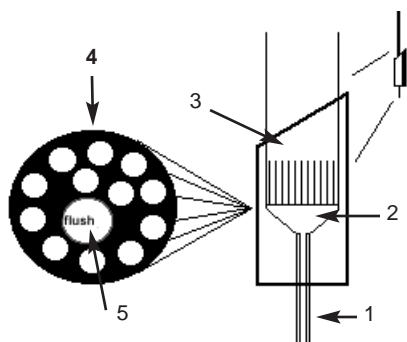


QMM, quartz-coated Micromanifold®

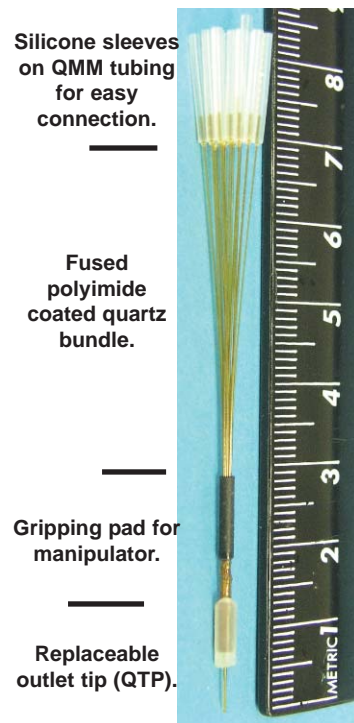
Scientists who need rapid fluid exchange during focal solution application depend on ALA's **QMM Quartz Micromanifold®** because of their sturdy construction, inert surfaces, and minimal dead volume.



1	Detachable outlet tip - replaceable and is available w/standard 100µm i.d. or other sizes.
2	"Dead space zone" - area where all of the tubes converge - volume is ~ 90nl.
3	Silicone sleeve holds QTP tip securely.
4	Cross sectional view which shows 12 tubes and 1 large flush tube
5	Flush tube w/2x i.d. of application solution tubes for rapid "dead space" clearing.

Features of QMM MICROMANIFOLDS®:

- * Flexible, inert polyimide-coated quartz tubing
- * Fused tubing minimizes dead volume (<90nl)
- * Replacement tips extend useful life of manifold
- * Custom configurations available
- * Silicone sleeves for connection to any standard tubing
- * Autoclaveable materials for sterile applications



QMM, Quartz Micromanifolds® utilize inert, damage resistant polyimide-coated quartz microcapillaries. **QMM's** are easy to clean and can be mounted on any manipulator. **QMM's** can be used wherever small volumes (nl to µl) need to be directed at targets such as individual cells. Their small mixing volume yield very fast exchange times. **Micromanifolds®** are also useful in fluid handling systems where small volumes of precious solutions must be brought together to a single output to completely immerse a cell. Since the geometry of the **Micromanifold®** is small, the solution flow over the cell can be changed in less than 5ms. As a result, dose response curves with rapidly desensitizing ligand-gated channels can be performed.

If you need flexible microfluidic applications for your cells or tissue, then the ALA Micromanifold® can serve your toughest applications!

Ordering Information

QMM-4	4 to 1 Micromanifold® 100µm ID tubes & 100µm ID tip
QMM-4wt	4 to 1 Micromanifold® 100µm ID tubes & 100µm ID tip w/FEP-1 tubing
QMM-8	8 to 1 Micromanifold® 100µm ID tubes & 100µm ID tip
QMM-8/1	8 to 1w/flush tube Micromanifold® 8 x 100µm ID tubes, 1 x 200µm ID flush tube & 100µm ID tip
QMM-8wt	8 to 1 Micromanifold® 8 x 100µm ID tubes & 100µm ID tip w/FEP-1 tubing
QMM-8/1wt	8 to 1w/flush tube Micromanifold® 8 x 100µm ID, 1 x 200µm ID flush & 100µm ID tip w/FEP-1 tubing
QMM-12/1	12 to 1w/flush tube Micromanifold® 12 x 100µm ID tubes, 1 x 200µm ID flush tube & 100µm ID tip
QMM-12/1wt	12 to 1w/flush tube Micromanifold® 12 x 100µm ID, 1 x 200µm ID flush & 100µm ID tip w/FEP-1 tubing
QMM-custom	Custom configured Micromanifold® please consult factory for details
QTP-xxx	Replacement tip: xxx=tip ID (100µm standard), y=tip length (5mm standard)

