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1 SERVICE REPORT

Information on the operating conditions in question, for protected objects in the power system as well as information on the terminal itself, is available in the “Service report” menu. The complete available information depends on the amount of basic and optional functions included in the particular REx 5xx terminal. The appearance of different information subgroups on the MMI unit depends on whether the corresponding function is included in the terminal or not. The possible complete information consists of the following subgroups:

- Mean values
- Differential values (only if the line differential protection function is included in the terminal)
- Phasors
- Synchronising values
- Apparatus control
- Interlocking
- Logical signals
- Binary inputs
- Counters within the autoreclosing function
- Communication channel (only if the line differential protection function is included in the terminal)
- Directionality
- Disturbance report
- Active group
- Internal time

1.1 Mean values

MMI-branch:

Service Report
Mean Values

Mean values of the measured current, voltage, active and reactive power, as well as of the frequency, are available to the user in line distance protection terminals. The amount of this information in other types of terminals depends on the built-in optional functions.

1.2 Differential values

MMI-branch:

Service Report
Diff Values

The values of the differential and bias currents are available to the user for each phase separately in line protection terminals with a built-in line differential protection function.

1.3 Phasors

MMI-branch:

Service Report
Phasors
Primary (Secondary)

The appearance of phasors of analogue input quantities as they enter the terminal, depends on the type of terminal itself as well as on built-in options.

The line protection terminals will display primary and secondary phasors of measured currents and voltages only if they have an optional fault location function built-in.

Other terminals in the REx 5xx-series have this function built-in as an option, which depends also on the number of built-in current and voltage inputs and their role within the terminals.

1.4 Synchronising values

MMI-branch:

Service Report
Sync Values

The actual measured values of phase angle difference (DiffPhase), voltage difference (DiffVoltage) and frequency differences (DiffFreq) are available to the user of a control terminal with a built-in synchro-check option.

1.5 Apparatus control

MMI branch:

Service Report
AppControl

The status of the output signals from different control logical blocks (BAYCONx, COMCON, SWICONy and BLKCONz) used for control purposes within different bays is available to the user under the corresponding submenus. Their presentation and appearance depends on the type of built-in control function. These signals are available only in bay control terminals (for instance REC 561)

1.6 Interlocking

MMI branch:

Service Report
Interlocking

The status of output signals from different interlocking logical blocks, such as AB_TRAFO, ABC_LINE, DB_BUS_A, etc., is available to the user under the corresponding submenus. Their presentation and appearance depends on the type of built-in interlocking blocks. These signals are available only in bay control terminals (for instance REC 561).

1.7 Logical signals

MMI-branch:

Service Report
Logical Signals

The current values of all internal logical signals, except those related to the apparatus control and interlocking functional blocks, are always available to the user under the “Logical Signals” submenu.

1.8 Binary inputs

MMI-branch:

Service Report
Binary Inputs

The current logical values of all binary inputs of a terminal are always available to the user under the “Binary Inputs” submenu.

1.9 Counters within the autoreclosing function

MMI-branch:

Service Report
ARCounters

Various types of autoreclosing functions are available for different types of terminals as an option. They also comprise different counters and their actual values are available to the user under this submenu. The resetting of counters to the initial value 0 is also feasible under this submenu.

1.10 Communication channel for the line differential protection function

MMI-branch:

Service Report
DiffCommunic

The information available under this submenu consists of two parts:

- actual transmission time delay of a communication channel

the number of short, medium and long communication interruptions calculated by built-in counters. These counters can also be cleared to the initial 0 value.

1.11 Directionality

MMI-branch:

Service Report
Direction

This submenu is available when a distance protection function is built into the terminal. The function enables testing of the directionality of the distance protection function during the commissioning period as well as after some work in the secondary circuits between the current and voltage instrument transformers and terminal.

1.12 Disturbance report

MMI-branch:

Service Report
DisturbReport

The service report on the disturbance report function comprises the following information:

- percentage of the used dedicated memory capacity for purposes of the disturbance recording function when it is built into the terminal
- sequence numbers of the disturbances recorded during the same day
- the status in question of built-in analogue triggers that can start operation of the disturbance recorder

1.13 Active group

MMI-branch:

Service Report
Active Group

The current active setting group will be shown to the user under this submenu.

1.14 Internal time

MMI-branch:

Service Report
Internal Time

The internal terminal time can be checked under this submenu. The data comprises information on the date as well as on the time down to 1 second.