

DITAK 5 - THE ACCURATE, ECONOMIC & EASY WAY TO MEASURE RPM, GPM, FPM . . . INDICATE PRODUCTION RATE & DISPLAY FREQUENCY



SELF POWERED SIMPLICITY

The ultra-low power consumption of the Ditak 5 (60 microwatts) opens up vast new application possibilities. In a great many cases the pulse signal source itself has sufficient power content to operate the unit. Alternatively, the Ditak 5 can be equipped with batteries, or power can be supplied from an external source.

ACCURACY

0.1% crystal controlled accuracy with digital readout provides speed measuring precision at a low cost.

SEALED FRONT, RUGGED CONSTRUCTION

Housed in a die-cast metal case, designed for NEMA 4/IP65, the unit can be mounted in tough, industrial environments and withstand oil or water spray. Micro-assembly construction provides high shock and vibration resistance.

VERSATILITY

Ideal for portable and/or fixed in-plant use. Operates with +5 Volt CMOS and TTL circuit outputs and is adaptable to electronic sensor outputs.

ADVANTAGES OF MICRO-ELECTRONICS

The Ditak 5 is a state-of the art rate measuring instrument. Its superior performance/cost ratio sets a new benchmark for the industry. This is made possible by the technology of micro-electronics.

Micro-electronics concentrates as much circuitry as possible into a few monolithic LSI chips. The Ditak 5 utilizes two of these custom chips to encompass more than 99.9% of the required circuit components. These chips are bonded to a substrate carrier and the microscopic electrical connections are made by ultrasonically wire-bonding the chip pads to the gold plated conductors on the substrate. Inter-connections of separate assemblies and components such as the LCD and batteries are accomplished by elastomeric connectors.

RELIABILITY

Large scale integration achieves the ultimate in circuit reliability. The Ditak 5's miniature size provides high immunity to shock and vibration damage. Elastomeric (internal and battery) connections provide gas-tight, corrosion-proof, sealed contacts for trouble free operation.

SMALL SIZE

Micro-electronics allows the display to become the primary determinant of size which means cost savings in panel-shape, weight, power consumption, and functional simplicity.

BEST PERFORMANCE/COST RATIO

Micro-electronics is inherently a highly automated technique which provides the quality, performance, and features needed at a very low cost.

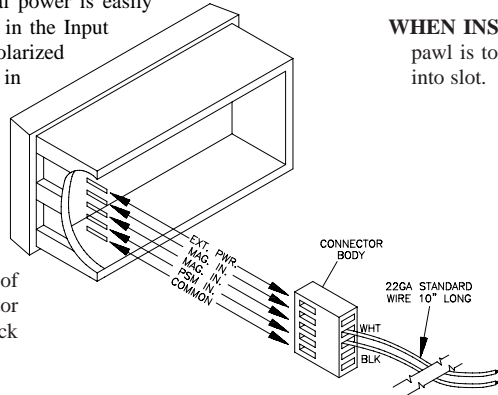
DESCRIPTION OF OPERATION

The Ditak 5 is a combination of a precision counter and a crystal controlled 1-second time base, with liquid crystal display. In operation, the electronic counter accumulates incoming pulses for a period of exactly one second. At the end of this period, the count is transferred and latched on the display. Immediately after transferring the count to the display, the internal counter is reset to zero and begins accumulating a new count. Consequently, the display is updated once a second, and the readout at any one time is the numerical value of the number of counts received in the previous 1-second interval.

The Ditak 5 is basically a frequency measuring device and can be used for direct Hz readout. Many industrial rate parameters, however, are expressed in terms of minutes (gallons/min., feet/min., revolutions/min., etc.) Counting these units for a full minute before presenting a readout takes too much time and is therefore impractical. By using a sensor arrangement that delivers 60 pulses/unit of measure (such as a 60 tooth gear to generate 60 PPR for RPM indication), the Ditak 5 will read out directly in the desired units with a convenient 1-second update time.

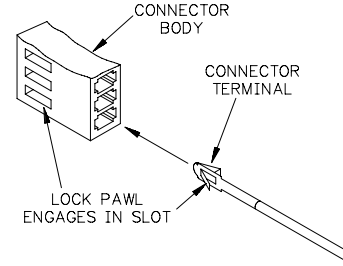
APPLICATION FLEXIBILITY VIA RECONNECT OPTIONS

Selection of desired inputs and external power is easily done by adding or moving terminal leads in the Input Connector Body. The connector body is polarized to prevent incorrect insertion, and locked in place by the battery cover to avoid accidental disengagement. Connectors are supplied with the 2 leads installed as shown below. A spare blue lead is supplied in the hardware pack.



