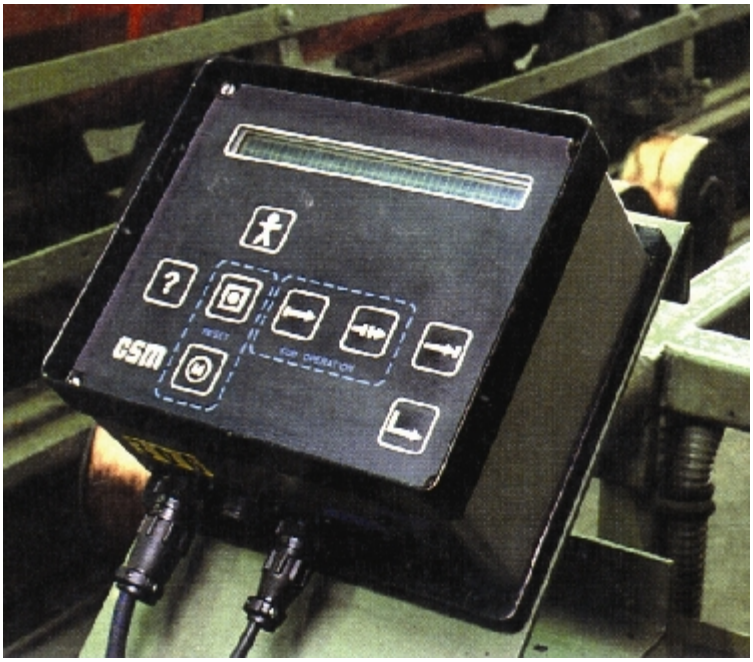
DIAMES® Manufacturing Information Centre

The Manufacturing Information Centre (MIC) is an industrially proven human machine interface that exchanges data with shop floor resources (production machines, weighing stations, QC equipment, …) and communicates on-line with the DIAMES Server. Relevant production information exchanged on-line with each work centre minimizes the amount of paper on the shop floor and reduces the risk of outdated or delayed information.

The MIC features a flexible and straightforward dialogue system that requires very little operator training and guarantees instant and error-free data collection from the shop floor.

The MIC has a 2 line by forty alphanumeric character display that visualizes all production relevant information for the team of work centre operators, maintenance staff, QC and production planning staff.

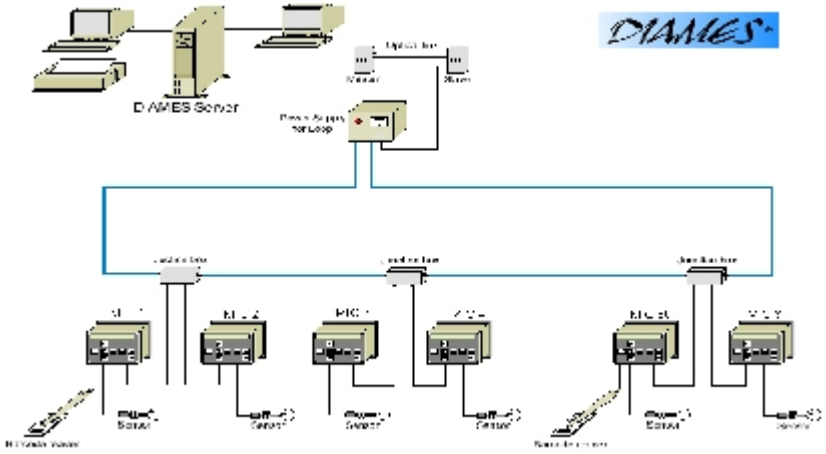


A keyboard consisting of eight keys with self-explanatory symbols enables operators to …

§ execute operator or crew related functions (sign-on/off)
§ displays the planned work schedule
§ allocate/release resources / tools
§ select and start the next operation
§ displays details of the active shop order operation / maintenance job
§ select/initiate down time reasons
§ interrupt/terminate the active shop order operation / maintenance job

The MIC has six counter-inputs to measure quantities, eight digital inputs to read status information, eight digital outputs to indicate statuses or alarms and two serial ports to communicate with badge readers, barcode readers, label printers or weighing stations, etc.

