

# Product datasheet

Specifications



Protection and control relay,  
PowerLogic P7, transformer  
standard, 6CT, 3VT, 40BI, 32BO,  
24-34V, ethernet RJ45

REL76503

## Main

|                                        |                                                                                                                                                                                                                                                                        |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                       | PowerLogic P7                                                                                                                                                                                                                                                          |
| Product or component type              | Protection and control relay                                                                                                                                                                                                                                           |
| Relay application                      | Transformer application and bay control                                                                                                                                                                                                                                |
| product reference                      | P7                                                                                                                                                                                                                                                                     |
| Mounting case size                     | 40TE                                                                                                                                                                                                                                                                   |
| Device mounting                        | Flush                                                                                                                                                                                                                                                                  |
| Mounting support                       | 19" rack                                                                                                                                                                                                                                                               |
| Mounting mode                          | Flush mounting<br>Rack-mounted                                                                                                                                                                                                                                         |
| power supply                           | 24...34 V DC                                                                                                                                                                                                                                                           |
| measuring inputs                       | 6 CT 1/5 A<br>3 VT                                                                                                                                                                                                                                                     |
| number of Digital Inputs (DI)          | 40                                                                                                                                                                                                                                                                     |
| number of analogue inputs              | 8 RTD optional                                                                                                                                                                                                                                                         |
| number of Digital Outputs (DO)         | 32<br>1 watchdog                                                                                                                                                                                                                                                       |
| type of temperature module connection  | 2 twisted, type A, shielded wires (RS485)                                                                                                                                                                                                                              |
| communication ports                    | 1 CAN port<br>1 Ethernet TCP/IP<br>2 SFP ports<br>1 USB port<br>1 COM serial link                                                                                                                                                                                      |
| communication protocols                | Modbus serial and TCP<br>DNP3 serial and TCP<br>IEC 61850 Ed 2.1<br>IEC 61869-9<br>IEC 61850-9-2 LE                                                                                                                                                                    |
| Redundancy communication port protocol | HSR<br>PRP<br>RSTP<br>Failover                                                                                                                                                                                                                                         |
| Cybersecurity                          | IEC 62443 SL2<br>LDAP<br>RADIUS based user authentication<br>Port hardening<br>Role-based access control<br>Secure boot<br>Security log<br>Syslog protocol support<br>Firmware signature<br>Client IP address filter<br>Pre-login banner<br>Security policy management |

Excluding VAT, FCA Jabal Ali & are subject to change – check with your local distributor.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

|                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| protection functions            | Phase overcurrent 50/51<br>Ground fault protection 50N/51N<br>Sensitive earth fault overcurrent 50G/51G<br>Negative sequence overcurrent 46<br>Inrush detection 68<br>Voltage-dependent overcurrent 51V<br>Undervoltage 27<br>Overvoltage 59<br>Underfrequency 81U<br>Directional phase overcurrent 67<br>Directional earth fault 67N<br>Overfrequency 81O<br>Temperature monitoring (8 RTDs) 38/49T<br>Positive sequence undervoltage 47<br>Neutral voltage displacement 59N<br>Directional reactive overpower 32Q<br>Earth fault wattmetric 32N<br>Earth fault admittance 21N<br>Directional active overpower 32P<br>Directional active underpower 37P<br>Rate of change of frequency 81R<br>Thermal overload for transformer 49T<br>CT supervision 60<br>VT supervision 60FL<br>Breaker failure 50 BF<br>Overfluxing (V/Hz) 24<br>Transformer differential 87T<br>Underimpedance 21<br>Synchro-check 25<br>High impedance differential 64REF<br>Programmable logic |
| measurement functions           | Current 3-phase<br>RMS current 3-phase<br>Current sequence<br>Current 1-phase<br>RMS current 1-phase<br>Voltage 3-phase<br>RMS voltage 3-phase<br>Voltage sequence<br>Active power fundamental frequency<br>Apparent power fundamental frequency<br>Reactive power fundamental frequency<br>RMS active power maximum<br>RMS reactive power minimum<br>RMS apparent power<br>Active power demand maximum<br>Active power demand minimum<br>Reactive power demand maximum<br>Reactive power demand minimum<br>Apparent power demand maximum<br>Apparent power demand minimum<br>RMS phase current demand maximum<br>RMS phase current demand minimum<br>Power maximum<br>Power factor maximum<br>Harmonic distortion (I THD & U THD)<br>Voltage sags and swells<br>Earth fault current external measurement                                                                                                                                                             |
| control functions               | Switchgear control and monitoring<br>Programmable switchgear interlocking<br>Local/remote control<br>Programmable logic<br>Remote control<br>Function keys                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| controllable switchgear devices | 12 controlled objects including 3 CBs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| number of setting groups        | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| monitoring functions            | Circuit breaker monitoring<br>Switch monitoring<br>Relay self-monitoring<br>Trip circuit supervision 74<br>Event counters<br>Watchdog                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                           |                                                                                                                                                              |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| logs and records          | Disturbance recording<br>Event recording<br>Fault recording<br>Operation log                                                                                 |
| Switchgear diagnosis type | CT/VT supervision ANSI code: 60<br>Auxiliary power supply monitoring<br>Cumulative breaking current<br>Number of operations<br>DC battery voltage monitoring |
| Connections - terminals   | Screw type terminals (digital input/output)<br>Ring terminal (analogue input)                                                                                |