TO REMOVE TERMINAL, insert blade of a small screwdriver into slot of connector body, and gently push in to disengage lock pawl. Pull terminal out.

WHEN INSERTING TERMINAL into connector body, make sure the lock pawl is toward the slot in the body. Push terminal in until lock pawl snaps into slot.



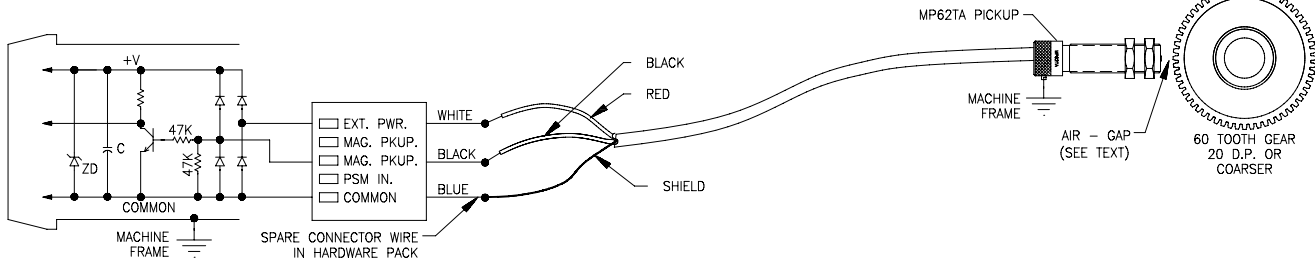
Connector Body, MOLEX P/N 2201-2051
Connector Term, MOLEX P/N 08-50-0114

TYPICAL APPLICATIONS

SELF-POWERED FROM MAGNETIC PICKUP SIGNAL (Using MP62TA magnetic pickup, or ARCJ ring pickup kits)

In this application the Magnetic Pickup supplies both the signal and operating power for the unit. A diode bridge in the Ditak 5 rectifies the A.C. waveform generated by the magnetic pickup to develop the +V operating voltage. The half wave component of this A.C. is applied to the base of the input transistor to generate count pulses. The Zener Diode (ZD) clamps +V to 6.2 V maximum.

With an MP62TA Magnetic Pickup, a 60-tooth 20 D.P. Gear, and an air gap of 0.005", the pickup will begin to develop sufficient voltage to power the Ditak 5 (about 3.5 V peak) at a speed of 175 to 200 RPM. See Magnetic Pickup and ARCJ Ring Kit tables for typical minimum speed parameters of various sizes of Magnetic Pickups and ARCJ Rings.

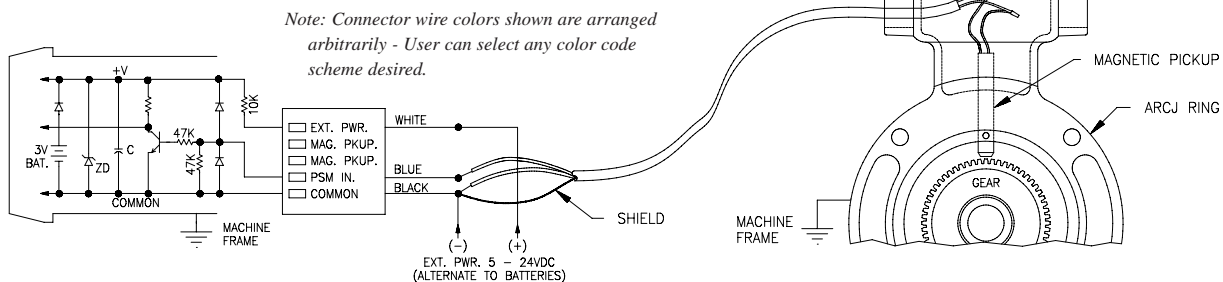


MAGNETIC PICKUP SIGNAL INPUT WITH BATTERY OR EXTERNAL POWER (For extended low speed performance)

Using batteries or an external source to supply power to the Ditak 5, allows the magnetic pickup to be used only as a signal source at low speed. By relocating the connector terminal wires as shown above, the magnetic pickup voltage is applied directly to the transistor input and a signal level of only 0.7 Volts peak is needed for operation. This reduces minimum operating speed to about 25% of the level required for self-powered operation (See Mag. PkUp.

and ARCJ Ring tables).

