

PROTECTION MADE SIMPLE.

WIC1 Family - Self / Dual

The WIC1 family is a series of self-powered / CT powered protection relays, designed for harshest environments. The WIC relay family does not need auxiliary energy since they are CT powered. A dual/redundant powered variant enables communication options (#) in addition to the power outage safe protection core. The main applications are:

- ▶ Protection of Ring Main Units for Power Distribution
- ▶ Protection of Step-Up Transformers e.g. for Wind and Solar Power
- ▶ Protection of Feeders
- ▶ Current based protection when auxiliary power is not available or too costly
- ▶ Backup Protection – available in absence of auxiliary power
- ▶ Disaster recovery – Blackstart capability after (short or long lasting) outages – reliable protection, when other protection relays fail because of drained battery rooms

(#) = planned for Release 2.0.

DiggiMEC® - Nano HMI + Flag Indicators

The DiggiMEC® is an upgrade option to the WIC1 family. It is a Nano-HMI with up to three integrated mechanical flag indicators. Its display can visualize measuring values on site. Moreover, the DiggiMEC® provides access to the protection parameters that are always exclusively inside the WIC relay.

Software settings (offline created) can be loaded into the WIC1 relays via the USB-C port of the DiggiMEC®.

Fault analysis is easy because Auto-Fault reports will pop up on the display. The configurable mechanical flag indicators show trip relevant information in a power outage safe manner.

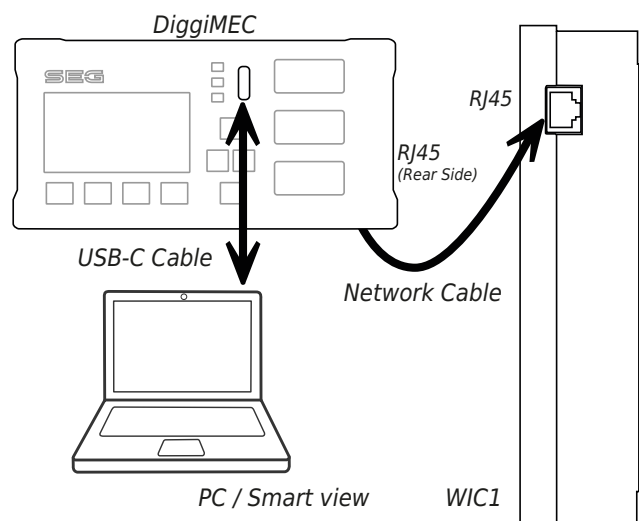
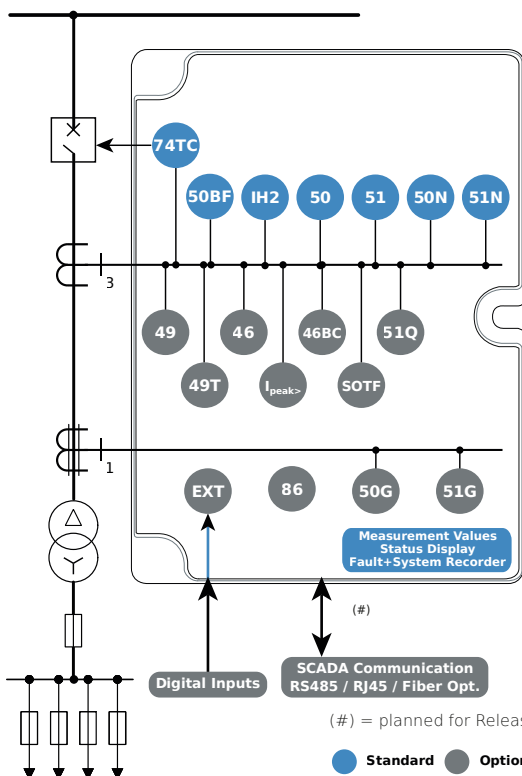
WIC1

