

SIEMENS



Relay Selection Guide

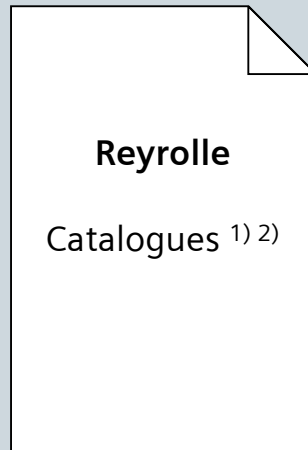
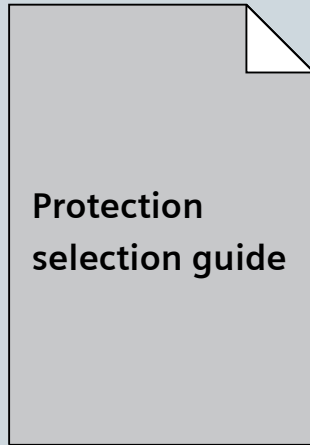
Selection Guide for Reyrolle

Answers for infrastructure and cities.

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Overview of Siemens Protection Catalogues

Catalogues



Reyrolle
CDs

¹⁾ In preparation

²⁾ only in English

Overview of Siemens Reyrolle protection catalogues

Protection selection guide:

The selection guide offers an overview of the device series of the Reyrolle protection devices, and a device selection table.

Reyrolle catalogue:

This catalogue gives an overview of the Reyrolle devices.

CDs

Technical documentation.

Operating programmes (Reydisp Evolution and Reydisp Manager)

Selection Guide for Reyrolle

Energy Automation

Protection Devices Series

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Overview, Relay Selection Table

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Legal Notice

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The products and systems described in this catalogue are manufactured and sold according to a certified management system (acc. to ISO 9001, ISO 14001 and BS OHSAS 18001).

Protection Devices

Reyrolle Relay Families

Solutions for today's and future power supply systems – for more than 100 years.

With the two brands SIPROTEC and Reyrolle, Siemens is the world market leader in digital protection technology. With a base of in excess 1 million devices installed and 200,000 with IEC 61850 it allows the customer to benefit from our experience.

As the innovation driver and trendsetter in the field of protection systems for over 100 years, Siemens helps system operators to design their grids in an intelligent, ecological, reliable and efficient way, and to operate them economically. As a pioneer, Siemens has decisively influenced the development of numerical protection systems.

How can system operators benefit from this experience?

- Proven and complete applications
- Easy integration into your system
- Highest quality of hardware and software
- Excellent operator friendliness of devices and tools
- Easy data exchange between applications
- Extraordinary consistency between product and system engineering
- Reduced complexity by easy operation
- Siemens as a reliable, worldwide operating partner

Reyrolle

The products of the long-standing British manufacturer Reyrolle are considered especially powerful and reliable by many markets. With the latest numerical products, Reyrolle - as a part of Siemens - shows that the development is being pushed forward, and that new innovations are continuously being developed to meet the changing requirements of the customer.



REYROLLE BRAND

- High Product Quality
- Excellent Competence in Application & Engineering

GOAL

- Provide user friendly products that are easy to use
- Training requirements minimised

EXCELLENT

- Focus on achieving high performance and excellent results

COMPETENCE

- Relays manufactured in Hebburn for more than 100 years
- Reyrolle Protection Devices installed worldwide

INNOVATIVE

- Being innovative to create sustainable value for our customers now and in the future

Reyrolle – Withdrawable solutions for distribution grids

Reyrolle has been synonymous with electrical protection devices in the sectors of sub-transmission, distribution and industrial applications for decades. Historically, Reyrolle relays, initially sold mainly in traditional markets, are now sold worldwide as part of the Siemens protection network.

Since its foundation, Reyrolle has been an innovation driver in product development – based on a strong focus on market, customer and technology. Worldwide established brand names such as “Solkor” and “Argus” demonstrate this. But there is more: A wide range of Reyrolle products has determined technological firsts in the market.

The comprehensive range of Reyrolle products provides the total protection requirements of distribution markets – ranging from overcurrent protection via transformer protection and voltage control to a full spectrum of auxiliary and trip relays. The portfolio includes many famous products such as “Argus”, “Duobias”, “Solkor”, “MicroTAPP”, etc.

To serve specific needs in industrial applications, a range of proven products such as “Argus overcurrent”, “Solkor line differential” and “Rho motor protection devices” is offered.

