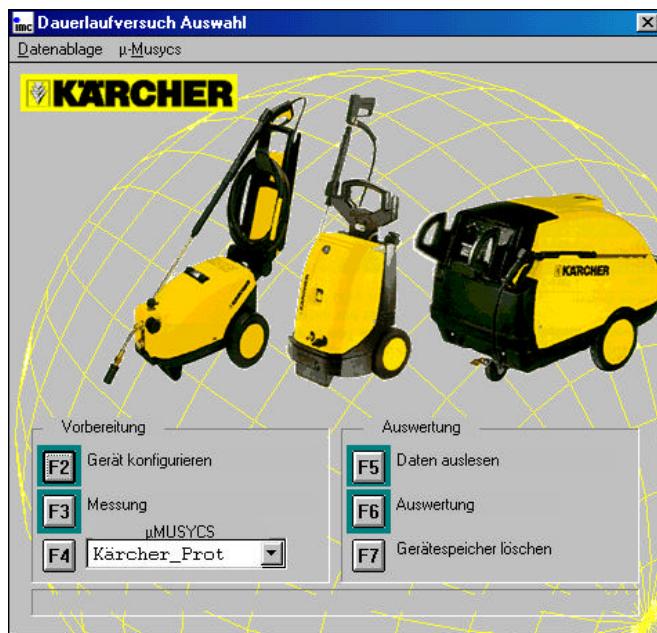


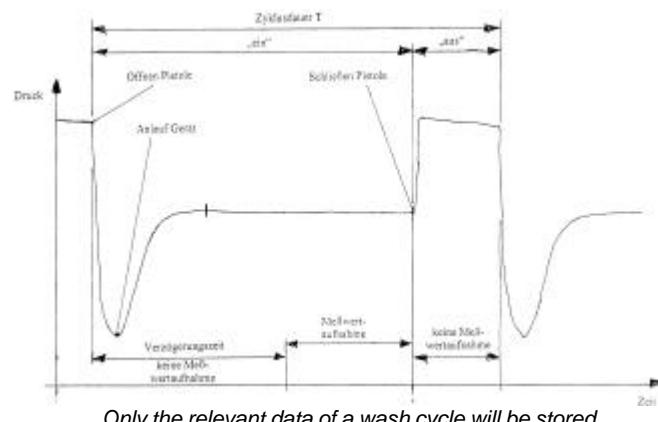
Test System for Pressure Washers

When KÄRCHER, the world's largest manufacturer of pressure cleaners, approached imc for the development of a mobile test system for their products, their requirements were very special. On one hand, the system is to be used in mobile applications at the customer's site. On the other hand, testing of standard types and prototypes within KÄRCHER itself was required. These tests serve to improve the quality of KÄRCHER product components and parts.

With the help of specially tailored software, the system can be set up for different jobs. Predefined test configurations allow maximum information extraction in accordance with the test's requirements. The user interface doesn't require extensive training to setup, start or stop the μ -MUSYCS unit.



An easy to use configuration software allows the setup of the measurement system



Only the relevant data of a wash cycle will be stored.

The measurement data from field tests as well as from long-term trials is stored inside the system. An Ethernet interface enables a PC connection and allows downloading of data from the system. For stand-alone measurements, the PC is only necessary for configuring the system and for final offline data evaluation. For this purpose a specially designed program analyses the measurement. Together with descriptive data about the test, coming from a data server, final print-outs document the complete trial.

The basis for the KÄRCHER project is the imc measurement system µ-MUSYCS. This mobile system with its self-start capability and its various functions provides KÄRCHER development engineers with suitable hardware for their tasks. A special housing makes the system robust, to face harsh environmental conditions. Since the system is mounted directly on the cleaner unit, it must withstand field tests with ambient temperatures from 0°C up to 45°C and storage temperatures of -20°C to 85°C. Under such conditions, operational safety and reliability of the entire hardware play an important role.

