AtoMik® Interface Module

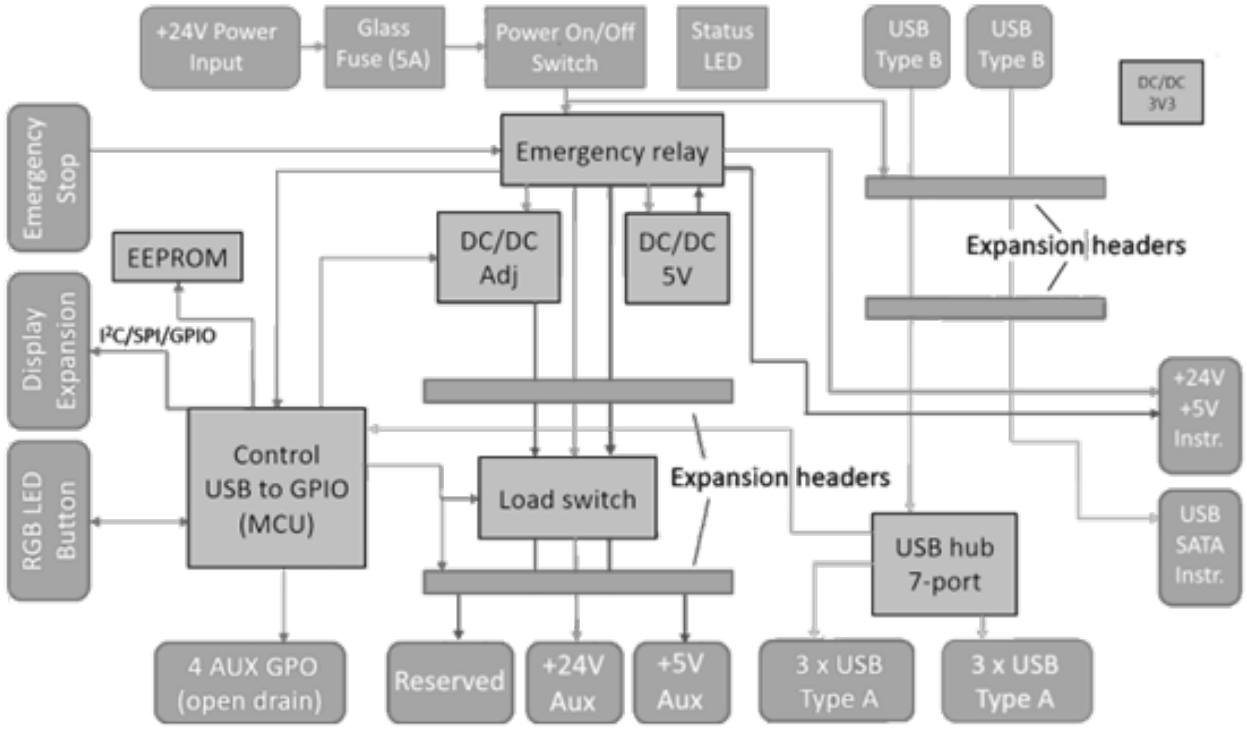
Key Features

- +24V/+5V Power Instruments
- x1 USB Control instruments
- x6 USB Expansion devices
- RGB LED Button control
- Display Expansion
- Emergency Stop
- x4 Open Drain outputs
- +24V/+5V Auxiliary expansion
- Powered by single +24V/5A

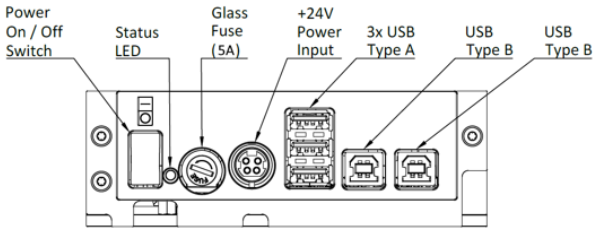
Description

The Interface Module supplies and monitors the system with power and is also the main connection to an external PC host via two USB 2.0 Type B connectors. One USB input is bypassed directly to control the AtoMik® Instruments in the system. The other USB input connects to a built-in USB hub for expansion to control the onboard high-performance Arm® Cortex®-M4 MCU running a RTOS (Real-Time Operating System) and expansion to generic auxiliary USB devices.