When batteries are used, current is drawn from the battery only during low speed operation. At high speeds the half-wave rectified magnetic pickup voltage exceeds the battery voltage and the unit again becomes self-powered, to extend battery life. (Nominal battery life, without the high speed power contribution of the magnetic pickup is 3 to 3.5 years).



NOTES ON MAGNETIC PICKUPS

1. Magnetic Pickups generate voltage proportional to the size and speed of passing gear teeth, and inversely proportional to air-gap.
2. Sensing gears used with Magnetic Pickups should run as true as possible. Eccentricity and wobble causes voltage fluctuations that can produce observable display "flicker" at low speeds when pickup power is being used to operate the Ditak 5.
3. Shielded cable is recommended when using magnetic pickups. Connect the shield to the COMMON input pin of the Ditak 5 (A spare BLUE terminal wire in the hardware package may be used to bring out COMMON). Leave the shield unconnected at the sensor end (MP62TA is supplied with shielded

cable, open at the pickup end). The Ditak 5 case should be mounted in a panel which is electrically grounded through the machine frame to the pickup housing of the ARCJ Ring motor.

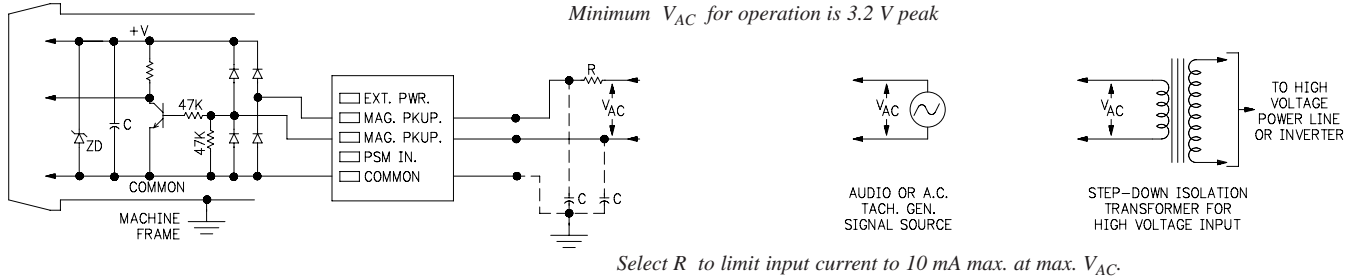
4. Magnetic Pickups have a highly inductive output impedance which limits output voltage and current to a safe level when clamped by the internal zener diode in the Ditak 5. Signal sources with peak voltage in excess of 6 Volts, and having low output impedance, may develop sufficient power to damage the internal zener diode if connected directly. With this type of signal source, use a current limiting resistor as shown in the following application.

TYPICAL APPLICATIONS (Cont'd)

VARIABLE FREQUENCY A.C. INPUTS, SIGNAL SOURCE POWERED

A.C. Signal Sources can be used to operate the Ditak 5 via the Magnetic Pickup Input without batteries or external D.C. power, down to 7 or 8 Hz signal frequency. However, unlike magnetic pickups most A.C. signal sources have low output impedance and require a current limiting resistor if the peak voltage exceeds 6 volts.

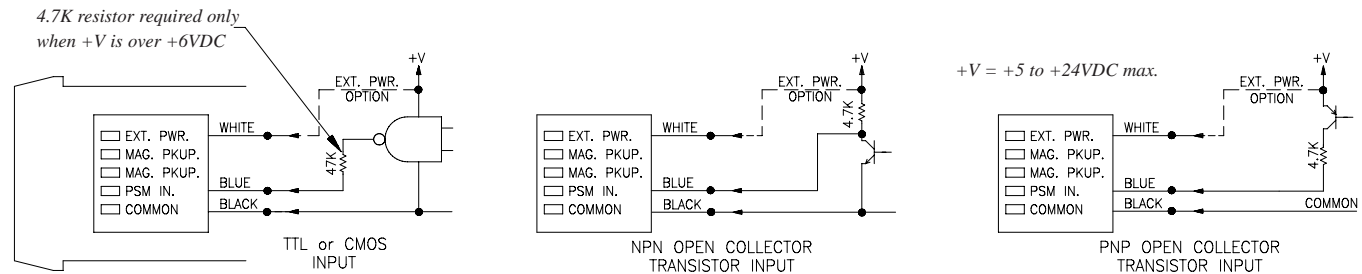
Capacitors shown connected to COMMON by dotted lines may be required when A.C. voltage supply is "noisy". Capacitor values depend on existing conditions but values from 0.01 to 0.1 μf are usually effective. An isolation step-down transformer should always be used when power line or high voltage inverter lines and being monitored.