The following diagram shows a typical DIAMES system configuration with one MIC-LOOP:



A single IBM Risc/6000 AIX based DIAMES Server can control up to 8 MIC-Loops. A Microsoft Windows 2k or XP based DIAMES Server is able to control up to 2 MIC-Loops.

A maximum of 31 MICs can be connected to a loop.

A typical MIC-Loop configuration consists of an optical link to insulate the Server from the shop floor, a centralized power supply and an industrial-grade ring network (the MIC-Loop) to connect the MICs with the DIAMES Server.

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Technical Specification of MIC and MIC-Loop

Architecture	Conventional C-MOS technology with Microcontroller on two pcb's. Internal switch mode power supplies convert MIC-LOOP Voltage (28..40 V @ 200 mA) to 5V / 15V.
Configuration	An MIC-Loop ring configuration supports up to 31 MICs. A DIAMES Server (IBM Risc/6000 AIX) drives up to 8 / (Ms-Windows 2k or XP) up to 2 MIC-LOOPs.
Interfaces	All connections to the MIC are provided by industrial-grade AMP round connectors

MIC-LOOP connections

Communications	2 x 2 twisted pair conductors for RS 485 communications; potential free interfacing w.r.t. MIC electronics. Data security maintained by software. Data transfer rate on the MIC Loop: 1'200, 4'800, 9'600 or 19'200 Baud.
Power Distribution:	2 conductors, 1.5 mm^2 for power distribution via MIC-Loop (28 ... 40 V).

Machine counter signals (all inputs and outputs are insulated)

Number of counter inputs:	6
Output current pin 7 (max.):	0,15A DC max.
Input voltage (max.):	24V DC
Pulse rate (max.):	10 kHz
Signal voltage - Low:	0V to 5V
Signal voltage - High:	11V to 30V
Input current (typical):	12 mA at 15V DC, 22 mA at 24V DC
Type of interface:	Galvanically isolated by means of optoc-ouplers
Isolation:	2500 V max.
EMC:	in accordance with EN 50082-2/EN 50081-2
Counter modes:	Defined by DIAMES System configuration.

Digital inputs: Up to 8 configurable digital inputs

Number of digital inputs:	8
Output current pin 7 (max.):	0,15A DC max.
Input voltage (max.):	24V DC
Pulse rate (max.):	10 kHz
Signal voltage - Low:	0V to 5V
Signal voltage - High:	11V to 30V
Input current (typical):	12 mA at 15V DC, 22 mA at 24V DC
Type of interface:	Galvanically isolated by means of opto-couplers
Isolation:	2500 V max.
EMC:	in accordance with EN 50082-2/EN 50081-2

Digital outputs: Up to 8 configurable digital outputs

Number of digital outputs:	8
Output current pin 9 (max.):	0,15A DC max.
Output voltage (max.):	10V DC
Signal voltage - Low:	0V to 3V
Signal voltage - High:	9V to 15V
Output current (typical):	20 mA at 10V DC, absolute maximum: 40 mA
Type of interface:	Galvanically isolated by means of opto-couplers
Isolation:	2500 V max.
EMC:	in accordance with EN 50082-2/EN 50081-2

Serial interfaces 2 configurable full-duplex RS232 serial interfaces

Baud-rates:	150/300/600/1200/2400/4800 Baud; transmitter/receiver-rates independently sel.
Output voltages:	+/- 10V across 5kΩ (as per EIA/TIA-232E and V.28)
Input voltages:	+/-2,4V to +/-15V nominally (better than EIA/TIA-232E und V.28), +/-30V max.
Input load:	5kΩ
ESD/EMI protection:	In accordance with IEC1000-4-2, EFT IEC1000-4-3, IEC1000-4-4
Short-circuit protection:	typical current limit per output signal: 20mA

Keyboard and Display	8 keys for manual inputs. The user is guided by a 2 x 40 character alphanumeric LC-display. English, French, or German dialogue language selectable.
Working-conditions	Temperature range: 0° ... 45°C ; Relative humidity: 5 ... 95 % non-condensing. Protection classification: IP 54
Enclosure and Dimensions	Die-cast aluminum enclosure Dimensions (W x H x D): 205 x 175 x 130 mm^3 Weight: app. 2.5 kg
Ext. and user spec. programs	Customer-specific hardware normally requires factory set up. Customer-specific MIC-software is subject to special agreements.

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