Using "Dynamic Cold Load Pickup" function to apply specific parameter settings depending on the auto-reclose status

The "Dynamic Cold Load Pickup" function in combination with the auto-reclose function offers the possibility of using different trip delay times (and thresholds) for all overcurrent protection stages, depending on the auto-reclose status.

Application example:
As long as the auto-reclose (AR) function is ready to operate (execute CLOSE commands) the trip time delay of overcurrent stages shall be instantaneous (or very short). In case of an unsuccessful AR the final trip shall be executed with a delay time, to ensure selectivity by time grading.
For this purpose the Cold Load Pickup (CLP) function offers a specific mode. No CFC charts are necessary.

Functionality
The CLP function is in addition to the 4 setting groups (A to D), which are configured separately. The advantage of CLP in comparison to the setting group change option is the instantaneous activation of the settings defined by CLP function (the setting group change function operates quite slow and is not suitable for this application).
Via address 1702 the start condition for the CLP function is set. If the start condition is fulfilled, the directional and non-directional overcurrent protection employ the specific threshold and trip delay time settings defined by the CLP function (addresses 18xx – 21xx). One CLP start condition setting option is "*79M ready*" (1702 Start Condition = "*79M ready*"). In this case the overcurrent protection operates with the setting values defined by the CLP function as long as the AR function status is "ready". The AR function provides the information "ready" internally for controlling the cold load pickup (no CFC connection is necessary). The AR status is "ready" as long as the AR function is available, active, unblocked and ready for another AR cycle. Address 1703 "*CB Open Time*" and 1704 "Active Time" of the CLP function are not valid if address 1702 Start Condition is set to "*79M ready*". The CLP function is only and directly controlled by the AR status "ready". With the last AR