LOGIC PULSE INPUTS FROM OTHER CIRCUITS & SENSORS

The Ditak 5 easily adapts to a wide variety of pulse signal inputs. The only restriction that must be kept in mind is that a current limiting resistor must be used in series with the input applied to "PSM IN" if the input signal voltage exceeds +6 Volts peak (Limit input current to 10 mA peak). With square wave inputs (50% duty cycle), at frequencies of 15 Hz and above, the Ditak 5 will

operate directly from the power delivered by the signal itself without batteries or external power applied. If the signal is a narrow positive going pulse, or if operation below 15 Hz is required, either external power should be connected as shown, or batteries should be installed.



USE THE DITAK 5 WITH THE MODEL PSMA POWER SUPPLY & INTERFACE MODULE, OR WITH CONVENIENT ELECTRONIC SENSORS FOR EASY APPLICATION TO YOUR SPECIAL RATE MEASURING PROBLEM.

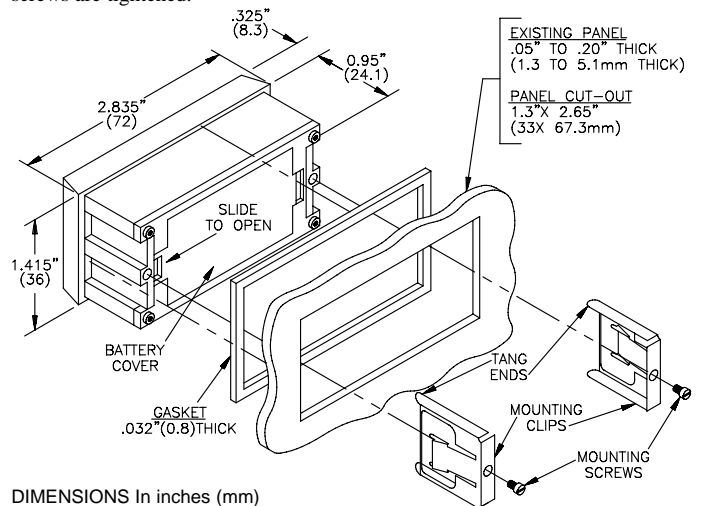
SPECIFICATIONS

- DISPLAY:** 4-digit LCD, 0.35" (9 mm) high
- POWER SOURCE:** Operates from any one of the following:
 - Signal Source Powered:** A.C. or square wave signal inputs with min. peak voltage of 3.5 V @ 150 μA and min. frequency of 15 Hz will operate the DITAK 5 without batteries or external power.
 - Battery Powered:** 2, 1.5 V N-type Alkaline Cells can be inserted if conditions for signal source power cannot be met. Nominal battery life is 3 to 5 years depending on operating conditions.
 - External Power Input:** Operates from external power sources ranging from +5 VDC @ 35 μA to +24 VDC @ 1.8 mA.
- TIME BASE:** 1-second measuring and display up-date interval. Crystal controlled to +0.1%, +1 digit accuracy.
- INPUTS:** Accepts A.C. (\pm polarity swing) signals, or logic pulse inputs. Min. sensitivity when using batteries or external power is 0.7 V peak. Min. sensitivity when self-powered is 3.5 V peak. (See POWER SOURCE, above). Input signal voltages over 6 V peak, require external series resistor to limit input current to 10 mA max.
- MAXIMUM INPUT FREQUENCY:** 10 KHz, 50 μsec min. pulse width.
- OPERATING TEMPERATURE RANGE:** 0° to 50°C (32° to 122°F)
- STORAGE TEMPERATURE RANGE:** 20° to 60°C (-4° to +140°F)
- WEIGHT:** 5.1 oz. (146 g)

DIMENSIONS & INSTALLATION

After cutting the opening in panel, slide the panel gasket over the rear of the case to the back of the bezel. Then slide the case through the panel cut-out. Install mounting clips on each side of counter body with mounting screws.