QMM specifications:

Material: polyimide coated quartz
 Typical ID/OD: 100µm/230µm
 other sizes are available
 Typical Flush ID/OD:
 100µm/360µm
 other sizes are available
 Overall length: 3.25"/82.5mm
 Typical dead volume: ~90nl
 specifications are subject to change without notice

MilliManifolds™ & MiniManifolds™

ALA offers two additional types of solution manifolds: **Millimanifold™ (MLF)** and **Minimanifold™ (MMF)**. They are used for solution exchange applications that range from slow whole bath solution exchange to focal application of compounds. These perfusion manifolds are designed for use with gravity-fed systems, such as ALA's **BPS-4xx** or **BPS-8xx** systems, and can be connected to other systems with standard tubing.

Millimanifolds™



MLF-4: 4 to 1 Millimanifolds™



MLF-8: 8 to 1 Millimanifolds™



MLF-16: 16 to 1 Millimanifolds™

Millimanifolds™ utilize similar technology to the QMM **Micromanifold®**. The **Millimanifolds™** use polyimide tubing and offer larger volume. The **Millimanifolds™** do not have a removable tip. They include standard barb fittings that connect to 1/16" ID tubing. The **MLF's** are completely inert, easy to clean, and can be mounted onto any manipulator. They are ideal for focal applications of solutions when applied solution volume isn't critical. Large output diameters (500µm) work well with gravity fed systems. Standard configurations of 4 to 1, 8 to 1, and 16 to 1 are available. Custom variations are also available.

Specifications for MLF:

Material: polyimide tubing, Overall length: 4"/10cm, Tip length: 0.59"/15mm
 ID: 500µm OD: 900µm Dead Volume: MLF-4: ~5µl, MLF-8: ~6µl
 Tubing connections: 1/16"/1.57mm barb fittings

specifications are subject to change without notice

Minimanifolds™

Minimanifolds™ are available in 4 to 1 or 8 to 1 versions. They are designed for bath solution exchange. They are made of ABS plastic. The inlet / outlet connections are made with 1/16" barbed fittings and connect to standard components. The **MMF's** come as a standard part in all of ALA BPS and SPK perfusion systems.



MMF-4: 4 to 1 Minimanifolds™



MMF-8: 8 to 1 Minimanifolds™

Ordering Information for MLF's, MMF's and tubing

MLF-4	Millimanifold™ 4 to 1 500µm ID polyimide tubes with 1/16"/1.57mm barb fittings
MLF-8	Millimanifold™ 8 to 1 500µm ID polyimide tubes with 1/16"/1.57mm barb fittings
MLF-16	Millimanifold™ 16 to 1 500µm ID polyimide tubes with 1/16"/1.57mm barb fittings
MMF-4	Minimanifold™ 4 to 1 with 1/16"/1.57mm barb fittings ABS plastic
MMF-8	Minimanifold™ 8 to 1 with 1/16"/1.57mm barb fittings ABS plastic
CF-1	Compression fitting to connect QMM through FEP-1 to 1/16"/1.57mm ID tubing
CF-2	Compression fitting to connect QMM through FEP-2 to 1/16"/1.57mm ID tubing
FEP-1	Clear Teflon® tubing 230µm ID / 600µm OD - 4 meters - standard tubing on 100µm ID QMM's
FEP-2	Clear Teflon® tubing 380µm ID / 760µm OD - 4 meters
PET-10	Polyethylene tubing - PE-10 type - 4 meters
PET-20	Polyethylene tubing - PE-20 type - 4 meters
TUBING-2	PVC tubing 1/16"/1.57mm ID x 1/8"/3.175mm OD - 10/3 meters

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