DoPE
Default Remote Control Handling

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Contents

1 RMC Default Handling

DoPE provides a standardized handling of buttons and LED‘s on the DOLI RMC1, RMC5 and RMC7 remote control. Basic functions of the EDC stand-alone operation are simulated:

- • turning the drive ON and OFF
- • positioning of the x-head (Up, Down, Stop)
- • changing control mode (position, load, extension control, open loop)
- • High / Low pressure switching

The DoPE user can emulate the buttons on the RMC via a simple interface. The RMC event handler provides the reactions of the keys by the status of the LED‘s. The error handling is done via the runtime error event handler.

The RMC event handler reports any changes to the buttons and LED's that are relevant for the RMC default handling. The key state is built by the buttons on the RMC, the IO keys configured in the setup and the keys emulated by software with the DoPERmcSetKeys command.

To turn the drive ON or OFF the DoPEOn DoPEOff function are used. In open loop mode, a control-off sequence (DoPESetCtrl False / True) is used.

Stopping the x-head is done by the DoPESHalt command. In open loop mode, a control-off sequence is applied.

The positioning of the x-head is done with the DoPEFDPoti command. A distinction is made between the DigiPoti speed mode (EXT_SPEED_UP EXT_SPEED_DOWN) and position mode (EXT_POS_UP_DOWN). The active mode is displayed on the UP and DOWN LED‘s. In speed mode, the direction of movement is visualized by an active corresponding LED. In position mode, both LED's light up constantly. Since the DPOTI_CONTROL LED is used by the EDC stand-alone software for viewing the High-Pressure mode, it can’t be used for the Position mode.

The UP and DOWN LED's show the transverse movement, even if it was caused by DoPE users directly via a positioning command. The UP and DOWN LED's light up constantly if the frequency of a cycle command exceeds 1 / 4 Hz.

1.1 DoPERmcEnable

Enable / disable the remote control default handling for keys and LED's.
(Sets the PushMode and RmcDPoti settings to the default values defined in the setup RMC definition)

Function declaration	Description
extern unsigned DLLAPI DoPERmcEnable(DoPE_HANDLE DoPEHdl, unsigned __int64 EnableKeys, unsigned __int64 EnableLeds)	Function returns Error constant (DoPERR_xxxx) DoPE link handle mask of enabled RMC emulation keys mask of enabled RMC emulation LED's
Supported keys:	
DoPE_KEY_CTRL_POS	Activate Position Control (or Open Loop mode)
DoPE_KEY_CTRL_LOAD	Activate Load Control
DoPE_KEY_CTRL_EXTENSION	Activate Extension Control
DoPE_KEY_HALT	Apply SHalt (or Control Off in Open Loop mode)
DoPE_KEY_UP	Move crosshead UP with slow speed
DoPE_KEY_DOWN	Move crosshead DOWN with slow speed
DoPE_KEY_UP_FAST	Move crosshead UP with fast speed
DoPE_KEY_DOWN_FAST	Move crosshead DOWN with slow speed
DoPE_KEY_ON	Turn on drive
DoPE_KEY_F3	Turn on drive
DoPE_KEY_OFF	Turn off drive
DoPE_KEY_F3+DoPE_KEY_DPOTI	Turn off drive
DoPE_KEY_DPOTI_CONTROL	Move crosshead UP/DOWN with DigiPoti in position mode
DoPE_KEY_HIGH_PRESSURE	Enable High Pressure mode
DoPE_KEY_LOW_PRESSURE	Enable Low Pressure mode
Supported LED's	
DoPE_LED_CTRL_POS	Position Control (or Open Loop mode) active
DoPE_LED_CTRL_LOAD	Load Control active
DoPE_LED_CTRL_EXTENSION	Extension Control active
DoPE_LED_HALT	Crosshead is halted
DoPE_LED_UP	Crosshead is moving UP with slow or fast speed
DoPE_LED_DOWN	Crosshead is moving DOWN with slow or fast speed
DoPE_LED_UP+ DoPE_LED_DOWN	DigiPoti position mode active (or fast cycles)
DoPE_LED_UP_FAST	Crosshead is moving UP with fast speed
DoPE_LED_DOWN_FAST	Crosshead is moving DOWN with fast speed
DoPE_LED_OFF	Drive is turned off
DoPE_LED_ON	Drive is turned on
DoPE_LED_DPOTI_CONTROL	DigiPoti position mode active
DoPE_LED_HIGH_PRESSURE	High Pressure mode active
DoPE_LED_LOW_PRESSURE	Low Pressure mode active

1.2 DoPERmcReDefine

Redefine the PushMode and RmcDPoti settings for the remote control default handling.
After an initialization with DoPESelSetup or DoPEInitialize the PushMode and RmcDPoti settings are copied from the setup. This command redefines the PushMode and RmcDPoti settings.
(This command must be used if the EDC setup doesn't support RmcDPoti information)

Function declaration	Description
extern unsigned DoPERmcReDefin(DoPE_HANDLE DoPEHdl[] WORD PushMode DoPERmcDPoti RmcDPoti[MAX_CTRL]	Function returns Error constant (DoPERR_xxxx) DoPE link handle array (terminated by NULL). !=0 enables, 0 disables the push mode for Up/Down keys RMC DigiPoti definition

1.3 DoPERmcKeys

Set / reset / toggle keys for the remote control default handling.
The three key patterns will be processed in the following sequence (important with conflicting data):
1.) Flashing bits. (lowest priority)
2.) Resetting of the bits.
3.) Setting of the bits. (highest priority)

Function declaration	Description
extern unsigned DoPERmcKeys (DoPE_HANDLE DoPEHdl[] unsigned __int64 SetKeys unsigned __int64 ResKeys unsigned __int64 ToggleKeys	Function returns Error constant (DoPERR_xxxx) DoPE link handle array (terminated by NULL). RMC emulation keys to set RMC emulation keys to clear RMC emulation keys to toggle

1.4 DoPERmcState

Get keys and LED's state of the remote control default handling.
This command supplies any change of RMC default handler key input and LED output since the last call.

Function declaration	Description
extern unsigned DoPERmcState (DoPE_HANDLE DoPEHdl[] DoPEOnRmcEvent *pRmcEvent	Function returns Error constant (DoPERR_xxxx) DoPE link handle array (terminated by NULL). Pointer to RMC event structure (refere to OnRmcEvent handler)

1.5 DoPESetOnRmcEventHdlr

The OnRmcEvent Handler supplies any change of RMC default handler key input and LED output.

Function declaration	Description
extern unsigned DLLAPI DoPESetOnRmcEventHdlr DoPE_HANDLE DoPEHdl DoPEOnRmcEventHdlr Hdlr LPVOID lpParameter	Function returns Error constant (DoPERR_xxxx) DoPE link handle User function to be called after every RMC default handler key and LED changes. User specific pointer.
User function for the OnRmcEvent event:	
unsigned CALLBACK OnRmcEvent DoPE_HANDLE DoPEHdl DoPEOnRmcEvent *pRmcEvent LPVOID lpParameter	Function should return 0 (reserved for future versions) DoPE link handle Pointer to received RMC event structure User specific pointer set with DoPESetOnRmcEventHdlr
typedef struct { unsigned __int64 Keys unsigned __int64 NewKeys unsigned __int64 GoneKeys unsigned __int64 Leds unsigned __int64 NewLeds unsigned __int64 GoneLeds } DoPEOnRmcEvent	 Current key state New keys Gone keys Current LED state New LED's Gone LED's