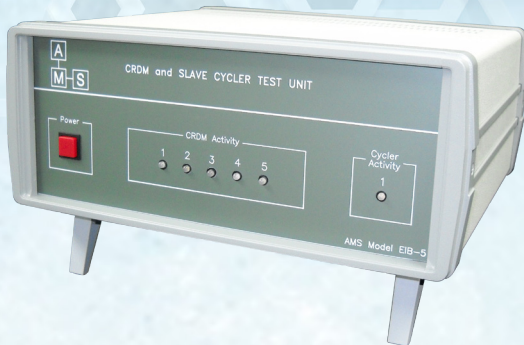


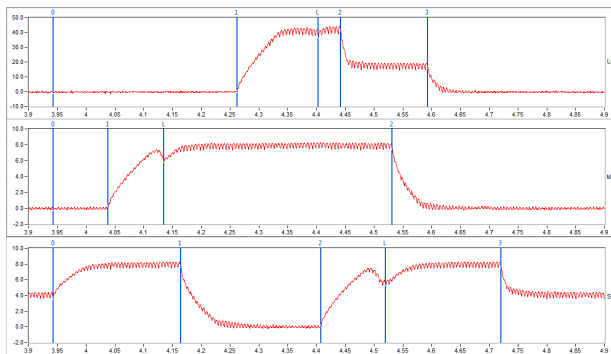


AUTOMATED ROD MOVEMENT TIMING & SEQUENCING TESTING

For Control Rod Drive Mechanism (CRDM) Systems



Timing and sequencing testing of Control Rod Drive Mechanisms (CRDMs) in Pressurized Water Reactors (PWRs) is performed by monitoring the stationary gripper, moveable gripper, and lift coil currents of a group of control or shutdown rods as they are moved in or out of the reactor. This test is normally performed in Westinghouse PWRs near the end of a refueling outage. The outputs of these coils are sampled for each rod and analyzed to ensure proper communication, regulation, and timing of the CRDMs. In most plants, the CRDM test is performed in conjunction with the rod drop time measurements and slave cycler timing tests.



FEATURED BENEFITS

PLANT BENEFITS

- Recover Critical Path Time
- Detect Rod Binding
- Identify Stuck Rods and Other Movement Problems
- Decrease Troubleshooting Time
- Identify Performance Degradation
- Monitor System Reliability

EQUIPMENT BENEFITS

- Connect to All Rods at One Time
- Collect Data in as Little as 15 Minutes
- Portable, Lightweight, Quick Hookup

SOFTWARE BENEFITS

- Timing, Sequencing, and Latching Identified Automatically
- Monitor Coil Current Regulation
- Full Pull Data Collection Provides Analysis of All CRDM Steps (Up & Down)
- Quick Reporting Flags Any Anomalies
- Data Trended from Cycle to Cycle

Stationary Coils							
Item	Rod ID	T1-T0:	T2-T0:	T3-T0:	T4-T0:	TL-T2:	Tsgd:
1	H06	271	575	771	1264	95	-12
2	H10	272	574	772	1262	109	6
3	F08	270	575	770	1267	118	11
4	K08	276	576	776	1265	116	10
5	F02	271	575	771	1270	119	12
6	**B10	277	577	777	1272	**149	44
7	K14	271	575	771	1267	125	18
8	P06	270	574	770	1270	125	17
9	**B06	272	573	772	1285	**127	22
10	**F14	271	575	771	1262	**130	23
11	**P10	271	575	771	1262	**140	33
12	K02	272	573	772	1284	110	6

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