The required data collection capabilities were: 3 x voltage (400V); 3 x current (20A); 1 RPM; 8 temperatures (thermocouples); 1 flow (water flow sensor). Online data calculation and evaluation as well as alarm outputs were also necessary.

Dauerlaufdaten - EVH										Datum: 04.03.08	
Gesamt Typ	Werkstoff Nr.	Werk At.	Reihe At.	Spannwert	Frequenz	Drehzahl	Steuerparameter	Zylinder	Zeile	Zeit	Zeit
TTT111	123	00000	12345	200	90	8.15	H01	B01.1.001	1	1	
Bemerkungen: 180-Fest-Masse benötigt nach Wärmeabschrecken											
Nr.	Parameter	Wert	Einheit	Wert	Einheit	Wert	Einheit	Wert	Einheit	Wert	Einheit
1.	25.02.80.0.0	1	E0	0	R _{25.02.80.0.0}					0.0	0
2.	26.02.80.0.0	0	E0	0	R _{26.02.80.0.0}					0.0	0
3.	26.02.80.0.2	17	E2	0	R _{26.02.80.0.2}					0.4	80
4.	26.02.80.0.3	124	E0	0	R _{26.02.80.0.3}					0.4	45
5.	26.02.80.0.4	0	E0	0	R _{26.02.80.0.4}					0.4	45
6.	26.02.80.0.5	180	E0	0	R _{26.02.80.0.5}					0.4	45
7.	26.02.80.0.6	180	E0	0	R _{26.02.80.0.6}					0.4	45
8.	26.02.80.0.7	180	E0	0	R _{26.02.80.0.7}					0.4	45
9.	26.02.80.0.8	180	E0	0	R _{26.02.80.0.8}					0.4	45
10.	26.02.80.0.9	180	E0	0	R _{26.02.80.0.9}					0.4	45
11.	26.02.80.0.10	180	E0	0	R _{26.02.80.0.10}					0.4	45
12.	26.02.80.0.11	180	E0	0	R _{26.02.80.0.11}					0.4	45
13.	26.02.80.0.12	180	E0	0	R _{26.02.80.0.12}					0.4	45
14.	26.02.80.0.13	180	E0	0	R _{26.02.80.0.13}					0.4	45
15.	26.02.80.0.14	180	E0	0	R _{26.02.80.0.14}					0.4	45
16.	26.02.80.0.15	180	E0	0	R _{26.02.80.0.15}					0.4	45
17.	26.02.80.0.16	180	E0	0	R _{26.02.80.0.16}					0.4	45
18.	26.02.80.0.17	180	E0	0	R _{26.02.80.0.17}					0.4	45
19.	26.02.80.0.18	180	E0	0	R _{26.02.80.0.18}					0.4	45
20.	26.02.80.0.19	180	E0	0	R _{26.02.80.0.19}					0.4	45
21.	26.02.80.0.20	180	E0	0	R _{26.02.80.0.20}					0.4	45
22.	26.02.80.0.21	180	E0	0	R _{26.02.80.0.21}					0.4	45
23.	26.02.80.0.22	180	E0	0	R _{26.02.80.0.22}					0.4	45
24.	26.02.80.0.23	180	E0	0	R _{26.02.80.0.23}					0.4	45
25.	26.02.80.0.24	180	E0	0	R _{26.02.80.0.24}					0.4	45
26.	26.02.80.0.25	180	E0	0	R _{26.02.80.0.25}					0.4	45
27.	26.02.80.0.26	180	E0	0	R _{26.02.80.0.26}					0.4	45
28.	26.02.80.0.27	180	E0	0	R _{26.02.80.0.27}					0.4	45
29.	26.02.80.0.28	180	E0	0	R _{26.02.80.0.28}					0.4	45
30.	26.02.80.0.29	180	E0	0	R _{26.02.80.0.29}					0.4	45
31.	26.02.80.0.30	180	E0	0	R _{26.02.80.0.30}					0.4	45
