollution degree                                |     | 2        |
| Connectable conductor cross section multi-wired | mm² | 1.5 - 16 |
| Connectable conductor cross section solid-core  | mm² | 1.5 - 35 |