

Roco 46900 Digital Crane

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General description

In my opinion this is the mother of "functional models" for digital operation. Rutger Friberg published 1988 the idea, including a self made project with a similar crane. He also proposed the idea for several manufacturers, and it was ROCO that took it into production. The reviewed model is the "AC" version 46900, meaning of course that it's Märklin/Motorola protocol compatible.

It's a model of a railway breakdown down crane, which may be pulled around by any loco. It has an built in decoder, three motors, and one extra connection. The motors are for rotating the boom, lift/lower it, and for raising/lowering the hook. The extra connection could be used for work light, an electromagnet (or excavator shovel).

Control

The address is set in the same way as usual for Märklin/Motorola format: dip switch. Address 30 is the factory setting. It understands the "old" Märklin protocol, meaning that both Märklin 6020 and 6021 is fully useable.

You control it by first selecting one of four modes, see below, and than by speed and direction knob operating the selected function. If you press the "off" function shortly, you cycle the four modes in the indicated order, if you select "function" for more than 2-3 s, you cycle in the opposite order. A LED (Light emitting diode) indicates the mode by blinking, and the state of the accessory by it's color.

Function	Indication	Control
Rotate	X _ _ _ X _ _ _	Speed and direction set as for a Loco.
Boom	X X _ _ X X _ _	Speed and direction set as for a Loco.
Hook	X X X _ X X X _	Speed and direction set as for a Loco.
Function	Steady on	Direction change toggles the function on/off.

The led has green light if the function is off, and red if it's on. It remains on/off regardless if function is switched. The other functions are stopped if you change mode of operation (but not if you change address; beware: it's does not automatically stop when there is no thread left!).

An important additional note: it's unfortunately not perfect to switch between going in a train, and operating the crane. The crane house MUST be released from the motor when run through the curves, by manually switching a lever on the side of the lower part, the car. And, if you want to lift heavy loads (25 g), you must manually attach enclosed supports to the crane.

Accessories

The accessories are bought separately; the 46806 with work light and electro magnet. There is also a shovel available as 46807 which may be opened and closed, more suitable for the harbor crane, but fully functional also for this one. One of these may be connected into a small socket in the crane house, beside the boom. The cables of the magnet are a little bit tricky to keep

from disturbing the operation. If you prefer the lamp, it's attached to the boom, and the cables are no problems here.

Rating

Derailing sensitivity	4	The feeling is very good, two three axle bogies, heavy, but it's large, especially in the curves, too large for my narrow layout.
Speed characteristics	5	Interpreted as the motor function: Excellent. The motors are very silent, and are running in the best speed range. From very slow to moderate.
Detailing and looks	4	The right level for function model I think; not so many details that may break, but still nice.
Model choice	5	The good note is not for the looks, it's for the function
Features	5	No comments.
Playability	2	No, no, no. It's for daddy.
Fun for child	3	OK. But most children can't handle it I think.
Overall impression	5	Must buy

Personal reflections

The operation of it seems primitive on the paper, but works quite ok. I would have used the LED to indicate the direction of each function, not only the state of the accessory; it's difficult to remember if the hook is on it's way up or down. But no great problem.

The advantage of not using f1-f4 is two-fold:

1. It works with both old and new Motorola protocol
2. You don't have to move hands; one finger on the "off" key, and the other hand on the speed dial, so you can keep your eyes on the crane. And a ROCO lokmaus connected to the Intellibox is also enough to fully control the train.

Technical data

Motor	3 silent, miniature motors	
"Decoder"	Like c80/c81 + extra logic circuits	
Axles	3+3 in two bogies, crane boom support car two axles.	
Lights front	-	
Lights rear		
Coupler front	Coupler pocket w enclosed ROCO universal coupler AND loop coupler.	
Coupler rear		