32.	26.02.80.0.31	180	E0	0	R _{26.02.80.0.31}					0.4	45
33.	26.02.80.0.32	180	E0	0	R _{26.02.80.0.32}					0.4	45
34.	26.02.80.0.33	180	E0	0	R _{26.02.80.0.33}					0.4	45
35.	26.02.80.0.34	180	E0	0	R _{26.02.80.0.34}					0.4	45
36.	26.02.80.0.35	180	E0	0	R _{26.02.80.0.35}					0.4	45
37.	26.02.80.0.36	180	E0	0	R _{26.02.80.0.36}					0.4	45
38.	26.02.80.0.37	180	E0	0	R _{26.02.80.0.37}					0.4	45
39.	26.02.80.0.38	180	E0	0	R _{26.02.80.0.38}					0.4	45
40.	26.02.80.0.39	180	E0	0	R _{26.02.80.0.39}					0.4	45
41.	26.02.80.0.40	180	E0	0	R _{26.02.80.0.40}					0.4	45
42.	26.02.80.0.41	180	E0	0	R _{26.02.80.0.41}					0.4	45
43.	26.02.80.0.42	180	E0	0	R _{26.02.80.0.42}					0.4	45
44.	26.02.80.0.43	180	E0	0	R _{26.02.80.0.43}					0.4	45
45.	26.02.80.0.44	180	E0	0	R _{26.02.80.0.44}					0.4	45
46.	26.02.80.0.45	180	E0	0	R _{26.02.80.0.45}					0.4	45
47.	26.02.80.0.46	180	E0	0	R _{26.02.80.0.46}					0.4	45
48.	26.02.80.0.47	180	E0	0	R _{26.02.80.0.47}					0.4	45
49.	26.02.80.0.48	180	E0	0	R _{26.02.80.0.48}					0.4	45
50.	26.02.80.0.49	180	E0	0	R _{26.02.80.0.49}					0.4	45
51.	26.02.80.0.50	180	E0	0	R _{26.02.80.0.50}					0.4	45
52.	26.02.80.0.51	180	E0	0	R _{26.02.80.0.51}					0.4	45
53.	26.02.80.0.52	180	E0	0	R _{26.02.80.0.52}					0.4	45
54.	26.02.80.0.53	180	E0	0	R _{26.02.80.0.53}					0.4	45
55.	26.02.80.0.54	180	E0	0	R _{26.02.80.0.54}					0.4	45
56.	26.02.80.0.55	180	E0	0	R _{26.02.80.0.55}					0.4	45
57.	26.02.80.0.56	180	E0	0	R _{26.02.80.0.56}					0.4	45
58.	26.02.80.0.57	180	E0	0	R _{26.02.80.0.57}					0.4	45
59.	26.02.80.0.58	180	E0	0	R _{26.02.80.0.58}					0.4	45
60.	26.02.80.0.59	180	E0	0	R _{26.02.80.0.59}					0.4	45
61.	26.02.80.0.60	180	E0	0	R _{26.02.80.0.60}					0.4	45
62.	26.02.80.0.61	180	E0	0	R _{26.02.80.0.61}					0.4	45
63.	26.02.80.0.62	180	E0	0	R _{26.02.80.0.62}					0.4	45
64.	26.02.80.0.63	180	E0	0	R _{26.02.80.0.63}					0.4	45
65.	26.02.80.0.64	180	E0	0	R _{26.02.80.0.64}					0.4	45
66.	26.02.80.0.65	180	E0	0	R _{26.02.80.0.65}					0.4	45
67.	26.02.80.0.66	180	E0	0	R _{26.02.80.0.66}					0.4	45
68.	26.02.80.0.67	180	E0	0	R _{26.02.80.0.67}					0.4	45
69.	26.02.80.0.68	180	E0	0	R _{26.02.80.0.68}					0.4	45
70.	26.02.80.0.69	180	E0	0	R _{26.02.80.0.69}					0.4	45
71.	26.02.80.0.70	180	E0	0	R _{26.02.80.0.70}					0.4	45
72.	26.02.80.0.71	180	E0	0	R _{26.02.80.0.71}					0.4	45
73.	26.02.80.0.72	180	E0	0	R _{26.02.80.0.72}					0.4	45