Through successive generations, Reyrolle numerical products have been developed to increase value to system operators. This increase in value is the result of consistent development:

- Ease-of-use as a principle – our withdrawable product solutions allow flexible, easy operation through high user friendliness.
- One size fits all – the 4U housing height and the latest generation of numerical products features 1A/5A CT Input, and some models are provided with universal DC supplies.
- Learn once, know all – the new product generation provides a similar look and feel as earlier products. If Reyrolle numerical devices have been previously used, there is a high consistency in both programming and interrogation.
- With Reydisp Evolution, a comprehensive software support toolkit for relay setting, fault interrogation and general system information is provided. It is backward-compatible with all previous Reyrolle numerical devices.



Front view of Argus 7SR220 with IEC 61850










Rear view of Argus 7SR220 with IEC 61850

Overview, Relay Selection Table

<ul style="list-style-type: none"> ■ = basic ○ = optional – = not available <p>1) = in preparation</p>		Overcurrent and feeder protection /feeder automation					Transformer protection		
		Device series							
ANSI	Function	Abbreviation	7SR11 Argus	7SR12 Argus	7SR210 Argus	7SR220 Argus	7SR224 Argus	7SR24 Duobias	7SG14 Duobias M
Functions									
	Protection functions for 3-pole tripping	3-pole	■	■	■	■	■	■	■
	Protection functions for 1-pole tripping	1-pole	–	–	–	–	○	–	–
14	Locked rotor protection	$I> + V<$	–	–	–	–	–	–	–
21	Distance protection	$Z<$	–	–	–	–	–	–	–
FL	Fault locator	$Z<, FL$	–	–	–	–	–	–	–
24	Overexcitation protection	V/f	–	–	–	–	–	○	○
25	Synchrocheck, synchronizing function	Sync	–	–	–	–	○	–	–
27	Undervoltage protection	$V<$	–	■	–	■	■	○	○
27TN/59TN	Stator ground fault 3 rd harmonics	$V0_{(3.Harm.)}$	–	–	–	–	–	–	–
37	Undercurrent	$I<$	■	■	■	■	■	○	–
38	Temperature supervision		–	–	–	–	–	–	–
46	Unbalanced-load protection	$I2>$	○	○	■	■	■	■	■
47	Phase-sequence-voltage supervision	LA, LB, LC	–	■	–	■	■	–	–
48	Start-time supervision	I^2_{start}	–	–	–	–	–	–	–
49	Thermal overload protection	θ	○	○	■	■	■	○	○
50	Definite time OC/EF	$I>$	■	■	■	■	■	○	○
50Ns	Sensitive ground-current protection	$I_{Ns}>$	○	○	■	■	■	–	–
50L	Load-jam protection	$I>_L$	–	–	–	–	–	–	○
50BF	Circuit-breaker failure protection	CBFP	■	■	■	■	■	■	○
51	Inverse time OC/EF	I_p	■	■	■	■	■	○	○
59	Overvoltage protection	$V>$	–	■	–	■	■	○	○
67	Directional overcurrent protection	$I>, \angle (V,I)$	–	■	–	■	■	–	–
68	Power-swing blocking	$\Delta Z/\Delta t$	–	–	–	–	–	–	–
74TC	Trip-circuit supervision	TCS	■	■	■	■	■	■	■
78	Out-of-step protection	$\Delta Z/\Delta t$	–	–	–	–	–	–	–
79	Automatic reclosing	AR	○	○	○	○	■	–	–
81	Frequency protection	$f<, f>$	–	■	–	■	■	○	○
	Vector-jump protection	$\Delta\varphi_U>$	–	–	–	–	–	–	–
85	Teleprotection		–	–	–	–	–	–	–
86	Lockout		■	■	■	■	■	■	■
87	Differential protection	ΔI	–	–	–	–	–	■	■
87N	Differential ground-fault protection	ΔI_N	○	○	■	■	■	–	–
90V	Automatic Voltage Control		–	–	–	–	–	–	–
Further Functions									
	Measured values		■	■	■	■	■	■	■
	Switching-statistic counters		■	■	■	■	■	■	■
	Logic editor		■	■	■	■	■	■	–

Overview, Relay Selection Table

Function	Abbreviation	Overcurrent and feeder protection / feeder automation					Transformer protection	
		7SR11	7SR12	7SR210	7SR220	7SR224	7SR24	7SG14
								
