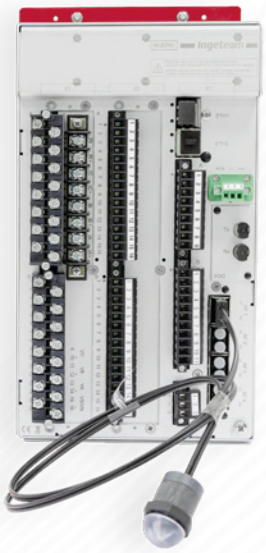
INGEPAC™ DA PT1 / PT6

Multifunction protection



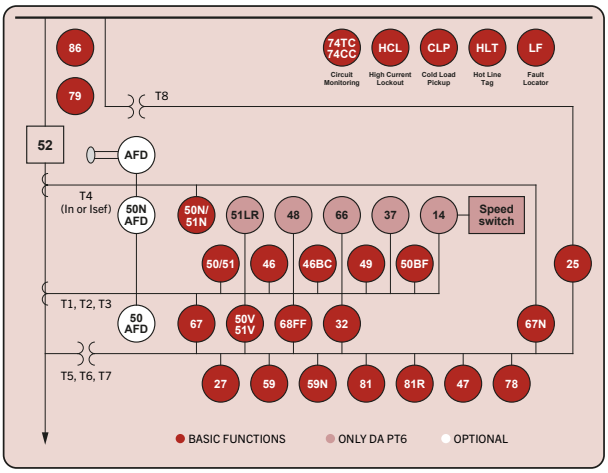
Multifunction protection

INGEPAC™ DA PT1 and **INGEPAC™ DA PT6** are multifunctional devices that offer a comprehensive solution for protecting and controlling **medium voltage feeders** and **electric motors** or backup protection.

INGEPAC™ DA PT1 provides all the typical protection functions of a medium-voltage bay, with the **optical arc detection** function. Due to its powerful **logic programming** and local and remote access capabilities, INGEPAC™ DA range offer high flexibility for the user, by providing local and remote operation and **automatic configurable functions** in the same device. In addition, event recording, fault reports, measurements historical record and oscillography are included in every model.

Applications

- Feeder main protection & control (INGEPAC™ DA PT1 model)
- Small and medium size motors protection & control (INGEPAC™ DA PT6 model)
- Arc detection



Functions

3x50/51 (67), 50N/51N (67N)
50NS/51NS (67NS)*
67NA*, 67NC*
46TOC (67Q), 46IOC(67Q)
46BC Broken conductor
50 CSC 2nd harmonic restraint
27, 59, 59N, 47
81M/m, 81 ROCOF
49 Thermal image
32 Power
78 Phase shift
HCL, CLP
51V
86
51LR, 37, 66, 48, 14 (only DA PT6)
50BF Breaker failure
25 Synchrocheck
79 Recloser
68 Fuse failure
Fault locator
Breaker monitoring
Optic arc-flash protection (optional)

* Available depending on the hardware configuración of the device

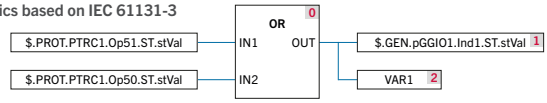
Data acquisition

SOE (2000) and 20 fault reports
Oscillography: 8 analog and 100 digital channe
Measurements: I, V, P, U, Q, f, etc.
Quality: sags and swells, THD, harmonics (15), CBEMA curve, interruptions, etc.
Stadistic data and reliability index

Communications

Protocols: IEC 61850, IEC 60870-5-101/103/104, DNP3, Modbus
Redundancy: PRP, HSR, D-link failure, switch mode
Web services: HTTP/HTTPs, FTP/sFTP

Logics based on IEC 61131-3



Synchronization

IEEE 1588 v2
SNTP
IRIG-B

Local HMI

3,5" graphical programmable display
I/O/L/R pushbuttons
Function keys
24 configurable LEDs

Ingeteam ELECTRIFYING A SUSTAINABLE FUTURE

INSULATION AND ELECTROMAGNETIC TESTS

Electromagnetic compatibility requirements	IEC 60255-26
Dielectric withstand	IEC 60255-27
Insulation resistance measurement	IEC 60255-27
Voltage impulse	IEC 60255-27
Electrostatic discharge immunity	IEC 61000-4-2
Radiated radiofrequency electromagnetic field immunity	IEC 61000-4-3
Electrical fast transient / burst immunity	IEC 61000-4-4
Surge immunity	IEC 61000-4-5
Immunity to conducted disturbances, induced by radiofrequency fields	IEC 61000-4-6
Power frequency magnetic field immunity	IEC 61000-4-8
Impulse magnetic field immunity	IEC 61000-4-9
Damped oscillatory magnetic field immunity	IEC 61000-4-10
Immunity to conducted, common mode disturbances	IEC 61000-4-16
Ripple on DC input power port	IEC 61000-4-17
Damped oscillatory wave immunity	IEC 61000-4-18
Voltage dips, short interruptions and voltage variations immunity	IEC 61000-4-29
Withstand to radiated electromagnetic interference from transceivers	IEEE 37.90.2

CLIMATIC TESTS

Cold	IEC 60068-2-1
Dry heat	IEC 60068-2-2
Change of temperature	IEC 60068-2-14
Damp heat cyclic	IEC 60068-2-30
Damp heat steady	IEC 60068-2-78
External protection level	IEC 60529

MECHANICAL TESTS

Vibrations	IEC 60255-21-1
Shock and bump	IEC 60255-21-2
Seismic	IEC 60255-21-3
Random vibrations	IEC 60068-2-64

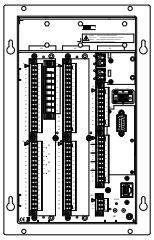
CE UKCA CYBERSECURITY

MAIN FEATURES

- High precision in direct measurements (0.2 class in currents and voltages)
- Wide range current inputs allowing the same device to be connected to 1 A and 5 A CT secondary
- Breaker monitoring: KI2, tripping anc closing circuits, excessive number of trips, inactivity, open/close times, SAIFI, SAIDI, etc.
- It offers an analog and digital simulation mode for testing
- The device can send oscillographic records automatically to an FTP server
- Through the front USB you can access the device to retrieve reports and equipment CID, load an external CID, load the firewall configuration or update the device firmware
- Synchronization from communications protocols, SNTP, IEEE 1588 v2 (PTP), demodulated IRIG-B input or PPS input, pacFactory or display
- Web server for monitoring and setting without needing additional software
- Cybersecurity features: sFTP, HTTPs, firewall, audit log, password accessing, RBAC, LDAP, session management, etc.

HARDWARE OPTIONS

Mounting options
Flush or backplate surface mounting:
- ⅓ 19" rack (up to 2 I/O slots)



Boards options
- 15 DI + 8 DO
- 24 DI + 16 DO
- 8 AI from converter (mA or V)
- 4 V + 4 I + 4 DI + 5 DO
- Voltage inputs from VT or LVIT
- Up to 4 INGEPAC™ LSD optical sensors inputs (point and longitudinal fiber)

Optional
- High speed digital outputs

Power supply
- Available voltages: 24/48 Vdc or 125/220 Vdc

Communication ports
- 1 serial + 2 Ethernet

Optional IP55 front protection

SOFTWARE

All the devices in the INGEPAC™ product range can be accessed using powerful software tools developed by Ingeteam which run on Windows®

Application specifically designed for simple and user-friendly access to the equipment

INGESYS eFS

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