74.	26.02.80.0.73	180	E0	0	R _{26.02.80.0.73}					0.4	45
75.	26.02.80.0.74	180	E0	0	R _{26.02.80.0.74}					0.4	45
76.	26.02.80.0.75	180	E0	0	R _{26.02.80.0.75}					0.4	45
77.	26.02.80.0.76	180	E0	0	R _{26.02.80.0.76}					0.4	45
78.	26.02.80.0.77	180	E0	0	R _{26.02.80.0.77}					0.4	45
79.	26.02.80.0.78	180	E0	0	R _{26.02.80.0.78}					0.4	45
80.	26.02.80.0.79	180	E0	0	R _{26.02.80.0.79}					0.4	45
81.	26.02.80.0.80	180	E0	0	R _{26.02.80.0.80}					0.4	45
82.	26.02.80.0.81	180	E0	0	R _{26.02.80.0.81}					0.4	45
83.	26.02.80.0.82	180	E0	0	R _{26.02.80.0.82}					0.4	45
84.	26.02.80.0.83	180	E0	0	R _{26.02.80.0.83}					0.4	45
85.	26.02.80.0.84	180	E0	0	R _{26.02.80.0.84}					0.4	45
86.	26.02.80.0.85	180	E0	0	R _{26.02.80.0.85}					0.4	45
87.	26.02.80.0.86	180	E0	0	R _{26.02.80.0.86}					0.4	45
88.	26.02.80.0.87	180	E0	0	R _{26.02.80.0.87}					0.4	45
89.	26.02.80.0.88	180	E0	0	R _{26.02.80.0.88}					0.4	45
90.	26.02.80.0.89	180	E0	0	R _{26.02.80.0.89}					0.4	45
91.	26.02.80.0.90	180	E0	0	R _{26.02.80.0.90}					0.4	45
92.	26.02.80.0.91	180	E0	0	R _{26.02.80.0.91}					0.4	45
93.	26.02.80.0.92	180	E0	0	R _{26.02.80.0.92}					0.4	45
94.	26.02.80.0.93	180	E0	0	R _{26.02.80.0.93}					0.4	45
95.	26.02.80.0.94	180	E0	0	R _{26.02.80.0.94}					0.4	45
96.	26.02.80.0.95	180	E0	0	R _{26.02.80.0.95}					0.4	45
97.	26.02.80.0.96	180	E0	0	R _{26.02.80.0.96}					0.4	45
98.	26.02.80.0.97	180	E0	0	R _{26.02.80.0.97}					0.4	45
99.	26.02.80.0.98	180	E0	0	R _{26.02.80.0.98}					0.4	45
100.	26.02.80.0.99	180	E0	0	R _{26.02.80.0.99}					0.4	45
101.	26.02.80.0.100	180	E0	0	R _{26.02.80.0.100}					0.4	45
102.	26.02.80.0.101	180	E0	0	R _{26.02.80.0.101}					0.4	45
103.	26.02.80.0.102	180	E0	0	R _{26.02.80.0.102}					0.4	45
104.	26.02.80.0.103	180	E0	0	R _{26.02.80.0.103}					0.4	45
105.	26.02.80.0.104	180	E0	0	R _{26.02.80.0.104}					0.4	45
106.	26.02.80.0.105	180	E0	0	R _{26.02.80.0.105}					0.4	45
107.	26.02.80.0.106	180	E0	0	R _{26.02.80.0.106}					0.4	45
108.	26.02.80.0.107	180	E0	0	R _{26.02.80.0.107}					0.4	45
109.	26.02.80.0.108	180	E0	0	R _{26.02.80.0.108}					0.4	45
110.	26.02.80.0.109	180	E0	0	R _{26.02.80.0.109}					0.4	45
111.	26.02.80.0.110	180	E0	0	R _{26.02.80.0.110}					0.4	45
112.	26.02.80.0.111	180	E0								

The integrated report generator allows to report every step engineers have taken during the trial