		Argus	Argus	Argus	Argus	Argus	Duobias	Duobias M
Further Functions								
Inrush-current detection		■	■	■	■	■	■	■
External trip initiation		■	■	■	■	■	■	■
Control		■	■	■	■	■	■	■
Fault recording of analog and binary signals		■	■	■	■	■	■	■
Monitoring and supervision		■	■	■	■	■	■	■
Protection interface, serial		■	■	■	■	■	■	■
No. Setting groups		4	4	8	8	8	8	8
Battery charger/-monitor		–	–	–	–	■	–	–
Hardware Feature								
Hardware quantity structure expandable	I/O	■	■	■	■	■	■	■
Binary inputs (max.)		6	6	19	13	43	19	27
Binary outputs (max.) incl. life contact		8	8	16	14	30	14	29
Internal RTD inputs (max.)		–	–	–	–	–	–	–
Current inputs (max.)		4	4	4	5	4	8	12
Voltage inputs (max.)		–	3	–	4	6	1	1
Size (xE)		4	4	6; 8	6; 8	10; 12	8; 10	8; 12; 16
Display (lines)		4	4	4	4	4	4	2
Graphical display (Pixel)		–	–	–	–	–	–	–
Pushbuttons		5	5	5	5	5	5	5
LEDs (max.)		10	10	19	19	19	27	33
PSU variants rated voltage		DC 24-60 DC 80-250 AC 115	DC 24-60 DC 80-250 AC 115	DC 30-220	DC 30-220	DC 30-220	DC 30-220	DC 30 DC 48/110 DC 220
Communication								
Front user interface		■	■	■	■	■	■	■
IEC 60870-5-101		–	–	–	–	○	–	–
IEC 60870-5-103		■	■	■	■	■	■	■
MODBUS RTU, Slave		■	■	■	■	■	■	–
DNP 3, Slave		■	■	■	■	■	■	–
IEC 61850		–	–	○	○	○ 1)	○ 1)	–
Time synchronisation		■	■	■	■	■	■	■
Standard Front Data Communication Port		USB	USB	USB	USB	USB	USB	RS232
Standard Rear Data Communication Port		RS485	RS485	RS485	RS485	RS485	RS485	FO x 2
Serial RS232 Data		–	–	○	○	○	○	–
Serial RS485 Data		–	–	○	○	○	○	–
Serial Fibre Optic Data (2x)		–	–	○	○	○	○	–
Ethernet Electrical (2x)		–	–	○	○	○	○	–
Ethernet Optical (2x)		–	–	○	○	○	○	–

Overview, Relay Selection Table

High impedance protection			Line differential protection		Motor protection	Synchro- nizing	Voltage and frequency protection		Distance protection	
7SR23 1)	7SG12	7PG23	7PG2111	7SG18	7SG17	7SG117	7SG118	7SG15	7SG163	7SG164
DAD	DAD N	5B3	Solkor	Solkor N	Rho 3	Argus	Argus	MicroTAPP	Ohmega	Ohmega

-	-	-	-	-	-	-	-	-	-	-
■	■	-	-	■	-	■	■	-	■	■
■	■	-	-	■	-	■	■	■	■	■
■	■	-	-	■	■	■	■	■	■	■
■	■	-	-	■	■	■	■	■	■	■
■	■	-	-	■	■	■	■	■	■	■
8	8	-	-	8	8	8	8	8	8	8
-	-	-	-	-	-	-	-	-	-	-

■	■	-	-	■	■	-	■	■	■	■
19	27	-	-	9	9	4	9	19	27	27
16	29	3	3	7	7	7	11	13	29	29
-	-	-	-	-	8	-	-	-	-	-
4	3	1	3	4	4	-	-	1	4	4
-	-	-	-	-	-	2	2or3	2	4	4
6, 8	8; 12	3	6	8	6; 8	4	6	12; 16	12; 16	12; 16
4	2	-	-	2	2	2	2	-	2	2
-	-	-	-	-	-	-	-	240 x 120	-	-
5	5	-	-	5	5	5	5	5	5	5
19	33	-	-	5	5	3	5	5	33	33
DC 30-220	DC 30 DC 48/110 DC 220	-	-	DC 24/30/98 DC 110/220	DC 24/30/98 DC 110/220	DC 24/30/98 DC 110/220	DC 24/30/98 DC 110/220	DC 30 DC 48/110	DC 30; DC 48/110 DC 110/220 DC 220	DC 30; DC 48/110 DC 110/220 DC 220

■	■	-	-	■	■	-	-	■	■	■
-	-	-	-	-	-	-	-	-	-	-
■	■	-	-	■	■	■	■	■	■	■
■	-	-	-	○	■	■	○	-	-	-
■	-	-	-	-	-	-	-	-	-	-
○	-	-	-	-	-	-	-	-	-	-
■	■	-	-	■	■	■	■	■	■	■
USB	RS232	-	-	-	-	-	-	RS232	RS232	RS232
RS485	FO x 2	-	-	-	-	-	-	FO x 2	FO x 2	FO x 2
○	-	-	-	-	-	-	-	-	-	-
○	-	-	-	○	○	○	○	-	-	-
○	-	-	-	○	○	○	○	-	-	-
○	-	-	-	-	-	-	-	-	-	-
○	-	-	-	-	-	-	-	-	-	-

Indication of conformity



These products comply with the directive of the Council of the European Communities on harmonization of the laws of the Member States relating to electromagnetic compatibility.

This product conforms with the IEC 60255 international series of standards.

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