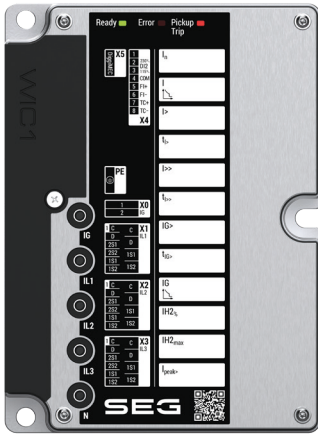
SELF-/DUAL-POWERED PROTECTION RELAY



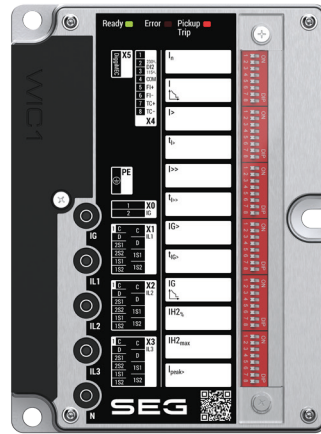
DiggiMEC®

NANO HMI FOR WIC1 WITH FLAG INDICATORS

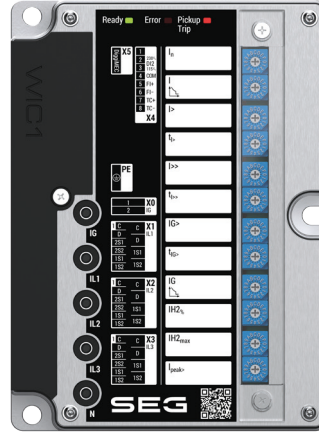




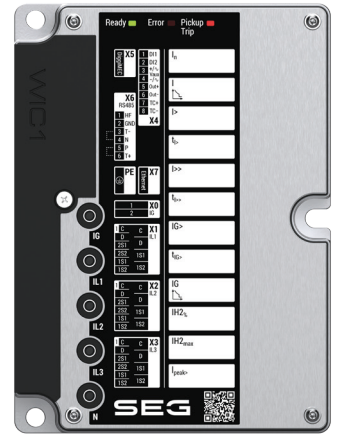
WIC1-1



WIC1-2



WIC1-3



WIC1-4

Self- or Dual-Powered

The WIC1 relays harvest the required supply energy from the current measurement signals. No auxiliary power needed. A dual (redundant) powered variant is available in order to enable e.g. communication^(#) and early ground (earth) fault detection.

Inrush Blocking

Adapt the inrush element to your needs in order to prevent faulty inrush tripping. The inrush element can also be set via DIP/HEX switches. In particular, it has a full-featured inrush Blocking, with settable thresholds (also via DIP / HEX).

Communication^(#)

The WIC1-4 features the Modbus RTU protocol via RS485 interface, or Modbus TCP via electrical or optical Ethernet.

Sub-Cycle Boot-up Time

With a start-up time of less than 1 cycle, the WIC1 already protects your equipment whilst other devices are still booting. What if someone is switching onto a fault although the system is still grounded during maintenance? The WIC1 will issue a trip signal almost immediately.

Ultra Fast Overcurrent

There is an optional ultra-fast Peak Value Overcurrent protection available now. The WIC1 can trip on critical currents within less than a cycle, including boot and charge time. This element can be used to minimize damage to your equipment in case of very high short circuit currents or to minimize SOTF (option) tripping times.

No Drilling, no Sawing for Retrofit

The WIC1 has the same form-factor as the predecessor. You can mount it into the cabinet in just a few minutes. No cabinet needs to be redesigned. No drilling, no sawing will be necessary.

You can re-use the previously installed WIC1 CTs: Just switch over the connection cables.

The first DIP switch blocks (WIC1-2) / HEX switches (WIC1-3) have the same function as the first WIC1 version, so that the settings are quickly copied.

Made for Harsh Environment

It is no problem for the WIC1 if the RMU / transformer is in an area with harsh climate, for example high humidity all the year, or an average temperature above 50°C.

Wider Nominal Current Range with Broad-Range CTs^{*}

Broad-Range CTs cover a wider range of nominal currents so that you are safer in case you don't know yet the rated power of the transformer that will be protected by your RMU later on.

Ground Current

The WIC1 offers calculated and measured 1 A ground current (option).

Tripping Characteristics

For inverse-time overcurrent protection, you can select out of 12 characteristics (ground overcurrent: 13)

- ▶ **New:** Eaton-Cooper "EF"-curve and 3 new IEEE curves
- ▶ **New:** Minimum tripping time for INV characteristics

[#] = planned for Release 2.0.

^{*} Ask for availability.

Benefits of the DiggiMEC® Upgrade Option

The DiggiMEC® is an HMI upgrade option to the WIC1. It offers integrated Flag Indicators and configurable LEDs and can be mounted in no time and without any drilling. Just connect the DiggiMEC® and WIC1 relay via a standard Ethernet cable.

Settings via DiggiMEC®

Access on all / additional protective elements

Setting of protective elements beyond DIP/HEX switches

- ▶ Alternative Flag Indicator Assignments
- ▶ I>>> (Third Overcurrent Element)
- ▶ IG>> (Second Ground Current Element)
- ▶ Thermal Protection
- ▶ Option for flexible use of the FI (flag indicator) output of the WIC1, e. g. for measuring alarm times, or as a watchdog output (with external DIN rail output relay)

Condition Monitoring

- ▶ Breaker Wear
- ▶ Live Measurement Values Transformer Life Load Monitoring (#)
- ▶ Slave Pointer (#)



Commissioning Support

- ▶ Force manually relay positions
- ▶ Trip Indicators (manual reset option)
- ▶ Test Trip (powered via USB)

The Auto Fault Report Tells You what has Happened

- ▶ Information comes to you: Fault reports will pop up on the display automatically.
- ▶ Mechanical Flag Indicators indicate in a power outage safe manner what has happened.