## Complementary

|                                |                                                                                                                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input power interruption       | 50 ms                                                                                                                                                                                |
| Maximum power consumption in W | 24 W typical                                                                                                                                                                         |
| Operating threshold            | 24 V DC                                                                                                                                                                              |
| Time synchronisation protocol  | IRIG-B<br>SNTP<br>IEEE 1588                                                                                                                                                          |
| Software name                  | PowerLogic Engineering Suite                                                                                                                                                         |
| Display type                   | Colour touchscreen 800 x 640 pixels                                                                                                                                                  |
| Display size                   | 7 inch                                                                                                                                                                               |
| Information displayed          | Single line diagram<br>Menu-driven user interface                                                                                                                                    |
| Control button type            | 1 home physical key<br>1 reset physical key<br>12 customizable virtual function keys                                                                                                 |
| Local signalling               | 4 LEDs red/orange device status<br>24 LEDs tri-colour programmable                                                                                                                   |
| Communication compatibility    | DNP3<br>Modbus<br>IEC 61850 Ed 2.1                                                                                                                                                   |
| Device connection              | Connection to a PC USB<br>Extension port extension cable<br>Ethernet port RJ45<br>Serial port RS485 cable<br>SFP redundant Ethernet port fibre optic/RJ45 multi/single mode optional |
| Product certifications         | cUL listed<br>UKCA<br>KETOP<br>CE<br>DNV                                                                                                                                             |
| Height                         | 178 mm                                                                                                                                                                               |
| Width                          | 205.2 mm                                                                                                                                                                             |
| Depth                          | 282 mm                                                                                                                                                                               |
| Net weight                     | 8.8 kg maximum                                                                                                                                                                       |