CLOSE command the status "ready" is going, since the AR function is no longer ready for another AR cycle. Now the settings of the CLP function become immediately inactive and the "normal" overcurrent protection settings are applied (addresses 12xx – 16xx). These settings are valid for the delay time of the final trip. With the final trip the AR is unsuccessful and dynamically blocked. When the blocking is going the AR becomes again "ready" and CLP settings are activated.
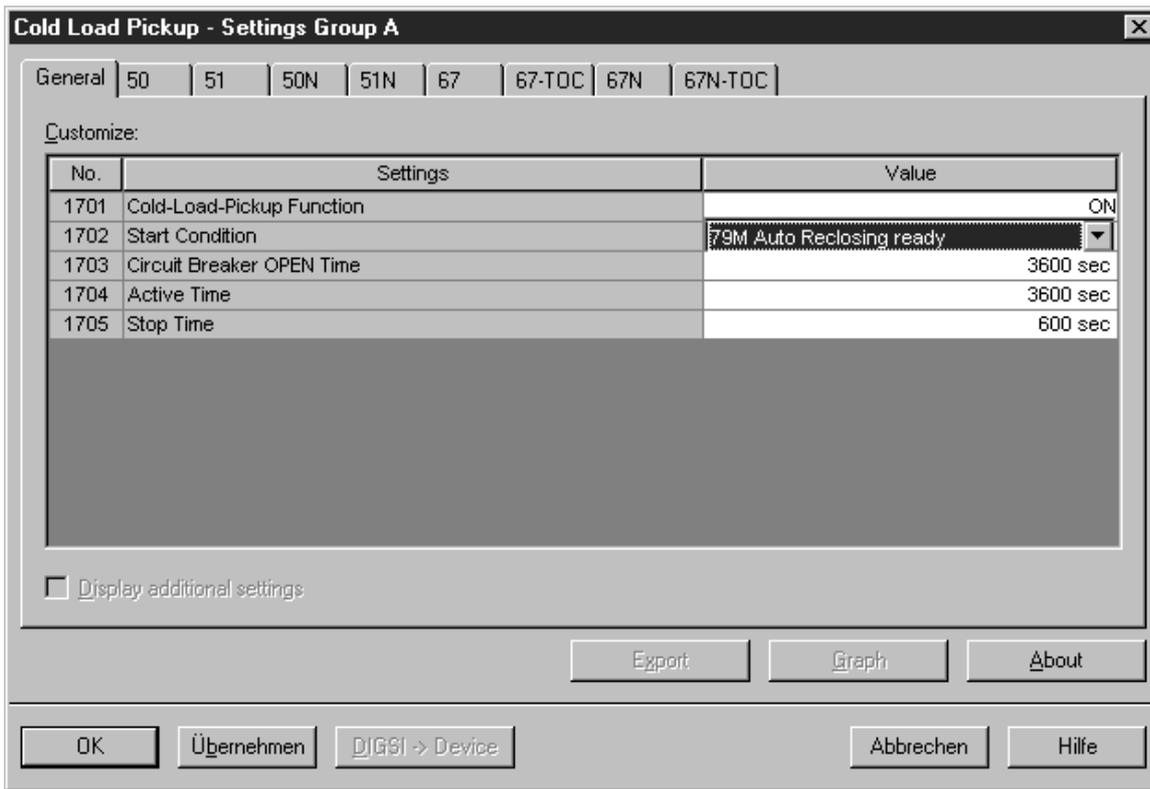
Summary
Via the CLP function the CLP settings are applied for the overcurrent protection as long as the AR function is "ready". Please note: These settings are usually always valid. They are valid before the AR starts to operate and while the AR operates. Only in case the AR executes the last CLOSE command the "normal" overcurrent setting become active. They are applied for the delay time of the final trip.
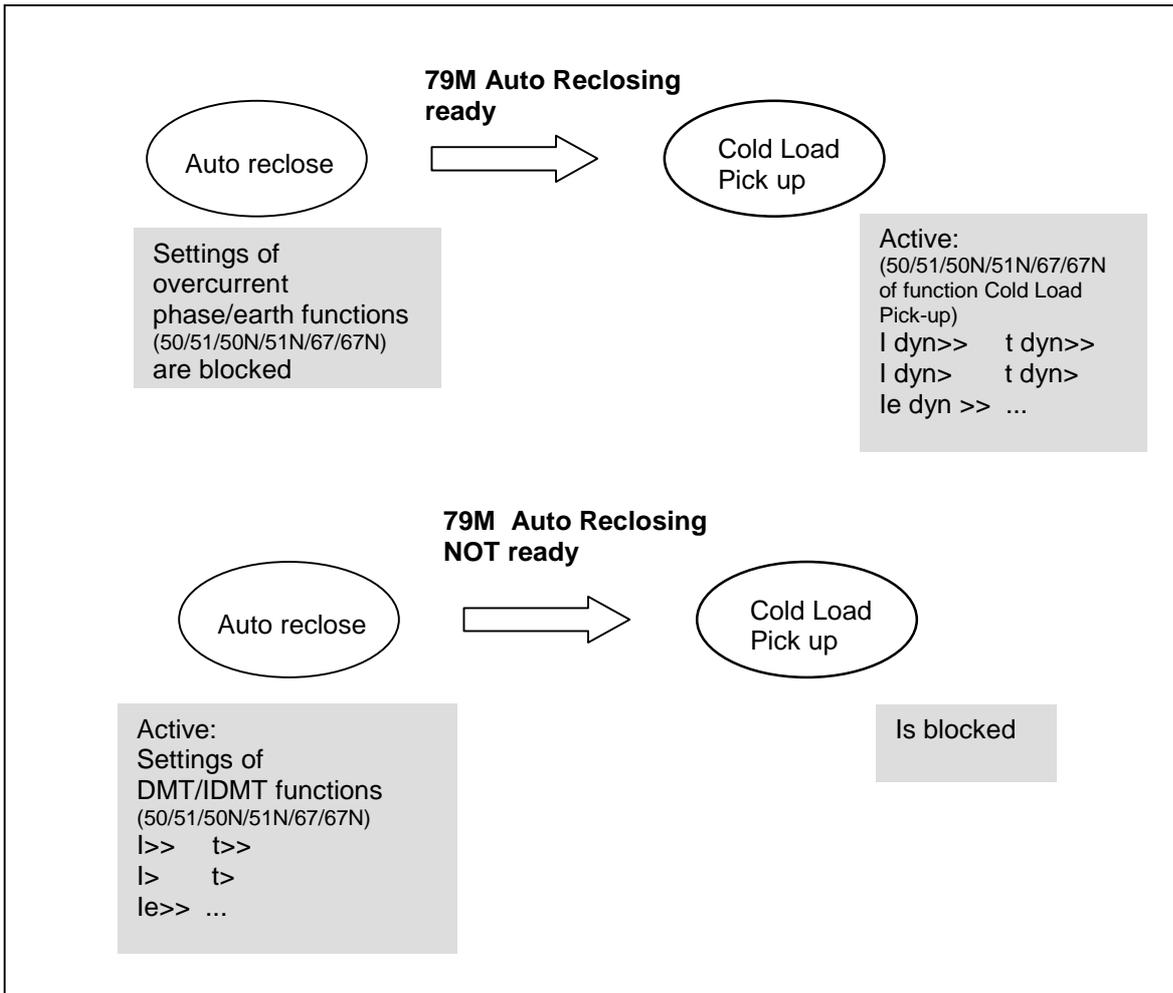An advantage of using the Dynamic Cold Load Pickup is the easy kind of configuration. Neither binary inputs nor CFC charts are necessary to realise this application.
This CLP mode option is available with 7SJ6x version V4.4.
For further information refer to chapter 2.4 in the manual.

Cold Load Pickup - Settings Group A

General | 50 | 51 | 50N | 51N | 67 | 67-TOC | 67N | 67N-TOC

Customize:

No.	Settings	Value
1701	Cold-Load-Pickup Function	ON
1702	Start Condition	79M Auto Reclosing ready
1703	Circuit Breaker OPEN Time	3600 sec
1704	Active Time	3600 sec
1705	Stop Time	600 sec

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Picture 1: Settings of the Function CLP

79M Auto Reclosing ready

Auto reclose → Cold Load Pick up

Settings of overcurrent phase/earth functions (50/51/50N/51N/67/67N) are blocked

Active: (50/51/50N/51N/67/67N of function Cold Load Pick-up)
I dyn>>   t dyn>>
I dyn>   t dyn>
Ie dyn >> ...

79M Auto Reclosing NOT ready

Auto reclose → Cold Load Pick up

Active: Settings of DMT/IDMT functions (50/51/50N/51N/67/67N)
I>>   t>>
I>   t>
Ie>> ...

Is blocked

Picture 2 : The CLP Function depends from the Auto Reclose function