Prepared	Document no.	
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Approved	Date	Revision
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Re-wiring engine panels

Type 500 to DCU 305 R3 (LT)

Introduction

It is possible to re-wire from an existing installation that uses the type 500 series of the Auto-Maskin engine panel to the newer DCU 305 R3 (LT) panel.

This document outlines the necessary steps for a successful transfer. It should however not be seen as a complete guide.

Careful consideration must be taken with all wiring changes and all new sensor configurations.

Carefully consult the installation manual for the DCU 305 R3 (LT) panel.

The type 500 engine panel

The DCU 305 R3 (LT) engine panel

Wiring changes

The three right-most columns advises wiring and configuration in the DCU 305 R3 (LT) panel.

Note! The number in parenthesis ( ) reference the components 0V wire terminal reference.

500 Panel wire ref.	DCU 305 wire ref.	Description and comments	Configuration tip[1]
1	1	24 VDC supply from start bat.	Configure low voltage setting to 23.2 V
2	2	0 VDC supply from start bat.	
N/A	3	24 VDC aux supply (if available)	
N/A	4	0 VDC aux supply (if available)	
3 (2)	5	Connect the two wires from the MPU to wire terminals 5 and 6.	Configure the correct flywheel teeth count
	6		
4	7	Shutdown switch 1	Configure all these as NO (normally open) contacts. If the wire break detection feature is selected, then add a 10k resistor across the switch. All *pressure* sensors shall be configured with “On run only”. All sensors shall be referenced to terminal 29 (0V). Channels not used for shutdown can be configured and used as alarm channels.
5	8	Shutdown switch 2	
6	9	Shutdown switch 3	
7	10	Shutdown switch 4	
N/A	11	Shutdown switch 5	
N/A	12	Shutdown switch 6	
8	21-22 AI 1	Oil Pressure gauge. The sensor in use on the 500 panel is *resistive*, and cannot be used directly for the DCU 305. Change the sensor into a 4-20 mA type, and connect as advised.	
9	23-24 AI 2	Coolant Temp. gauge. The sensor in use on the 500 panel is *resistive*, and cannot be used directly on the DCU 305. Change the sensor into a 4-20 mA type, and connect as advised.	
10	41	Crank output. 24 VDC output to auxiliary relay.	

[1] Helpful information for the configuration in the Rudolf R3 configuration tool.

11	42	Stop output. 24 VDC output to auxiliary relay.	
	43	Energize to Run. This 24 VDC channel is active when the engine shall run.	
12	44 and 48-49 Relay K6	Emergency Stop. 24 VDC output to auxiliary relay. Also, relay K6 activates for shutdown.	
13-14	34 (33)	Automatic Start input	Note that the DCU 305 panel must be in Standby mode for these to be enabled. The time before the stop sequence activates can be configured.
15-16	35 (33)	Automatic Stop input	
17-18	54-55-56 Relay K8	Ready for Power Management Start. Relay K8 is pre-configured for this.	
19-20	Any configurable relay	Disconnect Gen. Breaker	This function is available to be configured to relay K7 or K9.
21	13	Alarm switch 1	Configure all these as NC (normally closed) contacts. All *pressure* sensors shall be configured with “On run only”. All sensors shall be referenced to terminal 29 (0V).
22	14	Alarm switch 2	
23	15	Alarm switch 3	
24	16	Alarm switch 4	
25	17	Alarm switch 5	
26	18	Alarm switch 6	
27	29	The common 0V wire terminal. Reference all alarm- and shutdown switches here.	
28-29-30	45-46-47 Relay K5	Common Alarm relay - Active if no alarm - Inactive if alarm	
31-32	N/A	All power supply is on terminals 1-2 (start battery) and 3-4 (aux supply)	
33-34-35	31 (30)	Remote Start	Configure pre-glow or pre-lube as needed.
36-37	32 (30)	Remote Stop	
38-39	Any configurable relay	Running	This function is available to be configured to relay K7 or K9.
40-41-42-43	N/A	Glow plugs	Configure pre-glow as

-44-45			needed, and configure an output relay.

Magnetic Pickup Unit

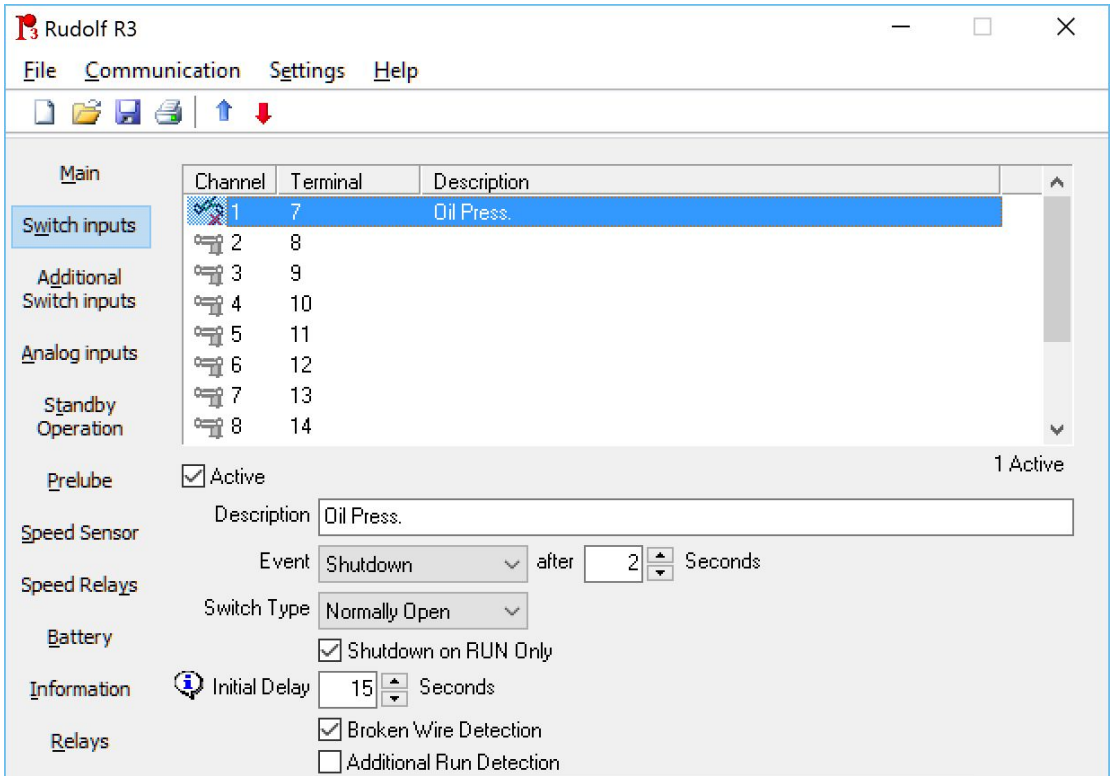
The DCU 305 R3 must have an RPM signal from a magnetic pick-up, preferrably installed on the flywheel.

The pickup used on the 500 panel may be used with the DCU 305 R3 (LT).

Example configuration

Below is an example of configuration of a switch channel, made in the Rudolf R3 for the DCU 305 R3 (LT), for the Autostop channel **Oil Press.**

The sensor wires shall be moved from wire terminals 4 (27) on the 500 panel, to terminals 7 (29) on the DCU 305 R3 (LT) panel. Terminal 7 is the switch channel #1 input, and terminal 29 is the 0 V reference for the sensor.



Note! The Broken Wire Detection option requires a 10k ohm ¼ watt resistor installed over the NO switch.

Configuration software

The Rudolf R3 software can be downloaded here.