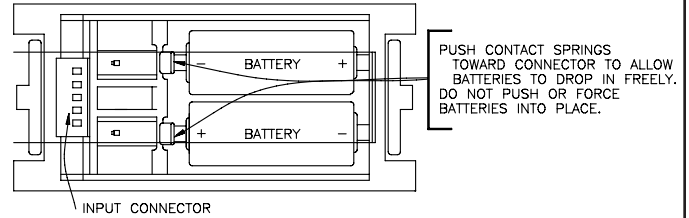
Make sure the side rails of the clips fit into the recesses in the side of the case so that the "Tang Ends" wedge between the panel opening and body as the screws are tightened.



BATTERY COVER REMOVAL & BATTERY INSERTION

Slide battery cover to the left until the right hand lip disengages and pops out. To reinstall cover, insert left hand lips into case first, push cover to the left until right hand lip drops down and cover snaps back into place. Install batteries as shown at right observing proper polarity.

Note: Push battery spring clips to the left (toward connector) to completely free the batteries when removing or installing batteries. Conductive rubber battery contacts can be torn from their retaining pins if batteries are forced in.



Note: Use only Alkaline "N" cells.

ORDERING INFORMATION

MODEL NO.	DESCRIPTION	PART NUMBER
DT5	Ditak 5 Electronic Tachometer	DT500000
BNA	"N" Type Alkaline Batteries (Note 1)	BNA00000
HWK2	Spare Hardware Kit (Note 2)	HWK20000
ICA	Spare Input Connector & Terminal Wires (Note 3)	ICA00000

For more information on Pricing, Enclosures & Panel Mount Kits refer to the RLC Catalog or contact your local RLC distributor.

NOTES

- Batteries **NOT** supplied with Ditak 5, order separately, 2 required per unit.
- Ditak 5 supplied with one hardware kit, includes 2 mounting clips and screws, panel gasket, 2 wire nuts and blue terminal wire.
- Ditak 5 supplied with connector body and black and white terminal wires. Kit ICA includes connector body and one each of black, white, blue, and yellow terminal wires.

ACCESSORY MAG. PICKUPS & NEMA "C" FLANGE ADAPTER KITS FOR USE WITH DITAK 5

ORDERING INFORMATION FOR MAGNETIC PICKUPS

MODEL NO.	DIMENSIONS	TYPICAL MINIMUM SPEEDS FOR OPERATION WITH DITAK 5		PART NUMBER
		SELF POWERED (See Note 1 & 3)	BAT. OR EXT. PWR. (See Note 2 & 3)	
MP-25TA		NOT Recommended	500 RPM	MP25TA00
MP-37TA		800 RPM	240 RPM	MP37TA00
MP-37CA		800 RPM	240 RPM	MP37CA00
MP-62TA		200 RPM	60 RPM	MP62TA00
MP-62TB		450 RPM	150 RPM	MP62TB00
—	SENSING GEAR, 60-TOOTH, 20 D.P. 3.1" DIA., 0.375" BORE, 0.875" WIDE WITH HUB	N/A	N/A	0970375

MODEL ARCJ - NEMA "C" FLANGE MOUNTED MAGNETIC PICKUP KITS (Kits include Adapter Ring, Mag. Pickup, Gear, & Mounting Bolts)

ORDERING INFORMATION

MODEL NO.	MOTOR FRAME SIZE	TYPICAL MINIMUM SPEEDS FOR OPERATION WITH DITAK 5		PART NUMBER
		SELF POWERED (See Note 1 & 3)	BAT. OR EXT. PWR. (See Note 2 & 3)	
ARCJ-1A	56C	700 RPM	240 RPM	ARCJ1A00
ARCJ-1B	143TC, 145TC, 182C, 184C	700 RPM	240 RPM	ARCJ1B00
ARCJ-2A	182TC, 184TC, 213C, 215C, 245C	400 RPM	120 RPM	ARCJ2A00
ARCJ-2B	213TC, 215TC, 254UC, 256UC	400 RPM	120 RPM	ARCJ2B00
ARCJ-2C	254TC, 256TC	400 RPM	120 RPM	ARCJ2C00

NOTES

- Pickup connected to Magnetic pickup input terminals of Ditak 5 for self-powered operation. (See applications, previous page)
- Pickup connected to PSM-IN and COMMON terminals for battery or EXT POWER operation. (See applications, previous page)
- All pickups tested with 60 tooth 20 D.P. gear, 0.005" air gap.