

Order code: IP1SYNCXBAA

## Synchronization and protection relay

# Datasheet

### Product description

InteliPro SYNC is a highly reliable protection relay designed for synchronization in parallel to mains applications, such as generators, gen-sets and cogeneration units connected to distribution network.

InteliPro SYNC is an ideal substitute for manual synchronizing relay.

### Key functions

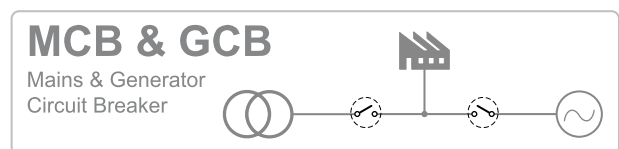
- ▶ Synch check, over/undervoltage and reverse power protection in one unit
- ▶ Over/underfrequency, Instantaneous overcurrent, IDMT overcurrent and Earth Fault protection as optional features
- ▶ Extensive flexibility for various applications through set of optional functions

### Key features

- ▶ Quick and easy installation
- ▶ Intuitive and simple wiring
- ▶ True RMS measurement
- ▶ 3 phase voltage and current measurement
- ▶ Two stage protection settings
- ▶ Display with synchroscope

- ▶ Breaker failure protection and battery voltage protection
- ▶ Automatic fault reset with adjustable time delay
- ▶ Freely assignable 8 binary inputs, 9 binary outputs and 3 analog inputs
- ▶ Easy configuration through the front panel or a PC software
- ▶ Expandable extension and communication modules
- ▶ Remote access
- ▶ 3 levels of password protection
- ▶ Event history log

### Application overview



## Technical data

### Power Supply

Power supply range	8-36 VDC
Power supply drop-out immunity	50 ms (from min. 10 V)
Backup battery type	approx. 200 mA / 8 V; 50 mA / 36 V
Backup battery type	CR 1225
Estimated backup battery lifetime	10 years

### Operating conditions

Operating temperature	-20-70 °C
Operating humidity	95% non-condensing (IEC/EN 60068-2-30)
Protection degree (front panel)	IP65
Vibration	5-25 Hz, +/- 1,6 mm 25-100 Hz, a = 4 g
Shocks	a <sub>max</sub> 200 m/s <sup>2</sup>
Storage temperature	-30-80 °C

### Mains measurement

Measurement inputs	3 phase mains voltage 3 phase mains current
Measurement type	True RMS
Voltage range	480 V Ph-Ph (277 V Ph-N)
Max. measured voltage	340 V Ph-N
Min. measured voltage	30 V Ph-N
Voltage accuracy	1% from the range at 20°C and 50 or 60 Hz; 1,5% on the complete frequency and temperature range
Current range	5A
Max. measured current	9A
Max. allowed current	12 A continuous, 50 A/1 s
Current accuracy	2 % from the range at CT Ratio = 50 A/5 A or higher
CT input burden	<0.5 VA
Frequency range	30-70 Hz, measured from L3
Frequency accuracy	0.05 Hz

### Binary inputs

Number	9 non-isolated
Input resistance	4,2kΩ
Close/Open indication	0-2VDC close contact >4VDC open contact

### Binary outputs

Number	8 non-isolated
Max. current	500mA (suppression diodes required for inductive loads)
Switching to	negative supply terminal

### Analog inputs

Number	3 non-isolated
Electrical range	0-2500 Ω
Resolution	10bits, 4 digits
Supported sensor types	<b>Predefined:</b> VDO 10 Bar, VDO Temperature, VDO Fuel level <b>User defined:</b> 10 points non-linear sensors can be defined by the user
Precision	1% from the range

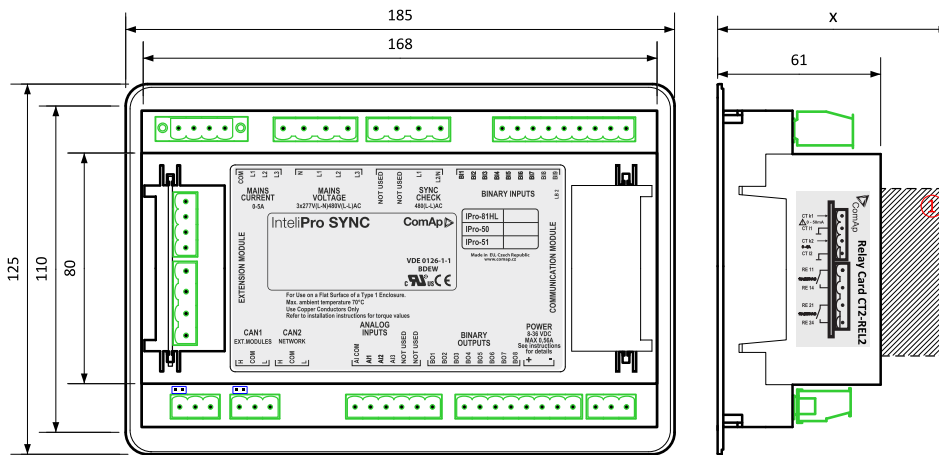
### Communication

CAN1	External modules 250 kbps, max 200 m Isolated
CAN2	Intercontroller and comm extensions 250/50 kbps, max 200/800 m Isolated