Protection	Description	Elements	
50, 51	Phase Overcurrent	3* / 2**	●
50N, 51N	Calculated Ground Overcurrent	2* / 1**	●
50G, 51G	Measured Ground Overcurrent	2* / 1**	○
IH2	Adjustable Inrush Blocking	1* / 1**	●
EXT	External Trip	1 (WIC1-1/2/3) 2 (WIC1-4)	○
46	Unbalanced Load	1*	○
51Q	Negative-Sequence Overcurrent	1*	○
49	Thermal Replica	1*	○
SOTF	Switch on to Fault	1*	○
	Peak Value Overcurrent (sample-based, very fast trip)	1* / 1**	○
Supervision	Description	Elements	
74TC	Trip Coil Monitoring		●
50BF	Circuit Breaker Failure		●
BP	Static Backup Overcurrent Protection		○
SBM (#)	Station Battery Monitoring (#)	(WIC1-4)	
	Self-Supervision (State of health of the WIC1)		●

* = via DiggiMEC / Smart view
= planned for Release 2.0.

** = via DIP/HEX switches

● = Standard

○ = Option

PROTECTION MADE SIMPLE.

Order Form WIC1

CT Powered Time Overcurrent and Ground Current Relay	WIC1	-	#	#	#	#	#	#	#	#	#
Mounting Form	↓										
Settings via DiggiMEC / Smart view	1										
Settings via DIP switches, DiggiMEC / Smart view	2										
Settings via HEX switches, DiggiMEC / Smart view	3										
Dual-Powered, settings via DiggiMEC / Smart view	4										
CT Type	↓										
Phase current measuring inputs for WIC1 CTs	S										
Phase curr. meas. inp. for Broad-Range CTs (WIC1-1, WIC1-4)	B ^(?)										
Earth Current Supervision	↓										
Calculated earth current ^(**)	N										
Calculated or measured earth current (measuring inputs 1 A) ^(**)	G										
Nominal Frequency	↓										
50 Hz (only WIC1-2, WIC1-3) ^(***)	5										
60 Hz (only WIC1-2, WIC1-3) ^(***)	6										
50 Hz / 60 Hz (only WIC1-1, WIC1-4) ^(***)	0										
Outputs	↓										
Trip pulse output	N										
Trip pulse output, trip flag indicator	F										
Trip pulse output, assignable flag indicator	C										
Digital Inputs (only WIC1-1, WIC1-2, WIC1-3)	↓										
No digital inputs	N										
External trip input (115 Vac or 230 Vac)	F										
1 assignable Digital Input (115 Vac or 230 Vac, flexible use, e. g. for external trip)	C										
Digital Inputs (only WIC1-4)	↓										
No digital inputs	M										
External trip input, external reset input	G										
2 assignable Digital Inputs (flexible use, e. g. for Breaker Position)	D										
Backup Protection	↓										
Backup protection operates directly	1										
Trip at 20·In,max	2										
Protection Packages	↓										
ANSI 50/51, 50G/N, 51G/N, Inrush, 50BF, 74TC	S										
ANSI 50/51, 50G/N, 51G/N, Inrush, 46, 49, 50BF, 51Q, 74TC	A										
ANSI 50/51, 50G/N, 51G/N, Inrush, 46, 49, 50BF, 51Q, 74TC, SOTF, ultra-fast overcurrent protection	P										
SCADA Communication (only WIC1-4)^(#)	↓										
Without communication protocol	A										
Modbus RTU, IEC 60870-5-103 RS485 / terminals ^(#)	B ^(#)										
Modbus TCP Ethernet 100 MB / RJ45 ^(#)	C ^(#)										
Modbus TCP Optical Ethernet 100 MB / LC duplex connector ^(#)	L ^(#)										
IEC 61850, Modbus TCP Ethernet 100 MB / RJ45 ^(#)	H ^(#)										
IEC 61850, Modbus TCP Optical Ethernet 100 MB / LC duplex connector ^(#)	K ^(#)										

(#) = SCADA communication is planned for WIC1-4 Release 2.0.

(?) = Ask for availability.

(**) = The WIC1-4 is always delivered with ground current measuring input, i.e. option "N" is not available. However, via DiggiMEC or Smart view it is possible to configure any WIC1 variant (including WIC1-4) also for calculated ground current

(***) = Choice of nominal frequency (options "5" / "6") is relevant only for configuration via DIP/HEX switches (WIC1-2 / WIC1-3). Via DiggiMEC or Smart view, any WIC1 variant can be set to either 50 Hz or 60 Hz nominal frequency.

Order Form DiggiMEC®

Remote Display and Indication Unit for the WIC1	DiggiMEC	-#
Type	↓	
Door mounting, 1 flag indicator, 1 bi-stable relay	A	
Door mounting, 3 flag indicators, 3 bi-stable relays	B	
Available Menu Languages		
English / German / Spanish / French / Polish / Portuguese (BR) / Russian ^(*)		

* = WIC1/DiggiMEC only English, other languages using Smart view.

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