

# ADF

## Advanced Directional Fault Detector



**Compact solution for MV automation**

The ADF is a compact RTU with advanced protection, automation, monitoring and distributed generation functions.

The ADF is specially designed to implement MV automation in RMU & recloser applications with different grounding method (grounded grids, ground isolated grids or compensated via Petersen coil).

### ADF technology

- IEC 61850 protocol used to share information via Goose Messages from one device to another. Coordination schemes supported.
- Software integration of the current measurement coming from Rogowski coil.
- Compatible with active and passive combined V-I sensors.



## Main functions

- Protection.
- Automation.
- Monitoring.
- RTU.
- DER Management.

## Remote control Protocols

The ADF can communicate with a control centre or SCADA system using different protocols: IEC 61850, IEC 60870-5-104, DNP3.

## Equipment interfaces

- One Fast Ethernet 10/100Base-Tx port + One Fiber 100Base-Fx port.  
It is also used for equipment configuration.
- Up to 16 digital inputs.
- Up to 8 digital outputs.
- 3 combined analog V-I Rogowski via RJ-45.
- Optional 1 serial console port (9-pin female SUB-D connector).
- LEDs for status indication.

## Management system

- Local management through a console or HMI (display and buttons).
- Remote management through a built-in web server (HTTP/HTTPS), SSH and Telnet server. IEC 61850 management using ZIVercom Plus tool.

## Technical Information

<b>ANSI Functions</b>	50 (3 units) 50N 51 (3 units) 51N 67 (3 units) 67N (3 units)	32P 27 59 50CT 79 47
<b>Analog Inputs</b>	3 combined V-I analog inputs. 1 voltage synchronism analog input (busbar voltage)	
<b>Current Analog Inputs</b>	Input capacitance: Input resistance: Maximum Input value: Accuracy:	< 10 pF 10 K $\Omega$ (1%) 3.52 V <sub>rms</sub> (10 V <sub>pp</sub> ) $\pm 0.5\%$
<b>Voltage Analog Inputs</b>	Input capacitance: Input resistance: Maximum Input value: Magnitude & angular accuracy:	< 10 pF 1 M $\Omega$ (1%) 3.54 V <sub>rms</sub> (10 V <sub>pp</sub> ) $\pm 0.5\%$
<b>Digital Inputs &amp; Outputs</b>	Up to 16 DI Up to 8 DO	
<b>Communication Interfaces &amp; Protocols</b>	<ul style="list-style-type: none"> <li>➤ Ethernet: 1 x 10/100 Base-Tx (RJ45) and 1 x 100Base-Fx</li> <li>➤ Optional serial port: 1 x RS232 (9 way D Type DTE)</li> <li>➤ Remote control Protocols IEC 61850, IEC 60870-5-104, DNP3</li> </ul>	
<b>Electromagnetic Immunity</b>	IEC 60255-5 IEC 60255-22-1 IEC 61000-4-18 IEC 61000-4-4 Cl 4 IEC 61000-4-2 Cl 4 IEC 61000-4-5	IEEE C37.90.1 IEC 61000-4-6 Cl 3 IEC 61000-4-8 Cl 5 IEC 61000-4-9 Cl 5 IEC 61000-4-10 Cl 5 IEC 61000-4-16 Cl 4 EN 55022
<b>Environmental &amp; Mechanical</b>	IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-78 IEC 60068-2-14	IEC 60068-2-6 IEC 60068-2-27
<b>Power supply</b>	<ul style="list-style-type: none"> <li>➤ 18 – 65 V<sub>DC</sub> (isolated).</li> <li>➤ Max. power consumption: 5 W</li> </ul>	
<b>Temperature range</b>	From -25°C to +70°C	