### Relay card CT2-REL2

Relay Contacts	
Number of relay outputs	2
Type	Dry contacts
Operating voltage	250 VAC
Max switched voltage/current	250 V/10 A
Current measurement inputs	2 x 1ph current measurement
Measurement type	True RMS
Number of current inputs	2
Input 1 (CT k1, I1):	
Current range	50 mA
Max. allowed current	120 mA
Current accuracy	2 % from the range
Input 2 (CT k2, I2):	
Current range	5 A
Max. measured current	9 A
Max. allowed current	12 A continuous, 50 A/1 s
Current accuracy	2 % from the range
CT input burden	<0.5 VA

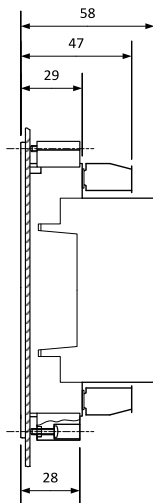
## Dimensions, terminals, mounting and EMC



① Plug-in module

**Note:** Dimension *x* depends on plug-in module

### Panel door mounting



### Overview of parameter x

Plug-in module	Parameter x [mm]
IC-NT-CT-BIO7	76
IL-NT-RS232	113
IL-NT-RS232-485	115 @ RS232 / 74 @ RS485
IL-NT-S-USB	128
IB-Lite	108
IL-NT-GPRS	122

**Note:** IntelliPro can be mounted into panel doors as a standalone unit using provided plastic holders. The cut-out for the unit should be 1mm wider than the unit on each side (i.e. cut-out dimensions 175x115mm).

## EMC

Electrical disturbance test (1 MHz burst immunity)	IEC 60255-22-1; IEC 61000-4-18; IEEE C37.90.1
Electrostatic discharge tests	IEC 60255-22-2; IEC 61000-4-2
Radiated electromagnetic field immunity test	IEC 60255-22-3; IEC 61000-4-3; IEEE C37.90.2
Electrical fast transient/burst immunity test	IEC 60255-22-4; IEC 61000-4-4; IEEE C37.90.1
Surge immunity tests	IEC 60255-22-5; IEC 61000-4-5
Immunity to conducted disturbances induced by radiofrequency fields	IEC 60255-22-6; IEC 61000-4-6; IEEE C37.90.2
Power frequency magnetic field immunity tests	IEC 60255-22-8; IEC 61000-4-8
Voltage dips, short interruptions and voltage variations on dc input power port	IEC 60255-11; IEC 61000-4-29
Electromagnetic emission tests	CISPR 22; IEC 60255-25
Vibration tests (sinusoidal)	IEC 60255-21-1; IEC 60068-2-6
Shock and bump tests	IEC 60255-21-2; EN 60068-2-27
Environmental testing (Cold: -30 °C)	IEC 60068-2-1
Environmental testing (Dry heat: +70 °C)	IEC 60068-2-2
Environmental testing (Temperature cycle: 20-55-20°C, Humidity: 97%)	IEC 60068-2-3; IEC60068-2-30
Insulation coordination (Overvoltage category III)	IEC 60255-5

## Available extension modules

Product	Description	Order code
IC-NT CT-BIO7	1 phase current input and binary input/output module	<a href="#">IC-NT-CT-BIO7</a>
IG-IOM	Analog/binary input/output module	<a href="#">IG-IOM</a>
IGS-PTM	Analog/binary input/output module	<a href="#">IGS-PTM</a>
IL-NT-AIO	Analog input/output module	<a href="#">IL-NT-AIO</a>
IL-NT RS232	Direct connection (PC) by RS232	<a href="#">IL-NT-232</a>
IL-NT RS232-485	Dual Port Extension Board with RS232 and RS485	<a href="#">IL-NT-232-485</a>
IL-NT S-USB	Service USB Module	<a href="#">IL-NT-S-USB</a>
IB-Lite	Internet / Ethernet Module including Web Server	<a href="#">IB-Lite</a>
IL-NT GPRS	GSM / GPRS Modem Plug-In Module	<a href="#">IL-NT-GPRS</a>

## Related products

Product	Description	Order code
MainsPro	Mains Decoupling Relay	<a href="#">MAINSPRO</a>
InteliPro	Utility Protection Relay	<a href="#">INTELIPRO</a>

## Functions and protections

Standard features		Optional functions	
Description	ANSI code	Description	ANSI code
Sync Check	25	Under/overfrequency	81L, 81H
Under/overvoltage	27, 59	Instantaneous overcurrent	50
Reverse power	32	IDMT overcurrent	51
Breaker failure protection	50BF	Earth fault current	50N, 51N
Auxiliary battery voltage protection			

## Certificates and standards

▶ IEC 60255	▶ VDE V 0126-1-1	 
▶ G83	▶ UL 508	
All certificates and standards are available on: <a href="https://webstore.iec.ch/">https://webstore.iec.ch/</a>		