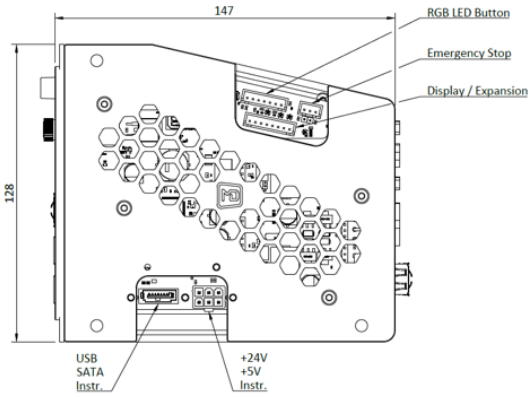
The Interface Module supplies controlled +24V/+5V separately to the AtoMik® instruments and to power expansion of auxiliary devices. A connector with four software-controlled open drain signals is also provided. For enabling a complete test setup an AtoMik® compatible Emergency Stop, RGB LED Button and external display can also be connected and controlled by software.



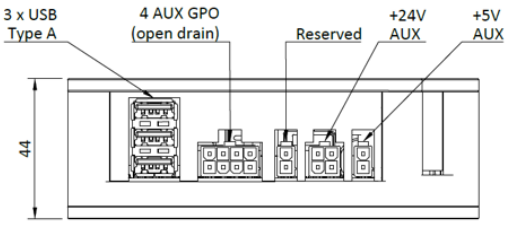
Interface Module Block Diagram



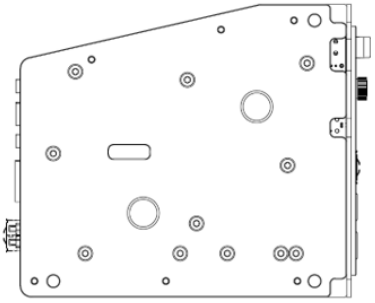
Back View



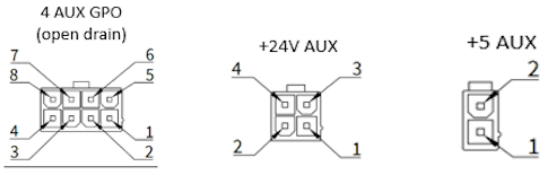
Top View



Front View



Bottom View



Pin	Name	Description
1	AUX_PU3	2.2kΩ pull-up to +3.3V
2	AUX_PU2	2.2kΩ pull-up to +3.3V
3	AUX_PU1	2.2kΩ pull-up to +3.3V
4	AUX_PU0	2.2kΩ pull-up to +3.3V
5	AUX_OD3	Open-drain output
6	AUX_OD2	Open-drain output

7	AUX_OD1	Open-drain output
8	AUX_OD0	Open-drain output

Pin	Name	Description
1	+24V_AUX	+24V Auxiliary Expansion
2	+24V_AUX	+24V Auxiliary Expansion
3	GND	Ground
4	GND	Ground

Pin	Name	Description
1	+5V_AUX	+5V Auxiliary Expansion
2	GND	Ground

Recommended Operating Conditions

Specifications are valid at 25°C unless otherwise noted and with a warm-up time of >10min.

	Conditions	Min	Typ	Max
+24V Input Power Supply Voltage			+24.0 V	
+24V Input Power Supply Quiescent Current			62 mA	
+24V Instruments Output Voltage		+23.0 V	+24.0 V	+25.0 V
+24V Instruments Output Current				+4.0 A[1]
+5V Instruments Output Voltage		+4.75 V	+5.0 V	+5.25 V
+5V Instruments Output Current				+2.0 A[1,2]
+24V Auxiliary Voltage		+23.0 V	+24.0 V	+25.0 V
+24V Auxiliary Current				+1.0 A[1]
+5V Auxiliary Voltage		+4.75 V	+5.0 V	+5.25 V
+5V Auxiliary Current				+1.5 A[1,2]

Auxiliary Open-drain Output Voltage pull-up			+3.3 V	
USB Type A +5V voltage		+4.75 V	+5.0 V	+5.25 V
USB Type A +5V current per port				500 mA[3]
Ripple 5V (Instruments and Auxiliary)	500 mA 4 A			10 mV 40 mV
Ripple 24V (Instruments and Auxiliary)				[4]
Transient response 5V (Instruments and Auxiliary)	10%-90% load			<1 ms
Transient response 24V (Instruments and Auxiliary)				[4]

1. The total allowable power consumption is 118W.
2. Over current protection (OCP) is 5.8A total on instrument and auxiliary 5V.
3. 500mA is per USB standard. Actual over current protection is ~2.4A. Short circuit protected.
4. Dependant on 24V input power supply.

Environmental

The IFM Instrument is designed for following environmental conditions and for indoor use only.

	Min	**Max**
Operating Temperature	0°C	+55°C
Operating Humidity	10% RH	90% RH
Storage Temperature	0 °C	+70 °C
Storage humidity	5% RH	95% RH
Pollution Degree		2

Attachment

3D Model

Ordering information

Item	Part Number
AtoMik® Interface Module (IFM)	APF-1000-A1