## Line Differential Protection SIPROTEC 7SD61

## Numerical line differential protection

for two-line ends

- allows transformers in the protection zone

Current transformers
l ph = $1 \mathrm{~A} \mathrm{~A}^{1}$,, $\mathrm{e}=1 \mathrm{~A}{ }^{1}$
$\left.l p h=5 A^{11}, l e=5 A^{1}\right)$
${ }_{7}^{1}{ }^{2} \mathrm{~S}$ D $\begin{array}{lll}5 & 6 \\ 1 & 0\end{array}$ 0
$\square$
1
1
5 | 1/3 19", 7 BI, 5 BO, 1 Life contact Flush-mounting housing with plug-in term., 1/3 19", 7 BI, 5 BO , 1 Life contact

Region-specific default settings/
function versions and language settings

Region DE, German language (language changeable)
Region World, English language (language changeable) Region US, US-English language (language changeable)
Region world, French language (language changeable)
Region world, Spanish language (language changeable)
Region world, Italian language (language changeable)

System interfaces, functions and hardware
Without system interface
IEC 60870-5-103 Protocol, electric RS232
IEC 60870-5-103 Protocol, electrical RS485
IEC 60870-5-103 Protocol, optical 820 nm , ST-connector
Further protocols see supplement $L$
PROFIBUS DP slave, RS485
PROFIBUS DP slave, optical 820 nm , double ring, ST-connector 4)
Modbus, RS485
Modbus, optical 820 nm, ST-connector ${ }^{4}$
DNP3.0, RS485
DNP3.0, optical 820 nm , ST-connector ${ }^{4}$
IEC 61850, 100 Mbit Ethernet electrical, double, RS45 connector (EN 100)
IEC 61850, 100 Mbit Ethernet, with integrated switch
optical, double, LC-connector ${ }^{5}$
$\mathrm{BI}=$ Binary input.
BO = Binary output

1) Rated current $1 / 5 \mathrm{~A}$ can be selected by means of jumpers.
2) Transition between the two auxiliary voltage ranges can be selected by means of jumpers.
3) Setting of the BI thresholds can be made for each binary input via jumpers in 3 steps.
4) Not possible for Surface-mounting housing (MLFB pos. $9=\mathrm{F}$ ).

For the surface mounted version, please order a device with the appropriate electrical RS485 interface and an external FO-converter.
5) Not possible for Surface-mounting housing (MLFB pos. $9=$ F) please order the relay with electrical interface and use a separate fiber-optic switch

## Line Differential Protection

## Numerical line differential protection

 (continued from previous page)DIGSI/Modem interface (on rear of device) and protection interface 1
DIGSI/Modem interface (on rear of device)
DIGSI 4, electrical RS232
DIGSI 4, electrical RS485
Protection interface 1
FO5: Optical $820 \mathrm{~nm}, 2$ ST-connectors, line length up to $1,5 \mathrm{~km}$ via multimode FO cable for communication converter or direct FO connection ${ }^{1)}$
FO6: Optical $820 \mathrm{~nm}, 2$ ST-connectors, line length up to $3,5 \mathrm{~km}$ via multimode FO cable for direct FO connection
F017: Optical 1300 nm , LC-Duplex-plugs, line length up to $24 \mathrm{~km}{ }^{2)}$
via monomode FO cable for direct FO connection ${ }^{2)}$
FO18: Optical 1300 nm , LC-Duplex-plugs, line length up to 60 km
via monomode FO cable for direct FO connection ${ }^{2)}{ }^{3}$ )
FO19: Optical 1550 nm, LC-Duplex-plugs, line length up to 100 km
via monomode FO cable for direct FO connection ${ }^{2)}$ 4)
FO30: Optical $820 \mathrm{~nm}, 2$ ST-connectors, line length up to $1,5 \mathrm{~km}$ via multimode FO cable for communication networks with IEEE C37.94 interface or direct FO connection 5)

Functions 1
Trip mode 3-pole only without auto reclosure
Trip mode 3-pole only with auto reclosure
Trip mode 1-and 3-pole without auto reclosure


Back-up functions
with emergency or back-up overcurrent protection
with emergency or back-up overcurrent and breaker failure protection
with directional - emergency or back-up overcurrent protection
with directional - emergency or back-up overcurrent and breaker failure protection
Additional functions 1

| 4 Remote commands/ <br> 24 Remote indications | Transformer <br> expansions | Voltage-/frequence <br> protection | Restricted earth fault <br> (low Impedance) |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  | $\square$ |  |
|  | $\square$ |  |  |
|  | $\square$ | $\square$ |  |
| $\square$ |  |  |  |
| $\square$ | $\square$ | $\square$ |  |
| $\square$ | $\square$ |  |  |
| $\square$ | $\square$ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ | $\square$ |

without external GPS synchronisation of differential protection
with external GPS synchronisation of differential protection