## Environment

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| climatic withstand | Exposure to cold Ae conforming to IEC 60068-2-1<br>Exposure to dry heat Be conforming to IEC 60068-2-2<br>Exposure to damp heat in service Cab conforming to IEC 60068-2-78<br>Temperature variation Nb conforming to IEC 60068-2-14<br>Exposure to damp heat not in service Cab conforming to IEC 60068-2-30<br>Salt mist Kb/1 conforming to IEC 60068-2-52<br>Influence of corrosion/gas test 2 Ke conforming to IEC 60068-2-60<br>Influence of corrosion/gas test 4 Ke conforming to IEC 60068-2-60 |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mechanical robustness                 | Vibrations (level: class 2) conforming to IEC 60255-21-1<br>Shocks (level: class 2) conforming to IEC 60255-21-2<br>Shocks (level: class 1) conforming to IEC 60255-21-2<br>Bumps (level: class 1) conforming to IEC 60255-21-2<br>Seismic tests (level: class 2) conforming to IEC 60255-21-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Electromagnetic compatibility         | Electromagnetic immunity class A conforming to CISPR 11<br>Electromagnetic immunity class A conforming to CISPR 22<br>Electromagnetic immunity level 3 conforming to IEC 6100-4-3<br>Radiated radio-frequency electromagnetic field immunity test level 4 conforming to ANSI C37.90.2<br>Electrostatic discharge level 4 conforming to IEC 6100-4-2<br>Electrostatic discharge level 5 conforming to ANSI C37.90.3<br>Immunity to magnetic fields level 4 conforming to IEC 61000-4-8<br>Immunity to magnetic fields level 5 conforming to IEC 61000-4-9<br>Immunity to magnetic fields level 5 conforming to IEC 61000-4-10<br>Conducted RF disturbances level 3 conforming to IEC 61000-4-6<br>Fast transient bursts level 4 conforming to IEC 61000-4-4<br>Damped oscillatory wave level 3 conforming to IEC 61000-4-18<br>Damped oscillatory wave level 5 conforming to ANSI C37.90.1<br>Damped oscillatory wave level 3 conforming to IEC 61000-4-12<br>Conducted disturbance emission A conforming to IEC 61000-4-16<br>Surges level 4 conforming to IEC 61000-4-5 |
| Ambient air temperature for operation | -40...70 °C ( 96 h )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Ambient air temperature for storage   | -40...85 °C (96 h)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| IP degree of protection               | IP54 front conforming to IEC 60529<br>IP30 case conforming to IEC 60529<br>IP20 rear conforming to IEC 60529                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| IK degree of protection               | IK07 conforming to IEC 62262                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| maximum operating altitude            | 2000 m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Protective treatment                  | Conformal coating conforming to IEC 60068-2-52:Kb/1<br>Conformal coating conforming to IEC 60068-2-60:Ke                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Relative humidity                     | 0...93 % at 40 °C, without condensation, 56 days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Packing Units

|                              |          |
|------------------------------|----------|
| Unit Type of Package 1       | PCE      |
| Number of Units in Package 1 | 1        |
| Package 1 Height             | 30 cm    |
| Package 1 Width              | 30 cm    |
| Package 1 Length             | 40 cm    |
| Package 1 Weight             | 8.837 kg |

## Contractual warranty

|                      |    |
|----------------------|----|
| Warranty (in months) | 24 |
|----------------------|----|



## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)



### Environmental footprint

|                                                        |                                               |
|--------------------------------------------------------|-----------------------------------------------|
| Total lifecycle Carbon footprint                       | 1 762 kg CO2 eq.                              |
| Carbon footprint of the manufacturing phase [A1 to A3] | 734 kg CO2 eq.                                |
| Carbon footprint of the distribution phase [A4]        | 3 kg CO2 eq.                                  |
| Carbon footprint of the installation phase [A5]        | 1 kg CO2 eq.                                  |
| Carbon footprint of the use phase [B2, B3, B4, B6]     | 1 011 kg CO2 eq.                              |
| Carbon footprint of the end-of-life phase [C1 to C4]   | 13 kg CO2 eq.                                 |
| Environmental Disclosure                               | <a href="#">Product Environmental Profile</a> |

## Use Better



### Materials and Substances

|                                        |                                                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------|
| Packaging made with recycled cardboard | Yes                                                                                    |
| Packaging without single use plastic   | No                                                                                     |
| SCIP Number                            | 7185a990-e1e7-4906-8102-573086cf8d7d                                                   |
| EU RoHS Directive                      | <a href="#">Compliant By Exemption</a>                                                 |
| REACH Regulation                       | <a href="#">Reference contains Substances of Very High Concern above the threshold</a> |

## Use Longer



### Lifetime extension

|        |    |
|--------|----|
| Repair | No |
|--------|----|

## Use Again



### Repack and remanufacture

|                                 |                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recyclability potential, in %   | 41                                                                                                                                                                                                              |
| End of life manual availability | <a href="#">End of Life Information</a>                                                                                                                                                                         |
| Take-back                       | No                                                                                                                                                                                                              |
| WEEE Label                      |  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

Technical Illustration

Assembly's dimensions

